ELSEVIER

European Journal of Political Economy
Vol. 17 (2001) 233–279

European Journal of
POLITICAL
ECONOMY

Economic and legal aspects of the Most-Favored-Nation clause

Henrik Horn [a,b,*], Petros C. Mavroidis [b,c]

[a] *Institute for International Economic Studies, Stockholm University, S-106 91 Stockholm, Sweden*
[b] *Centre for Economic Policy Research, 90–98 Goswell Road, London, EC1V 7RR, UK*
[c] *Faculté de droit et des sciences économiques, Université de Neuchatel, CH-2000 Neuchatel, Switzerland*

Received 7 May 2000; received in revised form 24 October 2000; accepted 27 October 2000

Abstract

The Most-Favored-Nation clause (MFN) forbids Members to discriminate between trading partners. It is typically seen as one of the main features of the multilateral trading system, and appears in several of the agreements in the World Trade Organization. There seems to be a rather widespread belief among policy makers that there are strong economic rationales for the MFN provision. The purpose of the paper is to survey economic theory that may shed light on whether this view is well founded or not.

JEL classification: F13
Keywords: Most-Favored-Nation clause

1. Introduction

The Most-Favored-Nation clause (MFN) is the first Article of the General Agreement on Tariffs and Trade (GATT). It forbids Members to discriminate between "like" products originating from other Members:

> ...any advantage, favor, privilege or immunity granted by any contracting party to any product originating in or destined for any other country shall be

* Corresponding author. Institute for International Economic Studies, Stockholm University, S-106 91 Stockholm, Sweden.

0176-2680/01/$ - see front matter
PII: S0176-2680(01)00028-3

> accorded immediately and unconditionally to the like product originating in or destined for the territories of all other contracting parties.

MFN also appears in several World Trade Organization (WTO) Agreements, and is one of the two fundamental nondiscrimination clauses on which the GATT/WTO system rests.[1,2] The other clause is the National Treatment provision (NT) in Art. III GATT that requires "like" or "directly competitive or substitutable" foreign products not to be treated less favorably once they have been imported than their domestic counterparts. Indeed, from a legal perspective, the GATT/WTO is basically an agreement on nondiscrimination, with significant exemptions allowed in the form of Preferential Trading Agreements (PTAs), and contingent protection, for instance.

There seems to be a rather widespread belief among policy makers, lawyers, and many economists that MFN is not only central from a legal point of view, but that there are also strong economic rationales for MFN provisions. For instance, Jackson (1997, p. 159) writes:

> ... nondiscrimination can have a salutary effect of minimizing distortions of the 'market' principles that motivate many arguments in favor of liberal trade ... MFN often causes a generalization of liberalizing trade policies, so that overall more trade liberalization occurs (the multiplier effect of the MFN clause).

The positive view of MFN often seems based on the presumption that discrimination is inherently undesirable from an economic point of view. However, a general theoretical prima facie case for MFN is not easily advanced, for several reasons. First, and contrary to common perception, discrimination is not necessarily undesirable. Johnson (1976, p.18) goes as far as arguing that:

> ... the principle of nondiscrimination has no basis whatsoever in the theoretical argument for the benefits of a liberal international trade order in general, or in any rational economic theory of the bargaining process in particular.

In a world where free trade maximizes global welfare, there is, of course, no scope for tariffs at all, discriminatory or not. The efficiency of MFN tariffs, thus, becomes an issue only when diverting from such a scenario. However, in such a case, there is no a priori argument to be made for nondiscrimination *as a feature of tariff schedules*. For instance, both the literature on Optimal Taxation and the Industrial Organization (IO) literature on price discrimination suggest reasons why discrimination may be socially desirable.

---

[1] Examples of other MFN clauses are Art. II in the General Agreement on Trade in Services, Art 2.1 in the Agreement on Technical Barriers to Trade, and Art. 4 in the Agreement on Trade-Related Aspects of Intellectual Property Rights.

[2] MFN is by no means a recent innovation: citing Davis (1942), Caplin and Krishna (1988) point to such a clause in a trade agreement from 1226.

There are also several more technical reasons why constructing a general argument in favor of MFN is difficult. First, since the analysis will concern situations where free trade is not both achievable and globally optimal, it will, thus, inherently involve the comparison of distorted equilibria. Furthermore, it must involve at least three countries, with the plethora of different possible trade patterns and analytical difficulties this normally incurs.

Second, the impact of MFN cannot be assessed by simply comparing two arbitrary tariff structures, with and without MFN. For instance, even if we are willing to start from some arbitrary structure that does not fulfil MFN in order to move to one that does, we cannot avoid deciding the level at which the MFN tariffs are set, and this arbitrary choice might have important consequences for the welfare comparison. More generally, we lack a meaningful measure of the degree to which a structure fulfils MFN. Hence, one cannot simply "turn up" the degree of non-MFN and observe the outcome.

Third, there is no one-to-one relationship between MFN and the context in which it is agreed upon. For instance, a multilateral contract may, but need not, feature MFN, and MFN can, but need not, be part of a system of bilateral contracts.

Despite these inherent complexities, there are several strands of theory that can be used to highlight various aspects of the impact of the MFN clause. The purpose of this paper is to survey such contributions in order to summarize the state of the art of theoretical economic analysis of the clause. It should be emphasized that the intention is *not* to discuss policy, but to assess what support ideas expressed in the policy debate might find in economic theory.[3]

It is sometimes argued that MFN is today of limited practical importance, given the low-average tariffs of developed countries on imports of industrial products, and that there is, therefore, little reason to care about its implications for tariff setting. This argument is questionable on several grounds. First, the current, historically speaking, low-average tariffs on industrial products are the *result* of a system built on MFN. There is no guarantee a priori that the same levels could be supported without MFN. Indeed, it is precisely to understand such issues that we need theory. Second, there are important sectors, such as agriculture, textiles and services, where barriers are still high and where MFN (or its absence) might clearly be important. With regard to the historical comparison, MFN might today possibly apply to a *larger* share of world trade than ever, after the inclusion of several new agreements in the multilateral trading system.

[3] Complementary to this study is the one by Schwarz and Sykes (1996), which also surveys economic writings on the MFN. Their main concern is to sketch a theory of the MFN clause from a political economy perspective. See also the overview in Staiger (1995). The volume edited by Cottier and Mavroidis (2000) contains a number of contributions on mainly legal, but also some economic, aspects of MFN.

Third, the MFN principle does not only apply to tariff negotiations in the rounds, but also to many other facets of the WTO. For instance, it applies to nontariff barriers (customs formalities, the distribution of import quotas, etc.), and in the case of Art. XXVIII, GATT negotiations on compensation for withdrawal of concessions made in previous rounds. Understanding the working of MFN might, therefore, be crucial to the understanding of, e.g. the enforcement mechanisms in the WTO.

The ambit of the MFN clause is entirely determined by the interpretation given to terms, such as "unconditionally" and "like product". Before turning to the economic literature, we will, therefore, in the next section examine how several of the terms in the clause have been interpreted in the case law; this section is not necessary, however, for following the ensuing discussion of economic aspects of MFN. Section 3 reviews models in which governments set tariffs unilaterally. It starts by presenting what seems to be the simplest, traditional case for nondiscrimination, then identifies the basic rationale for why a country might want to discriminate, and finally points to some possible dynamic consequences of MFN. Much of the informal reasoning concerning MFN centers on its impact on trade liberalization in general, and on the strategic interaction in multilateral trade negotiations, in particular. These issues are dealt with in Section 4, which considers the impact of MFN on bargaining structure, the externalities and free riding that are often alleged to be associated with negotiations under MFN, the role of reciprocity in conjunction with MFN, and the relationship between MFN and multilateralism. Section 5 summarizes the main findings, and reluctantly draws a conclusion concerning the merits of MFN on basis of the surveyed theory literature. This section also discusses some approaches and areas that seem worthy of further study, suggesting that more work is needed on the role of MFN in the context of multilateral bargaining, trade in services, foreign direct investment and administered protection.

Before turning to legal aspects of MFN, a few words about what is *not* covered, mainly due to space limitations. The literature on PTAs is given limited attention, compared to its volume and the fact that PTAs are one of the main exceptions to MFN in the GATT/WTO. A basic lesson from this literature is that a move to a tariff structure not featuring MFN may lower world welfare by shifting production in the direction of less efficient suppliers, and that such shifts cannot occur if the new structure fulfils MFN. It, thus, establishes the *possibility* of a positive impact of an MFN clause. However, as will be explained below, much of the literature is difficult to lean against when evaluating the pros and cons of MFN. However, Section 4.6 briefly points to some recent models of PTAs that can fruitfully be employed to this end.

By restricting the discussion to existing economic theory, a number of aspects of MFN that may be of considerable practical importance, will not be dealt with. For instance, as noted already by Viner (1931), the administration of discriminatory tariffs is costly because of the need to keep track of product origin, and MFN,

thus, significantly simplifies customs procedures. Moreover, with the absence of a commitment to MFN, there may be more uncertainty concerning future tariffs. MFN also reduces the cost and complexity of negotiations by reducing the number of possible bids and outcomes. Another aspect about which the formal literature has little to say is the classification of products; it is simply assumed that the definition of product lines cannot be manipulated. This assumption is far from innocuous, since countries have often been said to use narrow product classifications in order to avoid having to extend concessions granted to certain partners on an MFN basis. The paper will also entirely disregard the "conditional" form of MFN.[4] Yet, another aspect that will not be dealt with is the possibility that deviations from MFN might lead to political tensions, an aspect often mentioned in the international relations literature. Finally, we will not provide any history of the MFN principle, nor delve into the history of economic thought on MFN.[5]

Due to the above-mentioned limitations and the nature of the literature to be reviewed, this should not be seen as a survey of models of MFN in the WTO Agreements only, but of models that seek to highlight aspects of MFN in various, and often much simpler settings. Hence, the term "MFN" subsequently does not refer to certain articles in the WTO Agreements, but to the underlying principle of nondiscriminatory trade policies.

