

National Treatment in the GATT/WTO¹

Henrik Horn

Institute for International Economic Studies, Stockholm University
The Research Institute of Industrial Economics, Stockholm
Centre for Economic Policy Research, London

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Abstract

The academic literature on GATT/WTO focuses on its role in reducing border measures. Much of the critique of the GATT/WTO in the policy debate instead points to the restrictions that it imposes on internal policy measures. The basic legal instrument to restrict internal policy choices in the various WTO agreements is the National Treatment clause (NT), which can also be found in all major regional trade agreements. The purpose of this paper is to initiate an investigation of the role of the basic incarnation of NT in the GATT/WTO – Art. III GATT as it applies to internal taxation. The paper shows that despite severely restricting the freedom to set internal taxes, NT may improve government welfare. But it will not completely solve the incomplete information problem that it is meant to remedy. Also, with the strict interpretation of NT that is suggested by the case law, there is an inherent problem in its construction: it requires trade negotiators to be forward-looking, taking into account the implications of tariff setting for future taxation. This fundamentally contradicts what seems to be the main reason why the contract is incomplete in the first place: the inability of negotiators to foresee future regulatory needs.

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1 Introduction

Two very different perspectives on the virtues and vices of the World Trade Organization (WTO) are pitted against each other in the policy debate. Some see the WTO as reaching deep into the economies of its Members, significantly constraining governments' sovereignty to freely determine domestic regulations that affect, for instance, health and the environment, with unclear or negative impact on many of the countries involved. A much more positive view instead holds that the WTO is essentially a vehicle to reduce border measures, such as tariffs, quotas, and export subsidies. While acknowledging that trade liberalization may have negative effects on certain income groups, adherents of this view mostly believe that it yields aggregate gains. This view, cherished by economists and many policy makers, is also consonant with the economic literature on trade agreements, which typically sees trade agreements as means to escape Prisoners' Dilemma problems with regard to trade instruments, possibly complemented with rules for renegotiation of bindings, and for the resolution of trade disputes.

The literature on trade agreement is not really equipped to address the validity of the above-mentioned critique of the WTO, however, since it largely neglects the impact of agreements and provisions in the WTO that seek to influence domestic policy making (we will point to some exceptions below). In particular, there is to the best of our knowledge no analysis of the impact of the central WTO provision with this aim: the non-discrimination principle of *National Treatment* (NT), which loosely speaking requires that foreign products once imported are given at least as favorable treatment as "like" domestic products. NT is a core undertaking in the WTO in almost all areas, and for instance appears as Art. III in the General Agreement on Tariffs and Trade 1947 (henceforth the "GATT"), as Art. XVII in the General Agreement on Trade in Services, and as Art. 3 in the Agreement on Trade-Related Intellectual Property Rights.¹ These provisions cover virtually *every* governmental policy of the currently 147 Members of the WTO, whether it is a tax, law, regulation, etc., as long as it affects the conditions for sale and distribution, widely interpreted, of imported goods,

¹NT provisions can also be found in virtually every other trade agreement, such as in a number of Chapters of the North American Free Trade Agreement, and as it concerns taxation in Art. 90 of the Treaty of Rome. Also, Art. 301 NAFTA stipulates that "Article III of the GATT and its interpretative notes...are incorporated into and made part of this Agreement".

services, and intellectual property. What more, as will be explained below, NT provisions cover not only explicitly discriminatory internal measures, but also measures that indirectly have such consequences. Since NT may potentially constrain not only protectionist use of internal measures, but possibly also on their use for legitimate reasons, the validity of the critique of the WTO cannot be assessed without a careful analysis of the ramifications of this provision. The purpose of this paper is to initiate an investigation of the role of the basic incarnation of NT in the WTO – Art. III GATT as it applies to internal taxation.²

An economic analysis of NT is warranted not only from a policy point of view, but also from a more narrow theory point of view. Absent such a provision, members of a trade agreement would typically be free to impose whatever domestic taxes they desired, and could therefore legally undo any tariff agreement to the extent they found this desirable. It is difficult to see why countries absent NT could not impose, for instance, specific sales taxes for imported and domestic products.³

Yet another reason why economic analysis of NT is called for is the fact that the case law on NT in the GATT/WTO lacks coherence and economic (as well as legal) logic. It appears as if an important reason is the lack of a conceptual framework in which to interpret the text. Economic analysis could therefore play a vital role in steering future case law in an economically speaking more desirable direction.

What is then the role of NT in the GATT? The GATT clearly treats internal measures very differently from border measures. The latter are largely explicitly regulated; for instance, tariff levels are bound, import and export quotas as well as export subsidies are prohibited, etc. Internal measures, on the other hand, are left to be determined unilaterally by the contracting parties. The reason is not simply uncertainty, since this could be dealt with through state-contingent contracts. Instead, it seems clear that such complex state-contingent contracts are infeasible due to the costs of writing and enforcing them, and the difficulty to foresee all regulatory needs that may arise. For these reasons the contract will be incomplete, leaving to the members to unilaterally determine internal policies with significant externalities on trading partners. But the agreement cannot leave internal instru-

²Throughout the paper, GATT refers to the core of the WTO agreement on trade in goods, and not to the organization that was superceded through the creation of the WTO.

³The only possible deterrent in the GATT would be the threat of a so called “Non-Violation Complaints”. But as argued below, there are reasons to believe they are not likely to serve this purpose very well.

ments completely unregulated, since this would enable countries to use internal measures to undo whatever restrictions are agreed upon regarding border measures. NT is the first line defense against such behavior, and must thus be understood as an attempt to *remedy problems caused by incompleteness of the agreement*.

This is obviously not the first paper to investigate consequences of contractual incompleteness in the context of trade agreements. Copeland (1990) analyzed the impact of trade agreements in a case where governments have access to imperfect substitutes to the policies bound through agreements. Kyle Bagwell and Robert W. Staiger have in a number of papers considered various aspects of the contractual incompleteness of the GATT. In particular, Bagwell and Staiger (1999) analyzes the impact of renegotiations (as allowed for under Art. XXVIII GATT) on the stability of negotiated outcomes. Wilfred J. Ethier has also in several papers looked at the consequences of contractual incompleteness for the optimal design of a trade agreement, and the dispute settlement system is highlighted from this perspective in Ethier (2002).

Closer to the present analysis, both in terms of issues addressed and model employed, is that of Ederington (2001). Ederington assumes that each of two countries levies a tariff and also has access to a domestic policy instrument that imperfectly substitutes for the tariffs. Domestic production is associated with a negative externality, providing a welfare rationale for the domestic tax, which at the same time can be used for protectionist purposes. It is shown that the tax is nevertheless set at a non-distortionary level, both in the case of one-shot, non-cooperative setting of tariffs and taxes, as well as in the case of a self-enforcing agreement on tariffs and taxes, supported through grim trigger strategies in an infinite repetition of the one-shot game.

In the papers mentioned above, the governments have access to a single domestic policy instrument, and these papers can therefore shed little light on the impact of NT in reducing discrimination. But two recent papers explicitly consider international agreements to counter discrimination. Battagli and Maggi (2003) examines the role of international agreements on product standards. It is shown how the incompleteness of the trade agreement provides a role for a central dispute settlement mechanism. While there are similarities between this setup and the one here, there are also significant differences. In particular, the emphasis here is on the interaction between tariff liberalization and domestic tax setting under NT, whereas

in their model there is no tariff setting stage. Also, the interest here mainly focuses on the ability of NT to handle situations where there are inherent differences between domestic and foreign products, while in their setup there are no such differences.

Closest to the present paper is probably Pienaar (2004) that examines the role and impact of the Sanitary and Phytosanitary (SPS) Agreement in the WTO, the agreement regulating government measures toward health risks in foodstuffs. A basic idea in the SPS Agreement is that there should be a certain consistency in how governments treat risks associated with domestic and foreign products, a notion that in spirit is closely related to NT. But while sharing certain methodological similarities, the two papers focus on entirely different issues.

Finally, it should be emphasized that this paper heavily relies on the legal analysis of Art. III.2 GATT disputes in Horn and Mavroidis (2004), as well as on the vision of the working of NT developed there.

The content of the paper is as follows. The economic framework in which we are to consider the impact of NT is laid out in Section 2. Section 3 very briefly summarizes the main elements of the text and the case law on NT in the GATT as it applies to taxation. Our aim is to capture NT as far as possible as it is interpreted in the context of the GATT. This is not a trivial task, however. The language of Art. III is vague, and the case law lacks transparency, logic and consistency.⁴ Also, the effective reach of Art. III depends on the General Exceptions clause in Art. XX. Section 3 formally defines NT, and shows how Art. III and XX are likely to jointly stipulate a strict standard according to which taxation of foreign products should not exceed that on highly substitutable domestic products, regardless of the reasons for differential taxation.

Section 4 analyzes implications of NT for given tariffs. It shows that a marginally binding NT provision will indeed support an agreement on tariff reductions, and increase government welfare. But it also argued that a further strictening of NT may reduce welfare.

Section 5 considers the impact of strict NT in a standard type of incomplete contract setting, where tariffs are negotiated before countries unilaterally determine internal taxes, and where trade negotiators are fully forward-looking. It is shown that NT indeed enhances government welfare in this context. It is also argued that while a trade agreement under NT will reduce total taxation of foreign products, it will not necessarily reduce tariffs.

⁴“Art. III” will be used to denote Art. III GATT, etc.

Section 6 discusses limitations in the reach and the construction of NT. As shown, a strict NT standard cannot be expected to fully resolve the incomplete contract problem even under the ideal circumstances of perfectly forward-looking trade negotiators, and with a complete set of tariffs. It is also argued, and this is a central observation in the paper, that there is a fundamental problem with NT as a solution to the incomplete contracting problem: *it requires tariff negotiators to have access to information at the tariff setting stage that would allow them to contract internal measures directly.*

Section 7 concludes.

2 The economic framework

The general situation we have in mind is the following. As standard in the literature, the purpose of a trade agreement is to help countries out of a Prisoners' Dilemma-like situation in tariff setting. A trade agreement is a long-term contract, partly due to the significant administrative efforts required to conclude a negotiation round. By necessity, the agreement is incomplete, leaving internal measures to be determined unilaterally by the countries. These measures can be adjusted to take account of any tariff level negotiators may have agreed upon. To restrict the possibility for countries to use these instruments for beggar-thy-neighbor purposes, the agreement comprises an NT provision that restricts the freedom of countries to discriminate between imported and domestic products in their internal taxation. But taxes are also suitable instruments to achieve legitimate (non-protectionist) objectives. The question thus arises of whether and when the NT constraint is warranted in the sense of increasing governments' *ex ante* welfare.

To set the stage for a presentation of the law, let there be two countries, Home and Foreign. Home produces a good X and imports a close substitute Y from Foreign. Home also exports a good to Foreign which is closely related to a good produced in Foreign, but for most part we can concentrate on the Home country import sector.⁵ Governments have access to both tariffs, τ and τ^* for the Home and Foreign country tariff respectively (Foreign are distinguished by superscript * throughout the paper), and to internal taxes. The Home country internal tax on the domestic product is r and its internal tax on the imported

⁵The assumptions of two products and two countries are inessential.

product is s . The total tax burden on the imported product is thus $t = s + \tau$.⁶

Sales of the two products depend on the total taxation of the two products. It is naturally assumed that the tax on the domestic product decreases sales of this product $X(r, t)$ and increases sales of the Foreign product $Y(r, t)$, and conversely for the total tax on the Foreign product:

$$X_r < 0; X_t > 0; Y_r > 0; Y_t < 0$$

It is also assumed that total sales fall as a result of a tax increase,

$$X_i + Y_i < 0; i = r, t$$

and that an equally large increase in either of r or s reduces both X and Y ,

$$X_r + X_t < 0, Y_r + Y_t < 0$$

There are a large number of market structures that would be compatible with this setup. For instance, this could be an international oligopoly selling the same homogenous or (slightly) differentiated product in two segmented markets, Home and Foreign. Or, the products could be sold under conditions of perfect competition.

Government welfare is taken to be additively separable in welfare derived from the domestic sources and from exports. For the Home country government it is expressed as

$$\begin{aligned} w &= V(r, t) + \Pi(r^*, t^*) \\ &\equiv W(r, t, r^*, t^*) \end{aligned}$$

Government welfare derived from the export market could for instance result from profits made abroad, or the political payoff from the employment generated by exports; we will stick to the former interpretation for simplicity. Profits in the Foreign market depends on the total taxation in the Foreign country, $\Pi(r^*, t^*)$, and it is assumed that a Foreign tax on its

⁶For simplicity we let tariffs and taxes to be both either specific, or *ad valorem*. In the latter case the tax on the foreign product is applied net of the tariff. This is to avoid interactions between tariffs and taxes that seem to be of less interest to the issues at stake here. See footnote [WHERE?] for a more extensive discussion of the choice of tax instruments.

domestic product increases Home country profits, that taxation of the Home country exports reduces profits, and that an equal increase on both products reduces exports earnings:

$$\Pi_{r^*} > 0, \Pi_{t^*} < 0, \Pi_{r^*} + \Pi_{t^*} < 0 \quad (1)$$

Government welfare derived domestically is represented by the function $V(r, t)$. It includes welfare from in the form of consumer and producer surplus, government revenue, etc.. It also includes possible disutility from consumption externalities.

It should be noted that the model above can be seen as compatible with a richer framework where the domestic and the imported products give rise to a number of policy-relevant consequences k_1, \dots, k_n in the domestic market. These could include consumer welfare, profits of the domestic firms in the domestic market, government revenue, consumption externalities, etc.. Differences between the two products in how they contribute to these consequences then creates incentives for differential national tax treatment. Some of these reasons may be legitimate also from a global efficiency point of view, while some may be of a beggarthy-neighbor nature. Assuming that these consequences depend on the volumes X and Y , $k_i = \hat{K}^i(X, Y)$, they can be expressed as functions of total taxation of each product,

$$\begin{aligned} k_i &= \hat{K}^i(X(r, t), Y(r, t)) \\ &\equiv K^i(r, t) \end{aligned}$$

The function V can thus be assumed to subsume these different product features.

The assumed separability in the government welfare function implies that the framework is one of partial equilibrium, contrary to what is assumed in much of the literature on trade agreements. This has an obvious drawback in that it neglects the general equilibrium ramifications that trade agreements are likely to have, at least when formed between asymmetric countries. The general equilibrium assumption would also provide a consistency in the model between negotiators' perceived and "actual" economic environment. But there are also advantages with the partial equilibrium setting. First, it seems as more descriptive of actual trade negotiator behavior than the assumption that negotiators take general equilibrium effects into account. Even if there is possibly an awareness of the fact that factor prices might change in response to trade policy changes, the understanding of how they will change is likely to be very limited. One should not expect of negotiators in multilateral

trade negotiations, who are often trade diplomats with little if any training in economics, to understand such implications, nor are home administrations likely to do so. After all, in the Uruguay Round, these negotiations involved in some 100 members, and while some of them negotiate only a limited number of tariff lines, the major members each have more than 10 000 different lines. (Even a trade economist might feel uncomfortable predicting such effects once leaving the two factor, two good model...) Second, the partial equilibrium obviously simplifies matters analytically since in a general equilibrium framework, each country's unilaterally optimal total tax rates would depend on the tax levels in the other country. Such interaction between taxes would complicate the analysis but do not seem to be of primary importance for the issues at stake here.

As mentioned above, the impact of NT will be considered in a setting where countries first bargain over tariffs and then set taxes. As an occasional benchmark, we will use aggregate or "global" welfare⁷

$$W^G(r, t; r^*, t^*) \equiv W(r, t; r^*, t^*) + W^*(r, t; r^*, t^*)$$

where $W^*(r, t, r^*, t^*)$ is the Foreign government welfare. To ensure interior solutions to the governments' decision problems, and their bargaining problem, we will follow the literature and simply assume that the bargaining and maximization problems involved have unique interior solutions. In particular, it is assumed that

$$\begin{aligned} W \text{ and } W^G \text{ are strictly concave in } (r, t) \\ W^* \text{ and } W^G \text{ are strictly concave in } (r^*, t^*) \end{aligned} \tag{A1}$$

An "own effects dominate" assumption will also be made, to the effect that an equal small increase in both taxes will reduce the marginal tax impacts W_r and W_t :

$$W_{ir} + W_{it} < 0; \quad i = r, t \tag{A2}$$

⁷In the special case where the countries' reservation welfare levels are the same, an agreement will plausibly maximize the joint welfare of the two governments. For instance, suppose the outcome is given by Nash bargaining solution, with a common level of government welfare \bar{w} in status quo. The solution with regard to any tariff or tax μ is given by $\max_{\mu} (W(\mu) - \bar{w})(W^*(\mu) - \bar{w})$, which with symmetric welfare functions requires that the solution is such that $\frac{dW(\mu)}{d\mu} + \frac{dW^*(\mu)}{d\mu} = 0$; that is, the solution maximizes the aggregate welfare W^G .