2. Legal aspects of the nondiscrimination principle in the WTO

The MFN obligation of Art. I GATT applies to *any* kind of duty, administrative procedure, etc., that affects trade in goods. WTO Members must automatically and unconditionally apply MFN to goods and services from their trading partners. However, in addition to the various exemptions provided for in the GATT, its ambit is potentially severely limited by one restriction: it only applies to *like products*, a term also appearing in several other MFN clauses in the WTO Agreements. A crucial issue is obviously the interpretation of this term. We will in this section briefly discuss some of its legal aspects on basis of the case law.

2.1. The term "like product" and its interpretation

The general obligation of WTO Members is to abstain from discriminating internationally between products that are in some sense closely related. The two provisions that enshrine this obligation—MFN and NT—are complementary. To

[4] According to the conditional version, *A* gives to *B* what *A* gives to *C* only if *B* gives *A* what *B* gives *C*. This form of MFN might be of some interest from a strategic point of view, but is of less practical interest.

[5] For a historical background, see, e.g. Hull (1948), Irwin (1993), and Rhodes (1993).

see how, note that there are (at least) three dimensions in which the applicability of these clauses can be compared: the type of policy measures addressed, the degree of similarity between the products required for the clause to apply, and the origin of the products to be compared. MFN applies to both internal and border measures and, in this respect, it is wider in its applicability than NT, which only applies to internal measures. MFN has more stringent requirements with regard to product similarity than NT and, thus, is less applicable, since it only refers to "like" products, whereas NT does not only refer to "like" products, but has also been interpreted to apply in the case of "directly competitive or substitutable" goods (DCS).[6,7] Finally, the two provisions are "orthogonal" in the sense MFN referring to the treatment rendered to different foreign products, whereas NT compares the treatment given to foreign products to that of domestic products.

The term like product also appears in the context of contingent protection. A Member imposing antidumping duties, countervailing duties or safeguards, must show that a domestic industry producing a *like product* has suffered damage. Furthermore, anti-dumping duties have to be applied in an MFN fashion against all exporters found to dump in some particular manner.

The proper definition of likeness raises a number of questions.[8] Indeed, are any products like in practice? Should we adopt the same test for both the MFN and the NT component of nondiscrimination? Should the NT test apply to contingent protection, since they both refer to domestic regulations? When measuring likeness, should consumers' tastes matter, or should only physical appearance matter? Should price matter? GATT/WTO Panels have struggled with all these questions. The rich case law that has emerged is, however, is not a monument to consistency, as will be seen.

2.2. Likeness in the context of border measures

The Harmonized System (HS) for classification of products provides a framework for common scheduling of fiscal border measures (essentially tariffs, but also other measures). It is based on an international treaty, to which not all WTO Members are signatories. It is binding for the signatories (although, formally, the relationship between the HS and WTO has never been clarified by a WTO Panel), and the remaining WTO Members de facto follow it. The HS imposes a discipline only up to the first six digits in the classification scheme. When Members schedule their commitments beyond the six-digit level they are unconstrained by their HS obligations.

[6] Interpretative Note to Art. III.2 GATT.

[7] MFN has to be extended to all like and DCS products in a market, regardless of their origin.

[8] In the presence of regulatory intervention, the test is not cross-price elasticity, or any other test that is based on consumer preferences, but, in most cases, a scientific test of likeness.

So far, only six GATT/WTO disputes have dealt with the issue of how to interpret likeness with respect to border measures and all of them, until recently, dealt only with rather mundane aspects of MFN. The only more substantive discipline was imposed in the *Spain—Tariff Treatment of Unroasted Coffee* dispute, where essentially the Panel denied Spain the right to make tariff classification distinctions that did not appear in its original schedule. The essence of this report was to outlaw a unilateral action taken subsequently to a multilateral commitment.

With respect to nonfiscal border measures, the *Brazil—Non Rubber Footwear* Panel report argues that MFN must be strictly complied with: for instance, no WTO Member may have different administrative proceedings at its border for like products from different origins. *A* cannot routinely provide customs clearance in 5 min for washing machines from *B* and in 5 months for those from *C*.

The legal consequence of establishing likeness is the requirement to treat goods in a nondiscriminatory manner, unless the Member concerned can demonstrate that another GATT provision allows it to opt for discriminatory treatment (Art. XXIV customs unions and free-trade areas; XX pursuance of noneconomic objectives; XXI national security, are the most prominent examples).

Once *likeness* has been established, WTO Members must accord *unconditional* MFN treatment, unless they can justify an *exception.* Discrimination, either de jure or de facto, is in, principle, illegal in the WTO. In what follows, we highlight some central aspects of the interpretation of these terms.

2.2.1. Unconditional MFN

The recent WTO Panel in *Canada—Auto Pact* had the opportunity to pronounce on the unconditionality of MFN. Japan's complaint concerned a Canadian measure reserving duty free treatment for cars to only some Canadian importers/manufacturers (who happened to have ties with US car producers). Foreign cars (including Japanese) other than US cars were de facto discriminated against, since they could not profit from the duty-free treatment.

The Panel rejects Japan's claim that Canada did not unconditionally grant MFN treatment to Japanese cars. In the Panel's reading:

> "...whether an advantage within the meaning of Article I:1 is accorded 'unconditionally' *cannot be determined independently* of an examination whether it involves discrimination between like products of different countries..." (§10.22, italics added).

Hence, in the Panel's view, unconditionality is exclusively linked to considerations regarding the origin of a particular good.

What the Panel does not discuss, though, is whether such origin neutral deviations must be based on one of the exceptions provided for in the GATT. This was evidently not the case here, Canada having invoked no justification. It seems fair to conclude that, in the Panel's reading of the case, there is no need to refer to

the exceptions provided for in the GATT, since no discrimination had been established (since the conditions imposed must be examined in conjunction with, and not independently of, the origin of the goods involved). In other words, according to the Panel, only one form of conditional treatment is MFN-inconsistent: the one that is not origin neutral.

This decision raises a number of questions. Does it imply that origin neutral conditional treatment is MFN-consistent? For instance, if a country makes a regulatory distinction between, say, beef with and without hormones, and no such distinction is made in the HS system, is the domestic regulation then consistent with MFN, even if it has a very different de facto impact on different exporters to the country? Arguably, yes. If this is the case, can such origin neutral conditional treatment be based on any conditions? Arguably, yes again, since the Panel states that only treatment which does not respect origin neutrality will be punished. Can a WTO Member provide better than MFN-treatment to only those sources of supply which demonstrably protect environment or health if the conditionality imposed respects origin neutrality without invoking a justification? This should not come as a surprise: as stated above, HS is binding up to the six-digit level and nothing prohibits WTO Members from negotiating similar classifications beyond the six-digit level.

We want to emphasize the fact that the Panel's reading of unconditionality opens the door to regulatory distinctions at the border beyond those reflected in Arts. XX and XXI GATT.[9] This may have profound implications with regard to a judicial review of Mutual Recognition Arrangements (MRA): The list of Art. 2.2 of the WTO Agreement on Technical Barriers to Trade (TBT) is wider than that of Art. XX GATT. Hence, WTO Members can enact technical regulations for reasons not reflected in Art. XX GATT. Moreover, Art. 2.7 TBT encourages them to conclude MRAs. It follows that a Member (say, the US) can accord to a product (say, a washing machine that respects child safety regulations) from a Member with which they conclude an MRA (say, the EC), border treatment better than that accorded to products from other countries (say, a washing machine from Turkey), without violating MFN, *even if* this treatment is not provided for in the exceptions in Art. XX GATT. Thus, in terms of the example, the US do not have to unconditionally grant MFN treatment to Turkish washing machines. For Turkey to benefit from the same treatment, it will have to show that its washing machines can meet the child safety standards reflected in the EC–US MRA. Hence, Turkey carries the burden of proof.

2.2.2. De facto discrimination

Discrimination can be de jure—measures explicitly distinguishing between foreign goods on the basis of their origin—or de facto—measures that on the face

[9] Art. XX allows for exceptions from MFN for health, environment, public morals, etc., whereas Art. XXI ensures the same right with regard to national security.

are nondiscriminatory, but in practice, impose a heavier burden on foreign goods. The only case so far where the issue of de facto discrimination has been discussed is *Canada—Auto Pact*. Japan argued that Canada violated Art. I GATT by limiting the duty-free exemption to some manufacturers only. Canada essentially claimed that it imposed no requirements on manufacturers as to the origin of cars they should privilege and, hence, the choice of eligible manufacturers was a purely private decision. According to Canadian regulation, however, the eligibility for duty-free exemption was limited to some manufacturers only. In the Panel's view, the limitation of eligibility to only some manufacturers, and the fact that intra-firm trade was exhausted between the eligible manufacturers and particular sources of US origin constituted enough evidence that Art. I GATT was not complied with. In other words, Canadian manufacturers did de facto privilege US brands with which they were associated. This finding was upheld by the Appellate Body. The Panel also paid attention to the fact that there was a specific historical context: the treatment reserved to Canadian manufacturers was part of Canada's effort to honor the Auto-Pact deal concluded with the US.