A sufficient condition for this to hold would be that $W_{rt} < 0$, given the assumed concavity of W .

Finally, to capture the incompleteness of the contract, the standard approach of assuming that the interaction is in two stages is employed. In the first, countries may form a trade agreement including tariff bindings, and possibly an NT provision. Governments' ability to commit to such an agreement is taken for granted throughout. In the second stage, countries unilaterally decide on their internal taxes, possibly constrained by a NT provision. These assumptions will be discussed below.

2.1 The problem NT is to address

In the absence of any form of agreement, countries will choose tariffs and taxes so as to

$$\max_{r,s,\tau} W(r, s + \tau; \cdot)$$

An internal solution to this problem, denoted (r^u, t^u) , is hence given by

$$\begin{aligned} W_r(r, s + \tau) &= 0 \\ W_t(r, s + \tau) &= 0 \end{aligned}$$

with a symmetric condition for the foreign country. In order for NT to potentially have a role to play, the focus is on situations where it is optimal from a unilateral point of view to levy a higher total tax on foreign than on domestic products, i.e., where

$$r^u < t^u \tag{A3}$$

Suppose that countries instead form an agreement on tariffs, leaving taxes unregulated. With tariffs set at some level $\hat{\tau}$ during trade negotiations, the taxes will be set so as to

$$\max_{r,s} W(r, s + \hat{\tau}; \cdot)$$

Since the purpose of the tariff bargaining is to reduce the total taxation of the imported product, it will not be optimal to set $\tau > t^u$ in the tariff negotiation stage. It is easy to see that as long as $0 \leq \hat{\tau} \leq t^u$, the total taxation of the two products will be identical to what

it was absent the trade agreement, since for any tariff τ , the tax on the imported product will be set such that $s = t^u - \tau$, and $r = r^u$. Therefore, any agreement on tariffs will be completely undone by adjustments in the tax on foreign products:

Observation 1 *A tariff agreement has no impact absent some form of regulation of domestic taxation.*

The fact that the Prisoners' Dilemma-like problem is not confined to tariffs, is analytically trivial, of course. But it highlights the fact that the efficiency of the instruments included in the trade agreements to counter these problem is central to outcome of such agreements. The whole literature on trade agreements has implicitly assumed that the agreements under study contain mechanisms that entirely offset the incentives to use internal instruments for protectionist purposes. The question is whether the GATT/WTO manages to achieve this, and if not, what type of inefficiencies should one expect the to see? In order to address this issue, we first have to establish salient features of the law.

3 Modeling NT

As mentioned, the NT provisions in GATT are found in Art. III. The paragraphs of direct relevance to taxation in this article are the following (emphasis added):

III.1 The Members recognize that internal taxes ... should not be applied to imported or domestic products *so as to afford protection* to domestic production.

III.2 The products of the territory of any contracting party imported into the territory of any other contracting party shall not be subject, directly or indirectly, to internal taxes or other internal charges of any kind *in excess* of those applied, directly or indirectly, to *like* domestic products. Moreover, no contracting party shall *otherwise* apply internal taxes or other internal charges to imported or domestic products in a manner *contrary to the principles set forth in paragraph 1*.

Finally, there is an Interpretative Note to the last sentence:

A tax conforming to the requirements of the first sentence of paragraph 2 would be considered to be inconsistent with the provisions of the second sentence only in cases where competition was involved between, on the one hand, the taxed product and, on the other hand, a *directly competitive or substitutable* product which was not similarly taxed.

To determine the effective ambit of Art. III one also has to take account of Art. XX, which contains an exhaustive list of General Exceptions applicable to any other Article in the Agreement, and hence also Art. III. From a regulatory point of view, the probably most interesting grounds for exceptions are that (emphasis added)

...Subject to the requirement that such measures are not applied in a manner which would constitute a means of arbitrary or *unjustifiable discrimination* between countries where the same conditions prevail, or a *disguised restriction on international trade*, nothing in this Agreement shall be construed to prevent the adoption or enforcement by any contracting party of measures:

- (a) *necessary* to protect public morals;
- (b) *necessary* to protect human, animal or plant life or health; ...
- (d) *necessary* to secure compliance with laws or regulations which are not inconsistent with the provisions of this Agreement....

As can be seen, it is a far from obvious how to formalize these provisions. We will argue however, that the most natural formalization is a strict dictum for taxes levied on foreign products to not exceed those levied on domestic products, irrespective of the underlying motives for discrimination; what will be referred to as a *strict NT standard*. Such an interpretation is motivated by a number of reasons.⁸

⁸There may be an overlap between the Agreement on the Application of Sanitary and Phytosanitary Measures (SPS) and the GATT with regard to measures for the protection of human, animal or plant life, and some such measure would fall under the SPS Agreement rather than the GATT. It would take our discussion too far into mostly uncharted legal territory to determine the exact boundary between the two.

3.1 The case law suggests a strict NT standard

A first reason pointing towards a strict NT standard is the case law on Art. III in the context of taxation. This case law is thin, but is unusually consistent by the standards of the GATT/WTO.

A first consistent theme is that Art. III applies only to cases where products are closely related – they are “like” or “directly competitive or substitutable” (DCS). The set of like product pairs has in case law been interpreted as a strict subset of the set of DCS product pairs. In taxation disputes, these concepts have largely been interpreted as referring to demand substitutability as indicated by econometric or, more commonly, non-econometric evidence.

Second, one should expect the implementation of Art. III to be substantially complicated by the desire to distinguish between protectionist and legitimate reasons for discriminatory taxation. The first paragraph indeed restricts the attention to situations where Members use their domestic policy instruments “so as to afford protection”. But the case law has consistently argued that it is the second paragraph that contains the substantial obligation, which is that there should be no taxation “in excess” in the case of like products.⁹ Conversely, any taxation in excess is considered to be “so as to afford protection” in the case of like products.

Third, Art. III definitely applies to *de jure* discriminatory taxation, where the tax distinction is based on national origin. It is also inconceivable that such taxation would be granted an exception under Art. XX, and it is consequently definitely illegal under the GATT. But, it is important to note that Art. III applies to taxation of *products* and not product *characteristics*. To see the importance of this, consider for a moment the case where the products are associated with a number of consequences or characteristics k_1, \dots, k_n . Let α_i (α_i^*) denote the contribution per unit of X (Y) to consequence i . Assume that the governments can impose linear internal taxes on the product characteristics; let the Home

⁹Matters are more complicated when it comes to DCS products, however. The text here explicitly refers back to Art. III.1, with its central concept “so as to afford protection”. The interpretation of this phrase thus becomes crucial, but case law has on this point been extremely vague. But it seems to view tax differentials by more than a *de minimis* amount (where the exact magnitude is yet to be determined), as an indication that the “so as to afford protection” criterion is fulfilled, and thus illegal under Art. III.

country tax on characteristic i be denoted q_i^H per unit of i for the Home product and q_i^F for the imported product, and let q^H and q^F denote the vector of the respective taxes. The total internal tax on the Home and Foreign product is, respectively,

$$\begin{aligned} r &= \sum_{i=1}^n q_i^H \alpha_i \\ &\equiv R(q^H) \end{aligned}$$

$$\begin{aligned} s &= \sum_{i=1}^n q_i^F \alpha_i^* \\ &\equiv S(q^F) \end{aligned}$$

According to Art. III it does not suffice that tax vectors q^H and q^F are identical. Art. III also covers *de facto* discriminatory schemes, i.e., origin-neutral schemes that yield higher taxation of foreign products by taxing certain product characteristics higher than other. That is, Art. III applies also to taxes such that $q_i^H = q_i^F = q^i$ for all i , but $R(q^H) < S(q^F)$.

The reason for letting the ambit of Art. III include *de facto* discrimination is easy to see: if it were allowed, a government could achieve any desired level of taxation of the two products by an appropriate choice of the common vector (q_1, \dots, q_n) as long as the number of distinguishable characteristics is at least as large as the number of products among which the government makes tax distinctions (disregarding non-negativity constraints on taxes). The economic implication of also including *de facto* discrimination in the ambit is thus what matters is only total internal taxation, i.e., the levels r and s , the structure of the vector q is immaterial (as long as the intent behind measures is not taken into account under Art. III).

The central term “necessary” has so far not been interpreted in any Art. XX taxation case in the WTO. But it was interpreted in taxation cases during the GATT era, and it has repeatedly been interpreted in the context of Art. III.4 cases – Art. III.4 addresses discriminatory measures other than taxation. The typical meaning given to “necessary” is “*least trade restrictive*”, a concept that plays a central role in GATT/WTO case law in general. This concept has occasionally been qualified with the term “reasonably available”. Case law has not given any meaning to this vague term so far. The only more concrete determination that we are aware of is that administrative costs associated with alternative

measures do not necessarily make them “unreasonable”. It seems plausible that the same criteria that have been applied to Art. III.4 cases would be applied in taxation cases.

The case law has laid down an important difference between Art. III and Art. XX, which is the distribution of the burden of proof. The burden to prove a violation of Art. III falls on the complaining country. This burden is rather light in the case of taxation, since it only requires the complainant to establish likeness (or a DCS relationship) and differential taxation. In contrast, in the case of an Art. XX exception, the responding country has to show that the conditions for an exception are fulfilled. It thus has to show that the measure is not a disguised restriction on trade, that the measure is on the Art. XX list, and that it is necessary.

To summarize, according to the text and case law:

1. Art. III applies to taxation of products, regardless of whether the tax distinction is *de jure* or *de facto*.
2. Any less favorable tax treatment of an imported good compared to a domestically produced is illegal under Art. III if the product is like (or if it is more than a *de minimis* amount when products are directly competitive or substitutable).
3. Either case of discrimination could still be legal provided that the taxes are the “least trade restrictive” way of achieving an objective listed in Art. XX (possibly restricted to measures that are “reasonably available”), but must not constitute “disguised protection”.

3.2 The limitations of Art. XX exceptions

There are reasons to believe that the door generally opened by Art. XX effectively remains shut in the case of Art. III.2 cases. In order to for measures to be exempted under Art. XX they have to pass two tests – “necessary” and “not disguised protection” – and there are principle reasons to believe that the case law interpretation of these imply a strict NT standard.

3.2.1 The restrictive case law interpretation of “necessary”

A first reason why the Art. XX option may not admit discriminatory taxation follows from the case law interpretation of “necessary” as “least trade restrictive”. To see why, let us make the following natural definition:

Definition 1 (Necessary) *A pair of taxes (r, s) such that $r < s$ is “necessary” to achieve the level $k^i = K^i(r, s + \tau)$ of some policy goal i if $\nexists (r', s')$ s.t. (i) $r' \geq r$ and $s' \leq s$; (ii) $Y(r', s' + \tau) > Y(r, s + \tau)$; and (iii) $K^i(r', s' + \tau) \leq K^i(r, s + \tau)$.*

That is, the taxes are necessary if there is no less discriminatory way of achieving at least as low a level of the externality, while admitting more imports. Disregarding the “reasonably available” qualification due to its unclear practical relevance, the case law interpretation of the NT obligation in GATT, which involves both Art. III and Art. XX, can be formally summarized as:

Definition 2 (Strict NT) *Any pair of taxes (r, s) such that $r < s$ is illegal if the stated objective k^i is not on the Art. XX list, or if the taxes are not “necessary” to achieve the level $K^i(r, s)$ of this objective.*

The combined effect of Art. III and XX is thus to exonerate any discriminatory measure that aims to achieve a stated level of an objective on the Art. XX list as long as it is the least trade restrictive way of achieving this level.

This might at a first glance appear as rather permissive, since it allows countries to choose whatever level of the policy objective they want; all it requires is that when choosing a particular level, this is done in the most import-friendly manner possible. But the “least trade restrictive” criterion, when taken seriously, will actually be very restrictive: Consider a case where the alleged objective of a measure is on the Art. XX list, and where hence a higher tax on the foreign product could potentially be allowed and where a discriminatory pair of taxes $\hat{r} < \hat{s}$ are imposed to attain a level $\hat{k}_i \equiv K^i(\hat{r}, \hat{s})$ of the policy objective i . An increase in r to \hat{s} would reduce X and increase Y , and reduce total consumption. If the externality problem would be reduced, we would have established that the pair (\hat{r}, \hat{s}) is not “necessary”. However, if the negative externality is primarily associated with the

foreign product, it might worsen as a result of this increase in r . If so, by now increasing both taxes with the same amount, consumption of both products will fall, and by increasing the taxes to \bar{s} , defined by $K^i(\bar{s}, \bar{s}) \equiv \hat{k}_i$, a non-discriminatory scheme with the same level of the externality, but with more imports, is achieved. Hence, according to the logic of the necessity test, if the country wanted to achieve the level of externality \hat{z} , both taxes should be set to \bar{s} .

3.2.2 The difficulty to verify not “disguised restriction”

To verify an Art. III.2 violation, a complaining country only has to demonstrate that products are like and that the tax levied on the foreign product is higher than that on the domestic product. If the regulating country in response wants to claim an Art. XX exception, it has to prove that its measure, in addition to being necessary, is intended to achieve an objective on the Art. XX list, and furthermore that it is not “disguised protection”. There is a fundamental reason why this is likely to be an onerous task in the context of Art. III disputes: An important reason for the existence of Art. III is the difficulty for adjudicating bodies to verify true government preferences even *ex post* the realization of events calling for regulatory intervention. The very same problem will exist also in the context of an Art. XX evaluation of an Art. III taxation issue.

The difficulty of verifying the true motives behind discriminatory taxation will lead to judicial mistakes. As always, the adjudicator may err by forbidding a measure that should be legal (“Type I” error), or allowing a measure that should be forbidden (“Type II” error). It is hard to determine more precisely the frequency of these two types of errors. But it seems likely that to the extent that adjudicators seek to maintain a meaningful test of intentions, that Type I errors are likely to be more prevalent. Also, to the extent that we are interested in the critique of the WTO as constraining internal regulation too far, we are mainly interested in the consequences of Type I errors. The fact that these errors are equivalent to maintaining a too rigorous NT standard provides another reason to consider the impact of strict NT.

To conclude, the case law interpretation of the term “necessary” and the burden of proof to show a measure is not disguised protection, strongly suggest that discriminatory taxation is illegal, regardless of alleged motive – what will be referred to as a “strict NT standard”. What might possibly suggest a softer standard would be the “reasonably available” qualifier

that has occasionally been added. But due to the highly amorphous nature of this term, and the lack of economically meaningful case law interpretation, a strict NT standard seems to be the natural starting point for an economic analysis of NT in the GATT.

Finally, the strict NT standard might seem to impose an unwarranted restriction countries' sovereignty to regulate the domestic economy, in that does not allow a member to tax foreign products heavier than domestic like products even if foreign products are of more concern from a regulatory point of view. But it should be recalled that internal taxation is part of a larger tax scheme that includes also trade taxes. Countries have complete freedom when negotiating their tariff bindings to maintain high tariffs on imports associated with negative externalities. The NT provision only requires that once the tariff levels are determined through negotiations, internal taxation is not used to undo what has been negotiated. Consequently, in order to evaluate the impact of NT on the ability to pursue regulatory objectives, we have to take account of any interplay between NT and tariff setting.

4 The upside

This section will focus on consequences of strict NT under "ideal" circumstances. To this end we start by considering its impact for constant tariffs, and then let tariffs be determined through negotiations.

4.1 The impact of NT for given tariffs

Consider for a moment a NT restriction of the form $s \leq r + n$, where n parametrizes the degree of strictness of the standard. The restriction will bind for $n < t^u - r^u - \tau$, and it will capture a strict NT standard when $n = 0$. Assuming that the constrain is binding when the Home country sets its taxes, the Home country problem is

$$\begin{aligned} \max_{r,s} W(r, s + \tau; \cdot) \\ \text{s.t. } s = r + n \end{aligned} \tag{2}$$

The first order condition is

$$W_r(r, r + n + \tau, \cdot) + W_t(r, r + n + \tau, \cdot) = 0 \tag{3}$$

which defines the optimal tax $r = R(m)$, where $m \equiv n + \tau$ and $m \leq t^u - r^u$. This expression shows the basic mechanism of the NT provision, which is to make taxes blunter instruments of protection, by making it impossible to tax the imported product independently of the domestic product. Differently put, *NT introduces a distortion from the point of view of national policy making*. It reduces the possibility to discriminate for beggar-thy-neighbor motives, but also to address problems of legitimate policy concern associated with imported products. This has to be set against the gain NT creates through increased market access abroad.