2.3. Likeness in the context of domestic measures

Three stages can be distinguished in the development of the legal thinking concerning likeness in the context of domestic measures. Timewise, an unsophisticated "market test" to define likeness was substituted by a "government intentions" test which, in turn, gave place to a slightly more sophisticated version of the original test. Whereas the earlier version of the market test has been wholly replaced by its more sophisticated version, elements of the former approach could still be relevant in future case law.

2.3.1. The unsophisticated market test

In the first *Japan—Taxes on Alcoholic Beverages* dispute of 1987, the EC argued that by treating the domestic liquor shochu better than a series of EC-origin drinks (ranging from vodka to whisky), Japan was discriminating between two like goods. In the litigation, use was made of the distinction in Art. III (NT) between like and DCS goods. Vodka was considered to be a like good to shochu, whereas the other western drinks where considered to be DCS to shochu. The Panel does not explain its reasoning in great detail. It mentions, however, that to establish likeness, it looked at factors, such as taste, appearance, end use, etc. Since it found more common elements between shochu and vodka than between shochu and other western drinks, the first dyad was deemed to be like, whereas the last dyad DCS goods. Furthermore, to check likeness or the degree to which products were DCS, the Panel argued that the sole criterion should be consumer reactions.

2.3.2. The "aims-and-effect" (government intentions) test

The second stage of the evolution of GATT/WTO case law occurred several years later. In *United States—Gas Guzzler*, the question concerned allegedly

environmentally friendly US legislation concerning cars. The legislation operated in a manner de facto treating EC cars less favorably than their US counterparts. For example, the US attacked polluting cars, but not polluting vans despite evidence submitted by the EC that cars and vans were interchangeable in the US market; the US produced the vast majority of vans circulating in the US market, whereas the EC production was limited to cars.

In this dispute, the Panel underlined the strain it faced: if it used the unsophisticated market test described above, and asked consumers whether cars and vans are at least DCS, it would most likely end up with an affirmative answer. In this case, it would have to impose an important burden of proof on the US to look for justification, for instance in Art. XX.

The Panel believed it inappropriate to impose such a huge burden of proof on the US, since it was obvious in its eyes that the US did not aim to protect. Hence, the Panel came up with the so-called "aims-and-effect" test which can be described as follows: if a legislation does not aim to protect, it is GATT compatible (the Panel did not pay any attention to effects in its analysis, despite the name of the test). Likeness must, thus, be determined by reference to the aims of the legislation: if a legislation does not aim to protect, two goods are unlike, even if consumers might think otherwise.

2.3.3. The sophisticated (cross-price elasticity) market test

The shortcomings of this approach were evaluated in the second *Japan—Taxes on Alcoholic Beverages* dispute in 1996, which constitutes the third stage. There, the Panel rejects the "aims-and-effect" test outright, since in its view, the inclusion of the test would effectively amount to the exclusion of Art. XX. Such an outcome is in plain contradiction with the most important obligation of the interpreter—to ensure that all terms of an Agreement keep a meaning.

The Panel argued that cross-price elasticity is the essential means for defining whether two products are in a DCS relationship. Like products, in the Panel's view, must have more in common than DCS goods, and the Panel takes into account issues, like tariff classification, to establish likeness. Finally, the Panel makes it plain that likeness of products is not absolute, but is a market-specific notion (i.e., bananas and strawberries can be DCS in Greece, but not necessarily in Sweden). The Appellate Body upheld this view and further argued that for two products to be like, they must have a DCS relationship: like products are, hence, a subset of DCS products.

In subsequent cases, one can observe deviations from the cross-price elasticity test; however, these do not put into question the test as such. The *Korea—Taxes on Alcoholic Beverages* report, e.g., goes back to an enumeration of criteria, like price, appearance, end use, etc. Apparently, the Panel does not understand that cross-price elasticity reflects all the other criteria mentioned. The danger is that if this tendency is confirmed, the cross-price elasticity test will be "diluted" and eventually deprived of its meaning.

2.4. Likeness in the context of administered protection

Likeness definitions have traditionally been quite narrow in the context of administered (contingent) protection. The WTO Antidumping Agreement provides a very narrow concept of like products (identical in all respects), but also states that in the absence of like products, WTO Members could look to DCS products to establish whether injury occurred. The history of interpretations has largely been concerned with the issue of how far one should go in the DCS direction.

Antidumping/countervailing case law recently underwent an important change in the context of the *Indonesia—Cars* litigation. It concerned a claim brought forward by several Western countries, arguing that Indonesia illegally subsidizes its car production. The likeness issue was not at the heart of the dispute; however, at one stage, the Panel had to deal with it. The Panel argued that likeness (and eventually, DCS) must be interpreted in conformity with the GATT practice as described above. We note that the Appellate Body did not have the opportunity to confirm.

2.5. Likeness in the GATS

So far two reports have dealt with the question of the definition of likeness in the GATS. In the *Bananas* litigation, the Panel reached the conclusion (not overturned by the Appellate Body) that likeness in the GATS context must take into account likeness considerations as developed in the GATT context. Hence, for border measures as well as for internal measures, the GATT analysis is applicable in this context too.

The above-mentioned *Canada—Auto Pact* Panel report confirmed this approach and added a new feature: differences in modes of supply do not prejudge likeness of services. In other words, attorney services procured through email and commercial presence of the attorney at hand can be like services. The Appellate Body overturned the Panel's findings with respect to services for reasons not related to the definition of likeness and, accordingly, because of this, the Panel's findings in this respect are of limited value.

2.6. Summa summarum

There is a discrepancy between interpretative efforts with respect to domestic and border measures. The first category has been interpreted a number of times and it seems, albeit with the caveats mentioned, that we are moving towards an interpretation of DCS based on cross-price elasticity and of likeness based on DCS plus elements, such as tariff classification. With respect to border measures, MFN applies to any two products in the same HS category, provided that this category is at the six digits or lower aggregation level. When products are classified with finer distinctions, Members are in principle free to shape their list of concessions, and this shaping will have an immediate impact on the ambit of MFN.

3. MFN in games of unilateral tariff setting

We now turn to our main issue—economic aspects of MFN. As mentioned above, there is a fairly widespread belief in the economic virtues of MFN among policy makers, a belief that seems partly based on the notion that discrimination is undesirable as such. Indeed, circumstances can be identified under which this is the case. Consider, for instance, a country A that imports an identical product from countries B and C, is the only consumer of the product, but does not produce the good itself. The industry is perfectly competitive and the product is produced under increasing marginal costs in B and C. To introduce a reason for world welfare maximizing tariffs to be positive, assume that they must restrict imports into A to a certain volume X. Without domestic production, consumption in A is given by X, as is gross consumer surplus. The global welfare maximization problem, thus, reduces to choosing tariffs to minimize global production costs, given that total production (and exports) is X. Efficiency then requires production to be allocated such that marginal costs are the same in both countries which, in turn, requires that the two suppliers face the same tariff. The example might be generalized to the statement that in a neoclassical world, where the purpose of the tariffs is to achieve a certain global consumption and production volume, world welfare maximizing tariffs are nondiscriminatory. However, this support for nondiscrimination is rather fragile. For instance, if exporters produced under increasing returns to scale, production should be concentrated from an allocational point of view, and discriminatory tariffs are likely to be superior. Furthermore, if the tariff structure is to yield a certain amount of tariff revenue to the importing country, rather than to maintain a certain production or consumption volume, there is again no reason to expect a uniform tariff structure to be optimal. In standard "Ramsey fashion", in order to minimize the distortion from the tariffs, the producers should be facing a higher tariff with a more inelastic supply.

Hence, given the rather particular circumstances that must be fulfilled for discrimination to be fulfilled, we claim:[10]

Observation 1. In situations where global welfare maximization requires positive tariffs, there is no presumption that these should be nondiscriminatory.

This simple observation contrasts starkly with the beliefs among policy makers raised in the spirit of Bretton-Woods. There seem to be at least two reasons behind

[10] We will try to distill the main findings into "Observations" such as the one to follow. The fact that we are surveying a large number of models makes the formulation of these Observations problematic. Rather than repeating all the assumptions under which a certain result holds, we will say that a certain property "may" be true. The term "may" should, hence, not be interpreted as a vague "everything might be proven" type of statement—there is at least one "reasonable" model for every result in economics and there is no point in stating this fact in Observations. "May" is instead meant to say that some conditions under which a certain result holds have actually been established.

their belief in nondiscrimination one of which stems from practical experiences of tariff setting: for instance, the more "fine-tuned" trade policy becomes, the more scope there is for various interest groups to influence the tariff setting.

The second reason is a basic insight provided by the early literature on PTAs. This literature considered the impact on trade patterns and welfare of the formation of some exogenously chosen PTA, with the pre-PTA tariffs exogenously chosen, and assuming that tariffs in the rest of the world remained unchanged. The basic observation in this literature was that while a PTA has the traditional beneficial effects of creating trade, it *may*, nevertheless, lower welfare through its discriminatory nature: imports of a product more cheaply produced abroad may fall as a result of increased production of a perfect substitute in the union. In cases where the formation of the PTA reduces welfare, the welfare loss may perhaps be viewed as a result of discrimination.[11]

The above example with countries *A*, *B*, and *C* illustrates one case where nondiscrimination is desirable; however, it does not really provide an argument in favor of MFN: if the tariffs were set by the importing country itself in order to maximize national welfare, given the above constraints, the resulting tariffs would be the same as if set to maximize global welfare, given these constraints. In the remainder of the paper, we will consider cases where there is a conflict between national and global interests, and where MFN can play a role, at least potentially. The source of the distortion in most of these analyses is that countries are assumed to have some market power. In this section, we examine cases where governments set tariffs unilaterally, and not through negotiations with other countries. The strategic interaction is limited in these models; however, they may indicate some of the incentives facing countries in strategically richer games.