As a direct measure of whether NT creates overall gains, consider the effect on aggregate government welfare $W + W^*$ of a NT provision imposed on the Home country, or alternatively, the implication for Home government welfare of NT being imposed on both Home and Foreign:

Proposition 1 *The imposition of a marginally binding NT clause unambiguously increases government welfare for a constant tariff, regardless of the motive for the tax regulation. But a further tightening of the NT standard may reduce welfare.*

Proof: Taking into account 3, the first-order effect of a tightening of the NT regime is given by

$$\frac{d}{dn}[W(R(m), R(m) + m, r^*, t^*) + W^*(r^*, t^*, R(m), R(m) + m)] = W_t + \frac{d}{dn}\Pi^*$$

There are thus two opposing effect. There is a tendency for welfare in the domestic market to fall ($W_t(r^u, t^u) \leq 0$) while Foreign firms gain ($d\Pi^*/dn = (\Pi_r^* + \Pi_t^*)R_m > 0$), unless they are in a corner solution. Starting in a situation where the restriction just binds, $W_t = 0$, and there will be positive first order effect via the increase in Π^* . For reductions in n at $R(m) > r^u$, $W_t < 0$, and depending on the reason for the discriminatory taxation, may dominate the positive effect on Foreign profits. ■

Note that the welfare gain from a marginal tightening of NT does not stem from reduced discrimination *per se*, but from the fact that the Home country taxes in the absence of NT are globally inefficient. That is, a marginal reduction in s and a marginal increase in r would increase global welfare also when $r^u > s^u$ and $\tau = 0$, even though this would in this case increase tax discrimination. Hence, the gain does not depend on the degree of “legitimacy”

of the regulation, but stems from the neglect of foreign interests in the determination of the taxes.

Proposition 1 presumes that tariffs are constant. But the purpose of the provision is to give more bite to support a tariff agreement. We therefore turn to its impact on tariff negotiations.

4.2 Strict NT with forward-looking trade negotiations

Equation (3) determines the tax on the domestic product as a function R of the tariff, for a strict NT standard ($n = 0$). Differentiation yields:

$$R_\tau = -\frac{W_{tt} + W_{tr}}{W_{rr} + W_{tt} + 2W_{rt}} \begin{cases} < 0 \\ > -1 \end{cases}$$

The signs here follow from (A2). Hence, a reduction in the tariff leads the importing country to increase the tax on the foreign product, but by less than the full amount of the tariff reduction, since the tax increase will also apply to domestic products by the NT provisions.

It was seen above that for constant tariffs, the imposition of a marginally binding NT provision increases global welfare, but that a strict NT standard may or may not do so depending on the motive for the tax discrimination. But matters are different when tariffs are set through efficient forward-looking negotiations. With efficient we mean that in the negotiated solution a small change in a tariff cannot have a zero first-order effect on one country and a non-zero first-order effect on another country; an efficient bargaining format should enable the parties to achieve this.

Proposition 2 *The inclusion of strict NT in an efficient, forward-looking tariff agreement reduces total taxation of the foreign product, increases taxation of the domestic product, and increases welfare of both parties.*

Proof: There are no incentives to set tariffs such that $\tau > t^u$, since this would lead to too high taxation of the foreign product. For any $t^u \geq \tau \geq t^u - r^u \equiv \tau^u$, the importing country can choose its unilaterally optimal tax on the imported product unconstrained by NT. The outcome will thus be the same as with no NT. To see that there will be an incentive to

reduce τ below this value, note that at $\tau = \tau^u$, $W_r = W_t = 0$, but

$$\frac{dW^*}{d\tau} = W_r^* R_\tau + W_t^* [1 + R_\tau] < 0$$

where the sign follows from $W_r^* > 0$, $R_\tau < 0$, $W_t^* < 0$, and $1 + R_\tau > 0$. Such a situation is inefficient, and the negotiated solution will therefore feature $\tau < \tau^u$. Let τ^n denote the negotiated value under strict NT. $\tau^n < \tau^u$ implies that $r^n = R(\tau^n) > R(\tau^u) = r^u$, and $t^n = R(\tau^n) + \tau^n < R(\tau^u) + \tau^u = t^u$. The strictly positive welfare impact follows by definition from the fact that the efficient outcome differs from $\tau = \tau^u$. ■

The Proposition thus establishes that a strict NT standard may serve its intended role of protecting a tariff agreement from being completely undermined by subsequent opportunistic tax changes, thereby increasing welfare of the parties to the agreement.

It does not necessarily follow from the above that negotiated tariffs are lower than they would be absent NT, however. To see this, note that the precise manner in which taxes and tariffs are affected by an introduction of a tariff agreement comprising NT, depends on the “division of labor” between tariffs and taxes at the outset. For instance, compare the following settings: In the first, non-discriminatory taxes are used already before the trade agreement is implemented ($r = s = r^u$, and $\tau = t^u - r^u$). The tariff will then fall as a result of the trade agreement, and the internal taxation of both products increases. In the other setting, taxes are the only means of protection at the outset ($r = r^u$, $s = t^u$, and $\tau = 0$) NT will be binding with the trade agreement, so $r = s = r^n$, $\tau = t^n - r^n > 0$. Hence, in this case the tariff will increase as a result of the trade agreement, since the agreement also constrains taxation.¹⁰

Corollary 1 *A trade agreement including a strict NT provision does not necessarily reduce tariffs, but reduces total taxation of imported products.*

This feature is more general than the particular formalization of NT in this paper. It follows from the fact that a trade agreement must include NT in order to be effective. As a result, the agreement is not only an agreement on tariffs, but also on taxes. The impact of the

¹⁰Trade negotiations within already existing agreements, such as the rounds in the GATT/WTO, would lead to reduced tariffs.

agreement on tariffs therefore depends on how taxes and tariffs would be set in a situation without an agreement.

An important feature of the working of NT in the above analysis is that it requires that *regulatory problems with regard to imported products to be taken account of in trade negotiations*. To the extent that these problems have been dealt with through internal taxes, the responsibility is hence shifted from taxes to tariffs. NT thus tends to separate the responsibility for addressing externality problems according to their sources. When problems stem from domestic products, internal taxation can be used to correct for any distortions, since higher taxation of domestic products than of imported products is legal. On the other hand, when problems are mainly due to imported products, tariffs have to be relied upon.

This observation is not very interesting analytically, but is more so from a policy point of view since it implies that internal taxation will have a somewhat counter-intuitive feature. To illustrate, suppose that there is a negative externality from consumption of the imported product, and the intensity of this effect is increasing in a parameter k (we will in a moment be more specific about how it is defined). We can then write the equilibrium tax as $r = R(k, \tau(k))$. For a given tariff level, there will be a direct effect of the intensity of the externality on the internal taxes: typically, the more severe is the externality problem, the higher will be the common tax to counter this problem. But the severity of the externality problem will also affect the incentives of trade negotiators. If a worsened externality increases the tariff (which seems plausible), this will yield a tendency for the common tax to *fall*, thus counteracting the direct effect and making the total effect indeterminate.

In order to get more determinate results, we turn to a simple linear version of the model where the countries are mirror images of each other. In each of the two markets there is a domestic and a foreign firm producing a possibly differentiated product in volumes x and y , respectively, at zero marginal costs, and competing in Cournot fashion. There is also an outside good consumed in quantity h . Consumer welfare and product demand are based on a utility function $U(x, y) + h$, where U is quadratic

$$U(x, y) \equiv x + y - \frac{1}{2}x^2 - \frac{1}{2}y^2 - bxy$$

with $b \geq 0$ measuring the substitutability between products. Governments are assumed to maximize social welfare, consisting of the sum of consumer welfare, profits of Home firms

earned in the Home and the Foreign market, and government revenue, and minus a negative externality that is linear in the import volume ky . The following is established in the Appendix:

Observation 2 *In the linear model, the more prone to damage the environment the imported product is (the higher is k), the lower is the environmental tax under NT.*

The reason for the feature that the internal tax on imports will be *lower* the more severe are the environmental problems from imports, is that the environmental problem is taken account of in the tariff negotiation stage. The more severe is the externality problem, the less imports, and the more consumption of the domestically produced good will be optimal. To achieve this, the tax on the latter product is reduced. But this requires a lowering of the tax on the imported product as well due to NT. The total taxation of the imported product is therefore increased through a more than compensating increase in the tariff.

We find Observation 2 interesting from the point of view of the policy debate. Not only does the trade agreement increase imports, and thus externalities associated with imports.¹¹ It will also be the case that in a cross-section of otherwise identical industries, due to the NT requirement there will be lower environmental taxation the *worse* imports are from an environmental point of view. The virtue of such an arrangement is likely to be a hard sell in the policy debate.

4.3 NT and the Most-Favored Nation obligation

In addition to NT, the GATT and the other agreements in the WTO comprise the non-discrimination principles of Most-Favored Nation (MFN), which outlaws discrimination between trading partners for like products. NT and MFN are complementary, in that the former addresses internal measures while the latter is concerned with border measures. But there are differences between the two. First, NT has an important role to play already in the context of bilateral agreements, whereas MFN only kicks in when there are at least three countries. Second, by directly extending the arguments above to a multi-country framework, we can see that NT is essential in order also for a multilateral tariff agreement to be effective, whereas it could be effective absent MFN.

¹¹We do not allow for abatement levels to be affected through policy.

A third difference is that NT introduces MFN-like features as a by-product, while the opposite does not seem to be the case. To see this, consider NT in a case with three countries, A, B and C. Suppose that A imports a product from both B and C, and that it produces a product that is like to both of the products that are imported (the two foreign products are not necessarily like). Absent an agreement on NT, A may want to tax the two imported products differently from the domestic product. But, NT would imply that the tax treatment awarded to the product from B must also be awarded the product from C.

Observation 3 *NT tends to extend the MFN principle of equal treatment of trading partners to also apply to internal policy measures.*

5 The downside

Proposition 2 established circumstances under which a strict NT standard will unambiguously increase welfare. However, there are a number of reasons why one should not expect strict NT to completely resolve the incomplete contracting problem. We will in this section discuss some of these problems, gradually proceeding toward increasingly serious critique of the construction of NT.

5.1 Strict NT does not fully resolve the incomplete contract problem even under “ideal” circumstances

As we will discuss below, Proposition 2 rests on some questionable assumptions. But strict NT will not restore full efficiency even accepting these assumptions.

A first limitation of Art. III is that it only applies to situations where a foreign product is treated worse than a *like* domestic product. Hence, *NT does not put any discipline on domestic instruments in cases where is no like (or DCS) domestic product.* The incentives to impose tariffs are of course likely to be weaker when the output of the domestic industry is not so closely related. But with the very strict interpretation of, in particular, like, but also DCS, there will be situations where Art. III does not apply, but where there still are considerable motives for protection.

A second limitation of NT is that *its ambit is restricted to situations where countries would unconstrained set $r < s$* . Contrary to what is often alleged in the policy debate, there is nothing special with non-discriminatory taxation from an allocational point of view, unless products are in *all* respects identical. It may well be the case that the domestic product should be taxed higher than the imported product. But the provision will not be able to enforce such an outcome since it only applies as long as $r < s$.

A third deficiency of strict NT, still within the context of the model above, is that it will fail to implement the first best even when the efficient solution features $r < s$, and there exists a like domestic product. This inefficiency will show up as excessive taxation of both imported and domestically produced goods:

Proposition 3 *There will be a too high level of total taxation of both the domestic and the foreign product under strict NT.*

Proof: For the first best (r^e, t^e) to be implemented under NT, it must simultaneously be the case that $R(\tau) = r^e$ and $R(\tau) + \tau = t^e$, requiring $\tau^e = t^e - r^e$. By the first-order conditions (3), and assumption (1),

$$W_r(r^e, r^e + \tau^e) + W_t(r^e, r^e + \tau^e) > 0$$

since at (r^e, t^e)

$$\begin{aligned} W_r + W_t &= -(W_r^* + W_t^*) \\ &= -\frac{d\Pi^*(r, r + \tau)}{dr} > 0 \end{aligned} \tag{4}$$

where the inequality sign stems from the assumption that the profit in the export market would fall as a result of an equal increase in both taxes.

The concavity of $W(r, r + \tau; \cdot)$ in (r, t) then implies that the unilaterally optimal response to τ^e must exceed r^e , $R(\tau^e) > r^e$, and thus that $T(\tau^e) = R(\tau^e) + \tau^e > r^e + \tau^e = t^e$.

If the trade agreement stipulates $\tau > \tau^e$, then $r = R(\tau) < R(\tau^e)$. But it will not be welfare maximizing to increase τ to the point where $R(\tau) < r^e$, since a reduction in τ would then move both r and t in the right direction, since $t = T(\tau) > T(\tau^e) > t^e$. Hence, it must be the case that $r = R(\tau) > r^e$ and $t = T(\tau) > t^e$ for any optimal $\tau \geq \tau^e$.

If the agreement instead stipulates $\tau < \tau^e$, then $t = T(\tau) < T(\tau^e)$. But it cannot be welfare maximizing to set τ so low that $T(\tau) < t^e$, since an increase in τ would then move both r and t in the desired direction, since $r = R(\tau) > R(\tau^e) > r^e$. Hence, it must be the case that $r = R(\tau) > r^e$ and $t = T(\tau) > t^e$ for any optimal $\tau < \tau^e$.

We have thus established that $r^n > r^e$ and $t^n > t^e$. ■

Propositions 2 and 3 jointly imply that NT will tend to force the total taxation of the foreign product in the right direction by lowering it below t^u , but that it will not get it down to the desirable level t^e . That is, letting (r^n, t^n) denote the equilibrium under NT, $t^e < t^n < t^u$. Since $r^u > r^e$ will not arise in this model, NT will tend to change the tax on domestic products in the right direction, but will “overshoot” the target, so $r^u < r^e < r^n$.

It should be emphasized that the fact that NT does *not* completely resolve the incomplete contract problem is at odds with much of the existing literature on the trade agreements, and on the GATT in particular. Since it is very hard to defend the assumption that countries do not have access to domestic taxes that can closely substitute for tariffs absent NT, this literature seems based on the assumption that NT painlessly solves the problem in the background. But this is a highly questionable assumption as we have seen.

A noteworthy implication of Proposition 3, and of the fact that $R(\tau) > r^e$ and $T(\tau) > t^e$ for any optimal $\tau < \tau^e$, is that the tension between trade and tax liberalization will not be entirely eradicated under NT:

Corollary 2 *Strict NT will not implement zero total taxation when this is globally desirable ($r^e = t^e = 0$). Both internal taxes would be strictly positive if a zero tariff were agreed upon in such a case.*

The inefficiency of the agreement under strict NT highlighted here disregards the mechanism highlighted in Ederington (2001). One way of phrasing Ederington’s (2001) finding is to say that the problem caused by the contractual incompleteness with regard to domestic instruments can be resolved, or at least eased, through repeated interaction, something which is not allowed for here.¹² While certainly a pertinent observation from a theory point

¹²This is not exactly what is shown in Ederington (2001), since the production tax is chosen efficiently also in the one-shot, non-cooperative game. Strictly speaking, the repetition of the interaction thus rather maintains the efficiency than restores it.

of view, we are somewhat uncertain about how important this mechanism is empirically. Such an equilibrium requires that the parties are able to identify and punish deviations. But an important reason why NT is part of the agreement are the difficulties for adjudicating bodies to verify *ex post* the true intentions of the countries imposing discriminatory taxation, and these informational problems are likely to exist to a significant extent also for trading partners. But, it does seem plausible that dynamic aspects of the interaction would tend to at least partly mitigate the problems pointed to here.