3.1. The basic incentive for beggar-thy-neighbor tariff discrimination

Caplin and Krishna (1988, Section 3) study a situation where nondiscrimination is desirable for the same reason as in the example above, but where equilibrium tariffs are discriminatory absent an MFN clause. They consider a partial equilibrium model of an exchange economy with three countries and four goods. Each country is endowed with a unit of a product that yields no utility to its representative consumer. The consumer derives utility from the imports from both the other countries, but prefers one source to the other. This is the only asymmetry in the model, and it is the reason why countries want to discriminate. The asymmetry is symmetric in the sense of *A* preferring the exports of *B* to those of *C*, *B* prefers the exports of *C* to those of *A*, and *C* prefers the exports of *A* to those of *B*.

[11] Against this, it can be held that this argument disregards the fact that when welfare *increases* from the formation of the PTA, this is also the result of a discriminatory action. It is, thus, not straightforward to ascribe any particular negative effect to discrimination per se.

The problem facing the government is to trade off the distortionary effect on consumption of a discriminatory tariff, against its positive effect on tariff revenue. Suppose that if A were to set uniform tariffs on its imports, the domestic prices would be the same. The marginal utility of consumption of the two products would then be equal; however, there would be larger imports of the product for which the country has a taste preference, which implies that this product is undertaxed relative to the other product. Hence, absent MFN, there would be an incentive for the importer to have a higher tariff on the product its consumer prefers.

A main finding is that the equilibrium MFN rate will exceed the lower tariff absent MFN, and may (but need not) even be higher than the higher non-MFN tariff. Nevertheless, MFN increases world welfare and, thus, by necessity, the welfare of each country, these being symmetric. To see why, note that the tariffs facing a particular country's exports in this model will only affect the distribution of these exports between the two other countries, and not the total volume consumed, since supply is completely inelastic. Despite the fact that tariffs are now set unilaterally, the model, thus, shares the property that total consumption is given with the example above, where the global planner faced a given import level. For the same reason, it is socially optimal to allocate consumption such that marginal utilities of consumption are the same in different countries. However, absent MFN countries' desire to raise tariff revenue will lead them to set different tariffs, and this reduces world welfare by shifting consumption in the direction of consumers with a lower valuation of the products. MFN will remedy this. Furthermore, a uniform tariff does not cause any distortion regardless of its level, nor does it affect the distribution of consumption across countries, partly due to the fact that total consumption is given.

The interesting feature of this model is the sharp fashion in which it illustrates the consumption distortion caused by discriminatory tariffs. It can, thus, be seen as an illustration of the notion that discrimination is bad per se. Note, however, that the model has a number of rather special features. For instance, the unambiguous welfare gains from MFN stem from the absence of any production response to the tariffs. As pointed out by Caplin and Krishna, in the presence of domestic production, or with domestic consumption of the export commodity, MFN may actually reduce welfare. Moreover, there is no local consumption of the domestic product.

It should also be recalled that the model relies heavily on demand asymmetries, in contrast to the models considered above. The extent to which tariffs differ in the absence of MFN is determined by the degree of demand dissimilarity; however, the latter is limited by the "like product" requirement for an MFN clause to apply. Generally speaking, being like, the difference between the products would presumably usually not be large, and the impact of the deviation from MFN would be relatively small, absent other sources of asymmetries between producers.

In the above model, the "action" is on the demand side, while most of the literature focuses on asymmetries on the supply side. The typical structure in these

models is that two countries export to a third, but do not trade between themselves, with the interest focused on the incentive for the third country to discriminate. For example, Hwang and Mai (1991) examine a model where two oligopolistic sellers, located in two different countries, export to a third country, where they compete in Cournot fashion. Two scenarios are depicted. In the first, the importing country can choose a separate specific tariff for each exporter; in the second scenario, the importing country is constrained by MFN to choose the same tariff on both importers. It is shown that if products are homogenous, then in the case of constant marginal costs, the home country will impose a higher tariff on the exporter with a lower marginal cost. On the other hand, with quadratic cost functions, the importing country will choose nondiscriminatory tariffs even in the absence of MFN, and even if marginal costs differ.

There is a strong similarity between such tariff discrimination and a monopolist pursuing third-degree price discrimination. Such discrimination may, but need not, reduce welfare compared to a situation where the monopolist cannot discriminate (reflecting the more fundamental fact that the source of the monopoly distortion is the monopolist's inability to discriminate perfectly between consumers). Consequently, unilateral tariff discrimination is not inherently bad:

Observation 2. Unilateral tariff discrimination may reduce global welfare compared to a situation where the government is constrained by MFN. However, the source of the problem is not discrimination per se, but the form it takes.

This is illustrated in the model of Hwang and Mai (1991), where with linear costs the importer has incentives to extract surpluses from lower-cost producers through trade taxes, while from a world welfare point of view, production in these firms should instead be encouraged.

The example of Hwang and Mai (1991), as basically the whole literature on MFN, assume tariffs to be either specific (as above) or ad valorem. From a theoretical perspective, this assumption is far from innocuous. For instance, in the model above, the conflict between private and social incentives with regard to discrimination would cease to exist if the importing country had access to nonlinear tariffs: the importing country might then impose a prohibitive tariff on the high-cost producer, and offer the low-cost producer a linear import subsidy to induce the firm to produce the desired volume, and tax away the resulting profit by a "license fee".[12]

3.2. Several policy-active countries

Gatsios (1991) considers a model with an identical production structure to the one in Hwang and Mai (1991), but where countries *B* and *C* also have trade

[12] Matters become more complicated if country *B* is allowed to use an export tax.

policy instruments—export subsidies—at their disposal. These subsidies are determined simultaneously with the tariffs set by *A* before firms simultaneously decide on their export volumes. There are, thus, two reasons why country *A* may want to discriminate between the firms: differences in marginal costs, and possible differences in export subsidies. It is shown that in the non-MFN equilibrium, the tariff is higher for the low-cost producer than for the high-cost producer, reflecting the importing country's ability to extract more surplus from the more efficient producer.

From a world welfare point of view, it would be desirable that all production were undertaken by the more efficient country *B* supplier, and that production were sufficiently large so that marginal revenue equaled this firm's marginal cost. This could be achieved if the firm from *C* faced a prohibitive tariff and *B* subsidized its firm sufficiently. The gain from these measures would, of course, entirely accrue to *A* and come at the expense of the other countries. If *C* faced a prohibitive tariff, the firm from *B* would, in effect, be a monopoly and there would be no reason for *B* to subsidize it. Consequently, these measures would not be undertaken in a Nash equilibrium.

The welfare comparison of the two tariff regimes in Gatsios' (1991) model is most readily made in the case where the additional restriction of linear demand is imposed. In this case, the total volume of imports happen to be the same in the two regimes. However, its composition differs, as does its total costs—with MFN, the more efficient exporter will produce a larger share than absent MFN and total production costs will, consequently, be lower in the MFN case. Since consumption is the same in both cases, MFN improves world welfare, essentially by constraining the governments' ability to pursue policies shifting production toward less efficient producers. It also follows that MFN benefits the more efficient producer, and is detrimental to the less efficient producer and to the importing country. Once more, this illustrates the fact that nondiscrimination is desirable when the total production/consumption volume is given.

A more involved production structure is considered by Takemori (1994), who depicts a general equilibrium setting. Consequently, there is trade in more than one direction, with country *A* now also exporting to both *B* and *C* (there is no trade between the latter). *A* levies tariffs on imports from both the other countries, and they impose tariffs on their imports from *A*. In contrast to the models of Hwang and Mai (1991) and Gatsios (1991), there is perfect competition in all markets in Takemori (1994). The incentive for *A* to discriminate stems from a difference in import demand elasticities of *B* and *C*, a difference translating into a difference in supply elasticities through the working of the general equilibrium system.[13]

Takemori (1994) shows that MFN is not necessarily beneficial from a world point of view: If *B* and *C* did not change their respective tariff in response to the

[13] For most of the analysis, additional assumptions are imposed on demand and production.

imposition of MFN, the situation would be very similar to that in Hwang and Mai (1991). Here, however, these countries will change their tariffs and the country that faces a lower tariff as a result of MFN will respond by increasing its tariff, and conversely for the other country. The combined effect could go either way; however, Takemori (1994) argues that there is some presumption that world welfare will fall.

3.3. The precommitment value of MFN

The above method of imposing MFN as a constraint on one or several countries' tariff setting, implicitly presumes that these countries can commit to the MFN regime. As pointed out by Takemori (1994), such a commitment may be desirable for an individual country, exactly by restricting its freedom to set tariffs:

Observation 3. A country that absent an MFN clause would choose to discriminate, may gain from being prevented from discriminating.

The mechanism is similar to that in a simple Cournot duopoly, where a duopolist might profit from being restricted to only being able to choose output volumes larger than those it would choose in a Nash equilibrium. Here, the mechanism is more subtle, since it involves three countries. The best reply of country *B* does not only depend on *A*'s tariffs on imports from *B*, but also on *A*'s tariff on imports from *C* since it will affect *C*'s supply behavior, as well as more directly the residual demand faced by *B*. Hence, an MFN constraint will affect *B*'s optimal response partly by affecting *A*'s ability to freely choose a tariff against *C*.

This commitment possibility may also be employed for other means. In the models discussed so far, the tariff regime did not affect underlying demand and cost structures. However, expectations about future tariff treatment may affect investment decisions, and demand and cost structures may, therefore, depend on the tariff regime. Choi (1995) and To (1998) show how a commitment to an MFN regime, because of such effects, may benefit the importing country. In Choi (1995), this effect arises on the cost side, while in To (1998) the action is on the demand side.

Choi (1995) employs the above three-country framework; however, there are two novelties. First, the exporting firms simultaneously choose the level of cost reducing investment *before* the importing country chooses its tariff(s). Second, the exporting firms are now completely symmetric, endowed with the same cost and investment structures.

MFN here solves a time inconsistency problem: When deciding on the magnitude of their cost reducing investments, firms must take into consideration the extent to which they will be taxed—the higher the tariff, the less the incentive to invest. Absent MFN, the importing country is able to, and cannot abstain from,

targeting the firm that has made the larger investment with a higher tariff. This possibility will reduce the incentives to invest, and will, therefore, increase the price at which the firms export. The importing country's welfare is, therefore, higher with an MFN constraint than without, since this constrains its ability to tax such investments ex post. Exporters, on the other hand, are more prone to lose.

What is of particular interest here is the fact that even though the two firms are symmetric and, thus, there is no discrimination in equilibrium absent an MFN restriction, the two tariff regimes differ. With MFN firms will invest more and will, thus, compete with lower marginal costs. The mere fact of firms knowing that *if* they were to have different marginal costs in the ensuing competition, they would receive different tariff treatment under the non-MFN regime, suffices for the choice of regime to have an impact:

Observation 4. An MFN clause may have a positive welfare impact even if tariffs are nondiscriminatory in its absence.

In To's (1998) model, consumers face individual-specific "transport costs" when consuming either of the imported products. These costs can be interpreted as physical transport costs in which case the consumable can be assumed to be homogenous, thus, fulfilling a "likeness" requirement for an MFN clause. The interaction takes place during two periods, each comprising several stages: In the first period, firms first set prices simultaneously, and consumers then make their purchases for the period, given these prices. At the outset of the second period, the importing country sets the tariffs that apply during the period, firms then set prices, and finally consumers make their purchases for this second period.

The distinguishing feature of the model is the assumption that a consumer purchasing a particular product in the first period will, because of "switching costs", consume this product also in the second period.[14] However, there is some turnover of consumers between the periods, so when the government is to set its tariffs for the second period, it must take into account the impact not only on consumers already stuck with their respective choices, but also on the choices of new consumers.

The incentives facing the single government in the second period are very similar to those considered in, e.g. Hwang and Mai (1991). The novelty is the assumption that when consumers make their consumption decisions in the first period, they know that these choices will also determine their second period consumption, because of switching costs. Therefore, they will also take into account period 2 prices and, thus, indirectly the period 2 tariff regime.

The main finding is that MFN increases the importing country's welfare from the perspective of period 1. Furthermore, since discrimination to the disadvantage

[14] The model borrows important features from Klemperer's (1987) analysis of consumer switching costs.

of the more efficient producer reduces global welfare, an MFN constraint seems likely to increase world welfare as evaluated over the two periods. However, MFN may be beneficial, not by preventing discrimination per se, but by reducing the ability of the government to opportunistically tax firms or consumers:[15]

Observation 5. MFN hinders ex post opportunistic taxation of economic rents and may thereby increase the ex ante incentives for the creation of such rents.

4. MFN and multilateral trade liberalization

Much of the common perception of the effects of MFN relates to its impact on reciprocal trade liberalization, and on negotiations. A large number of mechanisms have been suggested. For instance: (i) MFN increases the costs of giving concessions, since the latter must be given to all countries with which a country has MFN agreements; (ii) MFN makes large countries unwilling to make concessions to small countries, since in return for "peanuts" large countries must extend their concessions to a large volume of trade; (iii) MFN reduces the benefit from a given concession since it must be shared with other countries; (iv) MFN promotes free riding, since countries may opt to wait for agreements between other countries to spill over via MFN, rather than contribute with concessions themselves, and MFN also prevents countries from punishing free riding; or (v) MFN prevents subsets of countries from going further in liberalization than desired by the rest of the world.[16]

On the other hand, positive effects of MFN on trade liberalization are also suggested. For instance: (i) MFN makes trade agreements more credible, since the increased cost of giving concessions makes it less attractive for a party to undermine an agreement through "concession diversion", i.e., by subsequently offering better terms of market access to a third country; or (ii) MFN makes it attractive for outsiders to enter into an existing agreement, since they get access to a package of low tariffs. Furthermore, since entrants must grant MFN, insiders get access to many foreign markets through the incentives for entry.

This section will look at several strands of literature explicitly dealing with the impact of MFN on negotiated trade liberalization. These models typically assume that there is some "initial" (or a "threat point") tariff vector, and that countries split the surplus from choosing lower tariffs. These models can, thus, be seen as depicting the division of the gains from trade liberalization.

[15] A clause requiring a given amount of discrimination could probably serve the same purpose. What is important is that the clause increases the cost in terms of a suboptimal tariff on the other product, of levying a high tariff on any of the products.

[16] Several of these arguments were already noted by Viner (1924, 1931).

In contrast to the models reviewed above, which explicitly assumed welfare maximization, those to follow work with a reduced form utility function for negotiators, according to which reductions of trading partners' tariffs are good, reductions in own tariffs are bad, and reciprocal reductions are possibly desirable, at least to a certain point. Such a representation could indeed stem from welfare maximization, or it could reflect personal beliefs of negotiators or the governments they represent.[17] However, it could also be a reduced form of a domestic political process supporting improvements in market access abroad, and objecting to policy changes that reduce income in import competing sectors. Indeed, Bagwell and Staiger (1999a) argue that most existing political economy models may be expressed in a reduced form where government preferences are expressed as a function of a domestic price vector, and the terms of trade.[18,19]

4.1. MFN, bargaining format and bargaining externalities

Caplin and Krishna (1988) use two types of bargaining models in order to highlight the impact of MFN on trade liberalization. The first, presented in their Section V, is a static bargaining model with four countries *A*, ..., *D*, and eight products. Each country trades with two other countries, exporting one product to each and importing one product from each. Together, these links form a symmetric chain of trade relationships: *A* trades with *B* and *D*, *B* with *A* and *C*, *C* with *B* and *D*, and *D* with *C* and *A*. The preferences of each country are such that countries ideally prefer to face a zero tariff on their exports, but to have a positive tariff on their imports.

In both the MFN and the non-MFN cases, tariffs are determined through bilateral bargaining, and the outcomes are given by the Nash bargaining solutions with the noncooperative Nash equilibrium as the *status quo* point; due to the symmetry of the model, the noncooperative equilibrium does not involve any

[17] Economists have often been skeptical of this motive as a description of trade policy makers' interests, arguing that very few countries in the world are large enough for their policies to have a noticeable impact on their terms-of-trade. On the other hand, many economists would probably agree that for many countries and industries, there would be less than a one-to-one pass-through of a tariff since a fraction of the tariff would be absorbed by exporters. This would typically be the case when markets are imperfectly competitive. However, as emphasized by Bagwell and Staiger (1999a), this implies that the countries in question are "large". Naturally, this does not prove that the terms-of-trade effects constitute the motivation for negotiators, only that they might plausibly be large enough to visibly affect many countries' economies.

[18] See, e.g. the discussions in Baldwin (1987), Hillman (1989), Krugman (1991), and Rodrik (1995).

[19] It is also occasionally argued that the behavior reflects strategic considerations, and not only preferences. For instance, the reduction of a country's import barriers may be viewed as a "concession" by virtue of partly being a bargaining chip that might yield better access to export markets. While this might be an important consideration in practice, from a modeling point of view, it is desirable to keep the strategic aspects separate from the valuation of bargaining outcomes.

discrimination. In the non-MFN case, each country bargains bilaterally with each of its two trading partners over the tariffs they levy against each other. These four bargaining problems can be solved independently, due to the assumed additivity of the reduced form utility functions (which are defined over tariffs).

A central assumption in the model is that in the MFN case, each country can only participate in one negotiation, since it only has one tariff rate over which to bargain. Each country, therefore, bargains with just one partner and extends the agreed tariffs to the other partner on an MFN basis. There are, thus, two parallel negotiations determining the world equilibrium tariffs.

The paper shows that the common tariff level with MFN is *higher* than absent MFN, and that welfare is lower. The authors give somewhat conflicting explanations for this result. One interpretation is that it illustrates a free-riding problem. However, the free-riding argument builds on the strategic interaction between three countries: *A* abstains from making costly tariff concessions in the expectation that negotiations between *B* and *C* will spill-over via MFN. To capture this, the model must presumably have the property that the incentives for *A* with regard to its tariffs depend on the level of concessions between *B* and *C*. However, what happens in the negotiation between *C* and *D*, does not affect the negotiation between *A* and *B* in this model, due to the separation between the different bargaining problems.

A better interpretation (also offered by the authors) is that the model illustrates the "costly concessions" argument against MFN: when *A* and *B* bargain, both know that the agreement will also apply to third countries. Hence, compared to the case where the agreement only applies to the other party in the negotiation, a given tariff concession becomes more expensive, since it also applies to an outside party and, therefore, there will be pressure for higher tariffs with MFN.

Note, however, that the impact of MFN here does not stem from the inability to discriminate with MFN as such, but from the *change in the bargaining format* that the introduction of MFN is assumed to imply. Whereas absent MFN each country bargains with both of its trade partners, with MFN countries only bargain with one of them. By necessity, this implies that there will be externalities from the bargaining process.

The model, thus, points to two important and related features of MFN:

Observation 6. If MFN is imposed in a situation where tariffs are negotiated bilaterally, the bargaining format may have to change due to the fact that there are fewer tariffs to negotiate about.