5.2 Tariff distinctions may not be fine enough

Proposition 2 assumes that tariff negotiations take full account of the impact of the change in taxation imposed by NT. As was stated in Proposition 1, if tariffs are not responsive, strict NT may instead reduce welfare. One reason for such a lack of responsiveness is the fact that tariff bindings often are made at more aggregate levels than those at which domestic regulation, and thus NT, operate. A tariff line (the statistical definition of the set of products to which a particular tariff applies), thus often comprises a number of similar but not identical products, where the extent of similarity under a tariff heading often is independent of whether the products are identical from a regulatory perspective. The negotiated tariff must therefore weigh the impact from the different products under the same heading, thus creating a limited lack of responsiveness in the tariff to the condition of any specific product. The welfare gains established in Proposition 2 are thus not assured in such cases.

5.3 A fundamental weakness of NT as a solution to the incomplete contracting problem

The incomplete contracting literature suggests several reasons why contracts may be incomplete: costs of writing complex contracts, costs of enforcing such contracts, difficulties in describing relevant future contingencies, etc.. All of these seem to contribute to explain why the GATT/WTO contract is incomplete, leaving to members to unilaterally determine internal measures. The role of NT is to limit the resulting *ex ante* and *ex post* inefficiencies. As argued, for constant tariffs, the imposition of a strict NT standard might lower welfare of the contracting parties. But with fully forward-looking trade negotiators, strict

NT unambiguously increases welfare.

There seem to be a fundamental problem with the NT construct however, to the extent it relies on tariffs to address regulatory problems stemming from imported products: this construction requires that trade negotiators are able to foresee the future regulatory needs that will arise. But this assumption is fundamentally at odds with a main *raison d'être* of the NT provision, which is the *inability* to foresee future regulatory problems:

Observation 5 *There is an inherent problem with strict NT as a solution to the incomplete contracting problem, in that it presumes information at the tariff negotiation stage that is typically not available.*

A simplistic way of capturing the consequences from the negotiators' inability to foresee the implication of tariffs for internal taxation is to consider a situation between the one described in Proposition 1, where tariffs are constant, and the one in Proposition 2, where tariffs are set with perfect foresight, by assuming that negotiators take into account the "direct" effects of tariff reductions, but not those working through induced changes in internal taxation. Assuming that the outcome of the tariff negotiations is given by the solution to a Nash bargaining problem between two symmetric countries (this symmetry inessential), the negotiated solution to the Home country tariff is given by:¹³

$$V_t + \Pi_t^* + (\Pi_r^* + \Pi_t^*)R_\tau = 0$$

The difference between negotiations with a myopic and a forward-looking government is hence captured by the last term. Since this term is positive, it follows from second-order conditions that:

Observation 4 *Myopic negotiators will agree on lower tariffs than fully forward-looking negotiators.*

¹³The bargaining problem is given as the solution to

$$\max_{\tau, \tau^*} [V(r, s + \tau) + \Pi(r^*, s^* + \tau^*) - \bar{W}][V^*(r^*, s^* + \tau^*) + \Pi^*(r, s + \tau) - \bar{W}^*]$$

where $r = s$ under strict NT, and where a forward looking government would also take into account the fact that $r = R(\tau)$ and $r^* = R(\tau^*)$.

Intuitively, myopic negotiators do not take account of the fact that a tariff reduction will increase the total level of internal taxation. The cost of this neglect will be nil as it concerns the domestic market, due to subsequent tax setting. But this adjustment of taxes will impose a first-order cost on the foreign country.

It is very tempting to draw strong inferences from this Observation. After all, the inability to foresee future regulatory decisions is what motivates NT in the first place, and the assumption that trade negotiators have simplistic mind-sets surely has an intuitive appeal to many observers. However, the Observation is based on the assumption that negotiators know the structure of the *ex post* welfare function, since they take into account the direct impacts of tariffs, and this seems to contradict the story about what gives rise to the contractual incompleteness. There is thus a basic problem with the model of the incomplete contracting problem.

The problem pointed at here is not specific to our specific formulation of incomplete contracting. Instead there are basic problem with the foundations of models of incomplete contracting. Various aspects of these problems are discussed in Maskin and Tirole (1999), and Tirole (1999). For instance, they show circumstances under which a standard argument for contractual incompleteness – unforeseen contingencies – do not suffice to cause an inefficient outcome under the rationality postulate of (forward-looking) dynamic programming that is typically maintained in models of incomplete contracting. It is not clear whether their findings apply directly to the context of trade agreements, but the more general point of there being a tension between rational forward-looking behavior and arbitrary restrictions on the set of feasible contracts, seems highly relevant. That is, not only is NT an inherently problematic response to the incomplete contract problem, but our modeling of the consequences of such incompleteness is also beset with serious problems. This is not to say contracts are not incomplete, of course. What it says is that our understanding of how exactly the incompleteness arises is imperfect.

5.4 Why Non-Violations Complaints are unlikely to solve the incomplete contracting problem

As emphasized above, it seems as if an important reason for the incomplete contracting problem is the inability of negotiators to specify in sufficient detail what would be legitimate reasons for discriminating against foreign products, and the manner in which this should be allowed. It could be argued, however, that the GATT already contains a legal instrument that could solve this problem – so called “Non-Violation Complaints”. There are reasons to believe that they will not be very effective, however.

The grounds for a complaint in the GATT are specified in Art. XXIII, which distinguishes between two basic types of complaints. Naturally, it allows for complaints alleging that specific provisions of the agreement are being violated; such “Violation Complaints” constitute the vast majority of complaints in the WTO. The basic rule for such complaints is that the complaining country has the burden of proof to make a *prima facie* case for a violation. An alleged breach of Art. III hence falls under this category. The second type of complaints, Non-Violation Complaints (NVC), But a party can also file a complaint that a trading partner has acted in a manner that although not explicitly forbidden under the agreement, still violates its spirit.¹⁴ According to Art. XXIII, a valid reason for a complaint is that a Member considers

... that any benefit accruing to it directly or indirectly under this Agreement is being nullified or impaired or that the attainment of any objective of the Agreement is being impeded as the result of ... the application by another contracting party of *any measure, whether or not it conflicts with the provisions of this Agreement, ...*

The NVC instrument is closely related to NT in that they both target measures that are not explicitly contracted. The NVC instrument is of a much more sweeping nature, however. Depending on its interpretation, it seems as if the NVC instrument could render NT superfluous: *any* protectionist use of an internal instrument could be attacked as violating

¹⁴There is a third type of complaint – a “situation complaint” – but it is generally believed to lack application.

the spirit of the agreement, denying the exporting country what it could legitimately expect from the agreement. NVCs could then be used as a catch-all solution to the incomplete contract problem. What more, this could be done *ex post* the decision has been taken by the government. There is this in principle no need to specify in advance what is allowed or not, the contract could simply request parties to behave in the interest of the membership as a whole.

NVCs have in practice not been a panacea to deal with internal measures, however. In the very few disputes where adjudicating bodies have had the possibility to express their views of NVCs, a very restrictive attitude has been taken, and complainants have not succeeded to fulfil the burden of proof. Complaints concerning internal measures have instead almost invariably been based on alleged violations of Art. III. The reason is, we believe, the difficulty of verifying government preferences even *ex post*. These are exactly the same difficulties that motivated the simple strict interpretation of NT, which is expressed in terms of verifiable entities such as tax rates and possibly import levels, leaving to the importing country to prove the legitimacy of any deviation. NVCs, on the other hand, requires proofs concerning motives for regulation, and this is much more burdensome. Just like no complainant has so far managed to prove that its reasons for deviating from NT were justified, no NVC-based dispute has been won either; in both cases due to the difficulty in verifying government preferences.

Observation 6 *Non-violations complaints are not likely to be effective deterrents against protectionist use of internal instruments.*

5.5 Art. XXVIII renegotiations

A second legal instrument that may mitigate the inefficiencies from the strict NT is a renegotiation of tariff bindings under Art. XXVIII. Such a renegotiation requires that the country increasing its tariff on a particular good offers “substantially equivalent” reductions on other tariffs. This instrument seems to have more to offer as a solution to *ex post* inefficiencies. But in practice it has not been used since 1955 more than on average perhaps once per year by the members of the GATT and now the WTO.

[TO BE EXPANDED: renegotiation and incomplete contracts,...]

6 Concluding remarks

The starting point of this paper is the observation that international agreements on tariffs are meaningless unless supported by some form of discipline on the use of internal measures. In major trade agreements this discipline is provided by National Treatment provisions. The essential mechanism of NT is to make internal instruments blunter tools for protectionism. The purpose of this paper has been to highlight some fundamental aspects of the NT obligation in the GATT/WTO, as it applies to internal taxation.