Observation 7. Bilateral negotiations under MFN tend to give rise to externalities.

The externalities might be positive, as the free-riding argument suggests, or they might be negative, as in the present model. A situation where they might occur would be under a "Principal Supplier" arrangement, where a proposal for a

multilateral agreement is negotiated between a limited group of countries, i.e., those with the major interest in the area. The reason for the qualifying "tend to" in Observation 7 will become clear later in this section.

4.2. MFN and sequential bargaining

The three subsections to follow will deal with models where there is a sequence of negotiations, in the sense that a group of countries negotiate under the understanding that in the future, other negotiations might take place. A simple illustration of how MFN may have an impact on such a sequence of negotiations is provided by the IO literature on "Most-Favored-Customer" (MFC) undertakings. It considers the incentives for firms to make unilateral MFN-like commitments, such as a seller promising a buyer $B1$ that should another buyer $B2$ get a lower price from the seller in the future, the former will get some compensation. This could be in the form of receiving the difference between the two prices, but could also include some additional payment.

The IO literature has identified several mechanisms through which this form of commitment may strengthen the strategic position of sellers.[20] A mechanism with a fairly straightforward interpretation in terms of tariff setting, is based on the observation that an MFC commitment vis-à-vis $B1$ increases the cost for the seller of giving $B2$ a price below that received by $B1$. This will improve the bargaining position of the seller in his negotiations with $B2$ (at least within several standard types of bargaining models). Furthermore, the fact that $B2$ will not get as favorable a deal as without the MFC commitment might also affect the preceding negotiation between the seller and $B1$, in particular, if $B1$ is competing with $B2$ (for instance, if the seller supplies an intermediate product). The seller could then persuade $B1$ to accept a higher price because of the MFC obligation, since $B1$ need not fear to be outcompeted by $B2$. Depending on the bargaining solution, both the seller and $B1$ might gain from such an arrangement.

In order to transfer this mechanism to the context of tariff negotiations, suppose country A imports a product from B and C, and that there is no trade between the latter. MFN would make a concession to C more expensive for A, and A would, thus, be more reluctant to make such concessions. If this is foreseen by country B in a preceding negotiation with A, B might become more willing to make a concession, since it will not be subsequently diverted. Hence, A might benefit from MFN. More generally:

Observation 8. MFN tends to link negotiations occurring sequentially.

[20] The IO literature contains a number of papers on MFC clauses. The one referred to here is examined by Cooper and Fries (1991). Similar strategic implications of sequential negotiations between sellers and buyers are analyzed in Horn and Wolinsky (1988).

4.3. MFN and free riding

A number of popular arguments concerning the strategic effects of MFN were listed above. Most of these seem plausible as such; however, they are all partial in that they do not portray how MFN affects the whole strategic interaction in any particular bargaining situation. Several of them may also be at play at the same time, and may have conflicting effects on the outcome. Furthermore, the same alleged mechanism sometimes cuts in opposite directions. For instance, the first positive and the first negative argument above build on the same observation—MFN tends to make it more expensive to make concessions—but draw conflicting conclusions concerning the impact on trade liberalization. In order to determine the combined strategic impact of MFN on any particular bargaining situation, the bargaining must be formally modeled. Noncooperative bargaining theory offers tools for this, and we will highlight a couple of attempts in this direction.

Caplin and Krishna (1988, Section VI) develop a noncooperative sequential three-country bargaining model where countries bargain over a "trade pie" of fixed size. There is an asymmetry between countries in that country A makes all offers, and countries B and C can only reject or accept. Absent MFN, A first makes an offer to B. If B accepts, it gets it share of the pie less a negotiation cost, c. The game then ends, with C getting zero. If B rejects, A makes an offer to C. If accepted, it brings C the negotiated share of the pie, less the negotiation cost, and B gets nothing. If the bid is not accepted, the subgame starts over again with A again making an offer to B. Now a time period has lapsed, however, so any agreement needs to be discounted, as viewed from the starting point of the game. A, hence, has a very strong bargaining position since it can essentially play B against C. Indeed, the unique perfect equilibrium is that A settles immediately with B, and gets the whole pie less c, while B gets compensated for the negotiation cost it has incurred, and C gets nothing.

The version of the bargaining game under MFN has the same extensive form; however, now a bid by A is a suggestion that it will take x and leave the rest to be split evenly (because of MFN) between B and C. In order to represent the incentive to free ride, it is assumed that when A makes the offer to B, B incurs a negotiation cost if accepting the bid, a cost C escapes. In the unique perfect equilibrium, B immediately accepts A's offer which now gives B a larger share of the pie than absent MFN, and which also gives C a positive share. Intuitively, the incentive for C to free ride implies that A cannot as easily claim that if B does not agree, then A will agree with C and B will get nothing. MFN, thus, tends to even out the asymmetry in bargaining power between A on the one hand, and B and C on the other.

While the model illustrates how MFN may induce free riding in certain situations, it is somewhat difficult to see its implications for tariff negotiations. It rests heavily on the asymmetry between A on the one hand, and B and C on the other. This asymmetry does not seem to naturally correspond to any particular

feature of tariff negotiations, and it remains to be shown that the mechanism illustrated in the paper would also be present in a more symmetric setting. Another special feature is that absent MFN, the credibility of the threat by *A* against *B* to strike a deal with *C* partly stems from the fact that if *A* and *C* were to agree, there would be nothing left to negotiate about for *A* and *B*. A more plausible description of tariff negotiations, even under MFN, would leave scope for such future negotiations.

An ambitious attempt at modeling implications of MFN for tariff bargaining is undertaken by Ludema (1991). Three countries are again involved in a sequential bargaining game over tariffs, where impatience is the friction inducing the parties to reach an agreement. Each country is represented by a utility function increasing in its own tariff(s) up to a certain level, and falling in the import tariffs levied by the other countries. Two scenarios are contrasted, in one scenario, countries can set separate tariffs for each of its trading partners, and in the other each country only has one tariff level to determine.

In the bargaining, a proposer makes an offer to both the other countries, which respond simultaneously. If both countries reject, someone else makes an offer. If both countries accept, there is a "multilateral agreement". If *A* makes an offer that *B* accepts, but not *C*, *B* gets a second opportunity to respond to the offer. If *B* does not accept, another country gets the opportunity to make an offer. If *B* again accepts the offer, there is a "bilateral agreement" between *A* and *B*—this represents the *ad referendum* feature of GATT negotiations, according to which countries can make the acceptance of bids conditional on the acceptance by other countries. The essential role played by MFN is, hence, that in the case of a bilateral agreement, the agreed tariffs are also extended to the third party, who then retains the initial tariffs. In the absence of MFN, the two countries that agree can choose different tariffs against the outside country than those agreed upon between themselves.

An appealing feature of the model is that it can capture both a main argument held against MFN—free riding—as well as a common argument in its favor—that it prevents the formation of subcoalitions of countries seeking to exploit remaining countries. It is, thus, possible to evaluate the relative strength of these forces.

One of the main results is that under MFN, the unique outcome of the game is a Pareto-efficient multilateral agreement.[21] That is, despite the fact that there are incentives and possibilities to free-ride on agreements between other countries, in equilibrium, no one will find it worthwhile. Why? Basically because offers are made with the possibility of free riding in mind. The country making the initial proposal will, in equilibrium, offer just enough so that the other two countries are indifferent between accepting the offer and continuing bargaining. If *B* were to

[21] The uniqueness result rests on an elimination of certain equilibrium candidates by means of iterated dominance on a normal form version of certain subgames.

reject such an offer from *A*, hoping that *C* would accept and that there would, thus, be an agreement between *A* and *C* that could be extended to *B* due to MFN, it would induce *C* not to accept: a proposal that makes *C* indifferent when *B* accepts is unacceptable when *B* rejects, since it also includes concessions made by *B*. A rejection by *B* would then lead to continued negotiations, but with loss of time.

While derived in the context of a highly stylized model, this result is very appealing in that it demonstrates how the conventional claim concerning free riding may confuse the *possibility* of free riding with its *occurrence* in equilibrium:

Observation 9. Even if free riding is possible under MFN, negotiators might prefer to structure their bidding in such a way that it does not occur in equilibrium.

The equilibrium under MFN is Pareto-efficient with respect to the set of MFN compatible tariffs, and all three governments gain from the agreement (recall that these gains may stem from a political process and need not correspond to increases in national welfare). However, MFN is not always necessary for a Pareto-efficient and mutually beneficial agreement. When such agreements exist in the absence of MFN, they may be associated with a higher utility than when MFN is imposed: MFN constrains the set of feasible tariffs, and might thereby reduce welfare.

The model also suggests that MFN tends to equalize bargaining power among countries. This was indeed the case in the model of Caplin and Krishna (1988, Section 6). However, Ludema's model is, in several respects, more symmetric than that of Caplin and Krishna: this is due to the *ad referendum* feature, since the two countries that respond to an offer do so simultaneously, and since the identity of the country to make an offer alternates among the countries concerned. The only inherent asymmetry is that some country must be the first to make an offer.[22] It is shown that absent MFN, this asymmetry may produce pronounced advantages to the country that gets to make the initial proposal, and that this country may even take the whole "cake" in certain cases, even if countries hardly discount the future at all.[23] The reason seems to be essentially the same as in Caplin and Krishna (1988, Section 6), in that absent MFN, the proposer can credibly play one country against the other. The multilateral agreement under MFN, on the other hand, yields a symmetric outcome in the case where countries are identical and the discount factor tends toward unity. This result is interesting because of the stark fashion in which it highlights possible distributional effects of MFN. However, it

[22] The analysis does permit for differences across countries in utility functions.

[23] This is demonstrated for the case with international side payments. The bargaining problem then becomes one of dividing the "cake" by deciding on these transfers, while the size of the cake is decided through unrelated choices of tariffs.

is also disturbing, since it is hard to believe that in the absence of MFN, the distribution of the gains from bargaining over tariffs would be so heavily influenced by the identity of the first proposer.[24]

Finally, Ludema's (1991) model gives an explicit role to the initial tariffs, in that they restrict the set of outcomes that yield Pareto improvements. They also specify the tariffs that will prevail between an outside country and the other two countries, in the case where the latter form a bilateral agreement.

4.4. MFN and reciprocity

At a principle level, there is no one-to-one relationship between MFN and multilateral trade negotiations. MFN may feature both in bilateral and multilateral agreements, but is not necessary for either type of agreement. However, in practice, MFN is a prominent feature of multilateral trade liberalization, or is at least commonly held to be so. Two recent ambitious lines of research seek to highlight the interplay between MFN and other central features of the GATT/WTO contract. One approach is developed by Kyle Bagwell and Robert W. Staiger, and the second by Wilfred J. Ethier. They are both quite involved analytically and deal with a number of issues other than MFN, so the account here does not do justice to the richness of these analyses, nor to the extensive discussions of underlying assumptions they offer. We will here briefly present the framework developed by Bagwell and Staiger, and in the next subsection, that of Ethier.

Tariffs are determined in the GATT/WTO through a combination of negotiations and unilateral measures. The multilateral negotiation round is the main forum in the GATT/WTO for negotiating tariffs, and is provided for through Art. XVIIIbis GATT. However, what is agreed upon during a round can later be changed, since Art. XXVIII GATT enables Members to renegotiate their bindings. However, the agreement imposes certain limits on what can be achieved through such a renegotiation: affected parties (as defined in the article) should be offered compensation for the withdrawal of concessions in the form of an extension of *concessions on other goods* on an MFN basis by the country seeking the withdrawal, such that the affected partners are fully compensated. Alternatively, if the parties cannot agree on such compensation, affected Members may become entitled to take *countermeasures* by withdrawing "substantially equivalent" concessions of their own. In a series of papers, Bagwell and Staiger have highlighted how MFN and this latter type of reciprocity may work in concert to make initial agreements immune to renegotiation.[25]

[24] This kind of effect often appears in multiparty bargaining models of this type; see, e.g. Chatterjee et al. (1993).

[25] See Bagwell and Staiger (1998) and their piece in this volume (Bagwell and Staiger, 2001) for simpler presentations, and Bagwell and Staiger (1999a) for a more complete description.

Consider a three-country model where country A imports a like product from B and C and exports a product to each of these countries. There is no trade between B and C. Assume that government i's preferences can be expressed as a function of social welfare, and any additional political considerations that depend only on the domestic relative price, p_i. With two imported goods and two partners, Country A's social welfare may, in the absence of MFN, depend both on the terms of trade with the respective trading partner, as well as the local prices in countries B and C since they affect import volumes: all else equal, A would like imports from the exporter facing the higher tariff to be as large as possible, since this would yield more tariff revenue. Let, therefore, the objective of country A's government be written as $W^A(p_A, T)$, where T is a multilateral trade-weighted terms-of-trade index for A, the latter depending on international prices as well as local relative prices in the rest of the world: $T = T(q_B, q_C, p_B, p_C)$, where q_i is A's terms of trade with $i = B, C$. The government's welfare is, thus, assumed to increase in T. As emphasized by the authors, this representation is general enough to encompass a number of models as special cases, such as traditional maximization of national income, as well as a number of political economy models.

Bagwell and Staiger (1999a) make the basic observation that while in this type of situation there are generally several sources of international externalities from tariff setting—going through the international prices q_i as well as the local prices —only terms-of-trade matter with MFN, since the distribution of imports across exporters is then immaterial to the importing country. In terms of the model, the welfare of the country A government can, in this case, be written as $\tilde{W}^A(p_A, q)$ where q is the single international price of relevance to A. Consequently, since governments can unilaterally determine their domestic relative prices, all international externalities from tariff setting can, in principle, be remedied through an agreement on tariffs, and trade agreements can be efficient.

Observation 10. International externalities from tariffs may under MFN be concentrated to the terms of trade and may, thereby, be addressed through international tariff negotiations.

Bagwell and Staiger (1999a) portray tariff setting as taking place in two stages, the first corresponding to a multilateral round, and the second to an Art. XXVIII renegotiation. In the renegotiation stage, countries make a simultaneous bid for a new set of tariffs. For these to be admissible, they must fulfil a reciprocity requirement, according to which a change from a tariff vector $\boldsymbol{t}^0$ to another vector $\boldsymbol{t}^1$ yields equal changes in the value of exports and imports across countries, evaluated at initial world prices.[26]

[26] There are several details, some of which are important, that are left out of the description of the renegotiation stage here. For instance, if the bids in this stage are incompatible with reciprocity, etc., there is an exogenous "mechanism" that selects the outcome.

Suppose now that countries have agreed on a vector $\boldsymbol{t}$ fulfilling MFN in a first-stage negotiation round. Since the renegotiation stage game is noncooperative, there would be the usual temptations to deviate, unless this were somehow prevented. The reciprocity requirement is at least a partial remedy to this problem: once $\boldsymbol{t}$ is given, the terms of trade $q(t)$ cannot be changed under reciprocity and, thus, the standard motive for tariff increases vanishes.[27] However, even with a reciprocity requirement, governments may still want to renegotiate in order to obtain a different *domestic* relative price. Such a renegotiation will, in general, exert negative externalities on trading partners, despite the fact that the terms of trade remain unchanged: as pointed out above, importing countries will, in general, not only be concerned with their terms of trade, but also with the local prices in other countries, since these affect imports by partner countries. This is where MFN enters into the picture: under MFN, *all* externalities go through the terms of trade. Hence, a combination of MFN and reciprocity may potentially serve to stabilize agreements in the first round, depending on the tariffs agreed upon.

For there to be no incentive to renegotiate, the negotiated tariffs must be such that there is no incentive to change the domestic relative price. Under the reciprocity rule and MFN, the only efficient tariff vector that is immune to such renegotiation is, thus, the (domestically) "politically optimal" tariff vector implicitly defined by:

$$\frac{\partial \tilde{W}^A(q(t), p_A)}{\partial p_A} = 0$$

for A, and with corresponding definitions for the other countries. It is shown that for these politically optimal tariffs to be efficient, as defined relative to a situation where countries can freely negotiate and enter binding agreements on tariffs, the tariffs must indeed fulfil MFN.[28] Put differently, there will be no international externalities under MFN except for those going through international prices, and reciprocity ensures that these remain unchanged in the second stage renegotiation. Thus, if renegotiations are conducted under the reciprocity requirement there will only be a single initial agreement that is both efficient and not renegotiated, which is the set of politically optimal tariffs fulfilling MFN.

[27] A change from a tariff vector $\boldsymbol{t}^0$ to another vector $\boldsymbol{t}^1$ is said to fulfil reciprocity if for each country j, the value of imports and exports remains the same, as evaluated at initial world prices: $q^{0j}[E_x^{j1} - E_x^{j0}] = M_y^{j1} - M_y^{j0}$ where E_x^{j1} is country j's equilibrium exports of product x when the tariff vector is $\boldsymbol{\tau}^1$, M_y^{j1} is the corresponding imports of y, q^{j0} is the world price between A and country j, etc. Using the trade balance requirement, $M_y^{j0} = q^{j0}E_x^{j0}$, and the corresponding expression for the tariff vector $\boldsymbol{t}^1$, the reciprocity requirement becomes: $(q^{j0} - q^{j1})E_x^{j1} = 0$. Reciprocity hence requires unchanged international prices: $q^{j0} = q^{j1}$.

[28] This is not a generic feature of efficient tariffs, but is required by the politically optimal tariffs.

Observation 11. MFN may work in concert with restrictions on renegotiations, such as a reciprocity principle, to "stabilize" trade agreements.

In this model, the affected party is assumed to meet the renegotiation request by withdrawing concessions such that the reciprocity requirement is fulfilled. In general, however, a country wanting to renegotiate an agreement should primarily seek to compensate affected partners by *increased concessions on other goods* and, in practice, this occurs in the vast majority of cases. If the parties disagree on the amount of compensation, there are several possible outcomes. To illustrate, suppose that country A wants to increase its tariff on product X with 10%, and offers B an 8% reduction on imports of Y, but the offer is rejected by B. One possibility is that B then takes countermeasures (after approval), along the lines in the Bagwell and Staiger approach. However, if there is a dispute between the parties concerning the offered compensation, then A can always unilaterally call for the establishment of a panel in order to judge whether the offered amount of compensation—the 8%—suffices as compensation. If the panel rules that it indeed does, then B must cease any retaliatory measures, and accept the compensation. That is, the party wishing to withdraw a concession should offer compensation as the means of settlement, and it has the legal power to enforce this form of settlement by offering enough.[29] The model is not incompatible with this feature as long as each country imports one product from any other country at most, and compensation in the form of withdrawals of concessions, thus, is impossible. However, with more than one product exported to each market, it would be possible to compensate through increased concession on another good. Art. XXVIII could be given a somewhat different interpretation than the one given here. However, there are reasons to believe that the main observation of Bagwell and Staiger—the stabilizing impact of reciprocity in conjunction with MFN—is still valid in such a setting.