The main observations are the following:

- The rationale behind Art. III is the incompleteness of the contract with respect to internal measures.
- The case law interpretation of Art. III and Art. XX suggests a strict application of NT, which effectively rules out any differential taxation to the disadvantage of imported products. The main indication to suggest a less strict application is the reference to measures that are “reasonably available”, a term which has hitherto not been defined by adjudicating bodies.
- Strict NT may improve government welfare in the case of forward-looking trade negotiators.
- Strict NT will not completely eradicate the problem caused by incomplete contracting even under the ideal circumstances, however. In particular, total taxation of both domestic and imported products will be too high under strict NT.
- For the very same reason that the contract is not complete in the first place, trade negotiators are not likely to be forward-looking in the relevant sense. There is thus an inherent deficiency with strict NT as a solution to the incomplete contracting problem, since it tends to shift the burden to regulate imported products on to trade negotiators.

Finally, it should be clear from the above that NT is highly likely to importantly affect the possibility to impose higher taxation on foreign products than on their domestic counterparts. The GATT/WTO *is* in this sense about more than reduction of border barriers. But this is

not to say that the drawbacks of NT that are pointed to in the “downside” part of the paper necessarily dominate its positive aspects. Strict NT may still increase government welfare, despite restricting countries’ freedom with respect to internal measures.

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A Appendix: The linear model

In each of two markets there is a domestic and a foreign firm producing a differentiated product in volumes x and y , respectively, at zero marginal costs. There is also an outside good consumed in the amount h by the representative consumer. The consumer's welfare is:

$$\nu = U(x, y) + h$$

where

$$U(x, y) \equiv x + y - \frac{1}{2}x^2 - \frac{1}{2}y^2 - bxy$$

With a unitary price for the outside good h , the budget constraint is $h = I - px - qy$, where I is the exogenous consumer income (which is sufficiently large to cover expenditures).

The demands are

$$X(p, q) \equiv \frac{1 - b + bq - p}{1 - b^2}$$
$$Y(p, q) \equiv \frac{1 - b + bp - q}{1 - b^2}$$

yielding the gross indirect utility

$$u(p, q) \equiv \frac{1}{2(1 - b^2)}(2 - 2b + 2bpq - p^2 - q^2)$$

Inverse demands are on the standard form

$$p = 1 - x - by$$
$$q = 1 - bx - y$$

and the profits are

$$\pi = (1 - x - by - r)x$$
$$\pi^* = (1 - bx - y - t)y$$

Equilibrium given taxes and tariffs:

$$X(r, t) \equiv \frac{2 - b + bt - 2r}{4 - b^2}$$
$$Y(r, t) \equiv \frac{2 - b + br - 2t}{4 - b^2}$$

$$\begin{aligned}
P(r, t) &\equiv \frac{1}{4 - b^2}(2 - b + bt + 2r - b^2r) \\
Q(r, t) &\equiv \frac{1}{4 - b^2}(2 - b + br + 2t - b^2t) \\
\Pi^*(r, t) &\equiv \frac{(2 - b + br - 2t)^2}{(4 - b^2)^2} \\
\hat{U}(r, t) &\equiv \frac{1}{2(4 - b^2)^2}(24 - 16b - 2b^2 + 2b^3 + (-8 + 8b - 2b^2)r \\
&\quad + (-8 + 8b - 2b^2)t + (3b^2 - 4)r^2 + (3b^2 - 4)t^2 - 2b^3tr)
\end{aligned}$$

The two governments maximize national social welfare, measured as the sum of consumer welfare, profits at home and abroad, and government revenue, and also taking into account an externality from imports. Hence, for the Home government

$$\begin{aligned}
w &= U + (I - px - qy) + (p - r)x + \Pi(r^*, t^*) + (rx + ty) - ky \\
&= \hat{U}(r, t) + (t - Q(r, t) - k)Y(r, t) + I + \Pi(r^*, t^*) \\
&\equiv W(r, t, r^*, t^*)
\end{aligned}$$

A.1 Optimal taxes under NT, for given tariffs

With binding NT, $t = r + \tau$. We have that

$$\frac{d\hat{U}(r, r + \tau)}{dr} = -\frac{b\tau + 2br + 2 + 2r + \tau}{(b + 2)^2}$$

$$\begin{aligned}
(t - Q(r, t) - k)Y(r, t) &= (t - \frac{1}{4 - b^2}(2 - b + br + 2t - b^2t) - k)(\frac{2 - b + br - 2t}{4 - b^2}) \\
\frac{d}{dr}((r + \tau - Q(r, r + \tau) - k)Y(r, r + \tau)) &= \frac{-4 + 2b - 2br + 4r + 4\tau - 4k + kb^2}{(b + 2)(-4 + b^2)}
\end{aligned}$$

The optimal r under NT is thus given by

$$-\frac{b\tau + 2br + 2 + 2r + \tau}{(b + 2)^2} + \frac{-4 + 2b - 2br + 4r + 4\tau - 4k + kb^2}{(b + 2)(-4 + b^2)} = 0$$

or

$$R(\tau; k) \equiv \frac{(b - 3)}{2(2 - b)}\tau + \frac{k}{2}$$

It is readily verified that the second order condition is fulfilled.

A.2 Negotiated tariffs

In the case of negotiations over tariffs and NT, the solution to τ maximizes

$$\begin{aligned} W(r, t, r^*, t^*) + \Pi^*(r, t) &= \hat{U}(r, t) + (t - Q(r, t) - k)Y(r, t) + I + \Pi(r^*, t^*) + (Q(r, t) - t)Y(r, t) \\ &= \hat{U}(r, t) - kY(r, t) + I + \Pi(r^*, t^*) \end{aligned}$$

subject to $r = R(\tau, k)$ and $t = R(\tau, k) + \tau$. We have that

$$Y(R(\tau, k), R(\tau, k) + \tau) = \frac{2 - b + b\left(\frac{(b-3)}{2(2-b)}\tau + \frac{k}{2}\right) - 2\left(\frac{(b-3)}{2(2-b)}\tau + \frac{k}{2} + \tau\right)}{4 - b^2}$$

and thus that

$$\frac{d}{d\tau}Y(R(\tau, k), R(\tau, k) + \tau) = -\frac{1}{2} \frac{1 + b}{4 - b^2}$$

Also, differentiating $\hat{U}\left(\left(\frac{(b-3)}{2(2-b)}\tau + \frac{k}{2}\right), \left(\frac{(b-3)}{2(2-b)}\tau + \frac{k}{2}\right) + \tau\right)$ with respect to τ :

$$\frac{d\hat{U}}{d\tau} = \frac{1}{2} \frac{b^3\tau + 3b^2\tau - kb^2 - 2b + kb - \tau b + 4 - 5\tau + 2k}{(-2 + b)^2 (b + 2)^2}$$

The negotiated tariff is therefore given by

$$\frac{1}{2} \frac{b^3\tau + 3b^2\tau - kb^2 - 2b + kb - \tau b + 4 - 5\tau + 2k}{(-2 + b)^2 (b + 2)^2} - k\left(-\frac{1}{2} \frac{1 + b}{4 - b^2}\right) = 0$$

and the solution is

$$\tau^n = (2 - b) \frac{2 + (3 + 4b + b^2)k}{5 + b - 3b^2 - b^3}$$

The second order condition can again be readily verified. By symmetry, $\tau^* = \tau$.

A.3 Equilibrium values

Inserting τ^n into the expression above yields:

$$\begin{aligned} r^n &= \frac{-3 + b - (2 + 4b + b^2)k}{5 + b - 3b^2 - b^3} \\ t^n &= \frac{1 - b + (4 + b - 3b^2 - b^3)k}{5 + b - 3b^2 - b^3} \end{aligned}$$

$$\begin{aligned}x^n &= \frac{4 - b^2 - b + (1 + 3b + b^2)k}{5 + b - 3b^2 - b^3} \\y^n &= \frac{2 - b - b^2 - (b + 2)k}{5 + b - 3b^2 - b^3} \\p^n &= \frac{1 - b^2 - (1 + b)k}{5 + b - 3b^2 - b^3} \\q^n &= \frac{3 - 2b - b^2 + (2 - 3b^2 - b^3)k}{5 + b - 3b^2 - b^3}\end{aligned}$$