In the model discussed so far, renegotiation is portrayed as a unilateral deviation from the first stage agreement. Naturally, the reciprocity requirement is only relevant for tariff increases—any Member can unilaterally, and without need for any negotiation, apply a lower tariff than the country's binding, as long as it respects MFN. However, without coordination, governments cannot expect such tariff reductions to be reciprocated. Governments may, therefore, want to coordinate their renegotiation, in order to offer mutual tariff reductions beyond what was

[29] Any compensation by A in terms of increased concessions on other goods must be made on an MFN basis. What is not clear, however, is whether the retaliation must be made on such a basis. It is, thus, not clear whether B's retaliatory increase in the tariff also must be applied to its imports of Y from C. Whether this is the case or not may obviously make a tremendous difference to the incentives to renegotiate.

agreed in the preceding negotiations in the round. It has been suggested by, e.g. McMillan (1989) that one implication of MFN is to restrict the possibilities for such coalition formation, which would tend to destabilize agreements made in the round.

Bagwell and Staiger (2000) examine the role of MFN and reciprocity to prevent this type of behavior. The model is basically the same as the one described above. The interest now focuses on the extent to which various restrictions on the outcome of renegotiations affect the incentives for two of the three countries to renegotiate an initial efficient tariff vector to the detriment of the third country; i.e., whether the initial agreement is vulnerable to "bilateral opportunism". This problem is potentially very severe, since absent rules on renegotiations, *any* efficient agreement between the three countries is vulnerable to such opportunism. For instance, absent any rule on the outcome of a renegotiation, *A* and one of the other countries, say *B*, would want to make an agreement involving an increase in the tariff against *C*. However, even if bindings in the round were respected and the tariff against *C* could not be raised, *A* and *B* could still gain at the expense of *C* by lowering the tariffs between themselves, since this would indirectly lead to a terms-of-trade loss for *C*.

Then, what could be achieved by the MFN rule alone? Bagwell and Staiger (2000) show that if the initial bindings are respected some, but not all, MFN-efficient initial tariff vectors are protected from bilateral opportunism, and among them the politically optimal tariffs. However, the MFN clause is much more potent in conjunction with a reciprocity requirement: *any* initial tariffs fulfilling MFN are protected from bilateral opportunism as long as renegotiated tariffs fulfil MFN and reciprocity, regardless of whether they are efficient. This implies, in turn, that renegotiations will not harm outside parties, and that there will, thus, be no incentives for countries to seek to free ride in the renegotiation stage, regardless of initially agreed tariffs. Nor can countries during the negotiations in the round hope to be able to behave opportunistically later.

Let us make two remarks in the margin concerning the coalition formation model. First, a central assumption in the model seems to be the absence of transferable utility within coalitions. In practice, countries interact in a number of ways, and may, thus, have other means for transferring utility than through the setting of tariffs. Indeed, even within the WTO, there may be such possibilities due to the large number of Agreements it comprises. This issue is important for if utility were transferable, the countries may possibly reach an efficient solution also without MFN and reciprocity.

Second, the analysis assumes that if *C*, e.g., is threatened to be left outside a coalition between *A* and *B*, it remains passive. However, *C* might want to react in at least two ways: It might want to change its tariff in response to the formation of the coalition. Interestingly, however, the fact that *C* is insulated from externalities under MFN combined with reciprocity, removes some of the reasons why it might want to respond through a change in its tariff. The second possible reaction is that

fearing to be left out in the cold, *C* might want to, and may also be able to, offer *A* a deal that would be more attractive than what is offered by *B*. The first proposed coalition would then not be a credible threat to the agreement formed in the round. That is, the model does not predict *which* coalition will be formed. Endogenously determining coalition patterns is typically a difficult task; as the authors point out, there is no generally accepted theory for coalition formation with far-sighted players (i.e., players who completely see through the complicated negotiation process of coalition formation).[30] However, in the present model, where a coalition between *B* and *C* is presumably not possible, the coalition formation problem may be simpler than what is normally the case, in particular, in the case of MFN combined with reciprocity, due to lack of externalities.

Overall, the approach developed by Bagwell and Staiger is, in our view, extremely interesting, not least in that it requires us to nail down the core aspects of the GATT/WTO system. It is surprising to what extent various features of the system can be shown to fit together and jointly contribute to producing efficient outcomes.

4.5. MFN and multilateralism

In a number of papers, Wilfred Ethier highlights various aspects of the multilateral trading system. We will here concentrate on the main observations concerning the role of MFN, and to this end, it will suffice to discuss a simplified version of the basic model.[31]

Ethier (2000a) assumes a sequence of discrete periods, the length of each is meant to capture the time between multilateral rounds of trade negotiations. Factors of production are mobile between sectors between periods, but immobile within them. At the outset, each government inherits a tariff, which it finds too high in a sense to be explained below. In each period, there are negotiations, with some factors preferring trade liberalization and others opposing it.

Trade negotiators seek to maximize political support. In contrast to Bagwell's and Staiger's approach, the international linkage is not via terms-of-trade effects —on the contrary, terms of trade are assumed to be constant. Government popularity is instead assumed to depend on the impact of its policies on factor rewards, and on imports and exports. With regard to the former, a unilateral

[30] While a model with far-sighted players would obviously be desirable from a theoretical point of view, the predictive value of such a model is less clear, given the complexity of the strategic situation. The present coalition formation problem resembles that encountered in theories of merger formation in oligopolies; see Horn and Persson (2000) for a discussion of this literature.

[31] Informal accounts of Ethier's models of multilateral liberalization, as well as discussions of the underlying assumptions, can be found in Ethier (1998a, 2001).

liberalization will tend to increase popularity by increasing rewards by ΔR_x in the export sector, and will have a negative effect due to the reduction of real incomes ΔR_m in the import sector. In the spirit of a Corden conservative social-welfare function, Ethier allows for the possibility of the popularity being biased against reductions in incomes, in the sense of its being a convex function in the amount by which incomes fall in the import sector—the marginal political cost of reductions in incomes in the import sector increases in the size of the reductions.

A unilateral cut of the import tariff is assumed to have a *direct* effect ΔM_{D} on imports that tends to reduce political support. Similarly, a cut in the tariff by a foreign partner will have a *direct* effect ΔX_{D} on a country's exports, which will tend to boost the government's popularity. There will also be indirect effects on imports and exports from liberalization, through the workings of the general equilibrium system of the economy. These are assumed to have a smaller weight in the linearized political support function, however. Because of the trade balance condition, and the constant terms of trade, the change in the government's popularity from some trade policy measure is:

$$\Delta S = \Delta R_x - (-\Delta R_m)^{1+\gamma} + \mu(\Delta X_{\mathrm{D}} - \Delta M_{\mathrm{D}}),$$

where $\gamma > 0$ captures the Corden sensitivity to tariff cuts, and $\mu > 0$ captures the extent to which direct effects dominate indirect ones.

From this specification, it follows that unilateral tariff reductions will reduce the government's welfare, and will, thus, not be undertaken, while sufficiently small reciprocal liberalizations increasing total factor rewards are desirable from the government's point of view. However, governments are not willing to reciprocally go all the way to global free trade in one step (due to the convexity of the popularity function with respect to ΔR_m). A given trade liberalization will find more political support (in the sense of being associated with higher per-period levels of political support) if spread over several periods. There is, thus, a certain form of *gradualism* built into the model. This gradualism is not the result of a deliberate inter-temporal optimization (the negotiators are assumed to be myopic), but rather the outcome of a sequence of short-run political processes.

Ethier (2000a) suggests that MFN provides two forms of insurance against concession diversion. First, it gives a *direct* insurance: if countries *A* and *B* negotiate an agreement, any subsequent agreement between *B* and *C* would be automatically extended to *A*, through the MFN agreement between *A* and *B*. However, while MFN ensures that a strictly lower tariff is not offered to other countries, it does not prevent the *same* offer to be extended to other countries and, thus, the value of the agreement between *A* and *B* is diluted. Hence, this direct insurance does not seem to fully offset the problem of concession diversion.

However, a general MFN scheme also provides a certain *indirect* insurance against concession diversion: if *C* has extended MFN to a country *D* that competes with *B*, then an agreement between *B* and *C* tending to divert

concessions away from *A* would have to be extended by *C* to its partner *D*. Such an attempt may, therefore, from the point of view of *B*, not be very attractive, since it would not grant *B* any special privileges. Consequently, the incentives for *B* to divert concessions away from *A* to *C* are not very strong, and a bilateral agreement between *A* and *B* is, as a result, more easily reached. This indirect insurance is stronger, the more countries have MFN agreements with *C*. Ethier (2000a) emphasizes that it is through this indirect insurance that MFN counters problems of concession diversion.

Suppose now that, initially, countries have not formed any bilateral or multilateral agreements. The governments will then have incentives to form reciprocal bilateral agreements that are too far reaching, as long as they trust that their concessions will not be diverted in the future. To ensure this, these agreements will feature MFN—as argued above, such a clause will provide both direct and indirect insurance against concession diversion. Ethier (2000a) does not explicitly model the bargaining game, but assumes that MFN suffices to solve the problem and that governments, therefore, have incentives to participate in a process of gradually forming bilateral agreements. In this sense, MFN can be said to promote negotiated trade liberalization at an initial phase of liberalization.

During this process, the incentives to participate in bilateral agreements tend to gradually diminish, for two reasons. First, for each additional bilateral agreement into which government *A* enters, a further bilateral concession by *A* to *B* becomes less valuable: the market access that *A* obtains in each new agreement must be shared by an increasing number of countries that *B* has already granted MFN status. Second, the market access concession that *A* must give away in order to reciprocate the access it gets from *B* becomes increasingly expensive, since there are more and more partners that *A* has already granted MFN status. Eventually, there is a point when this process of liberalization comes to a halt, and where it becomes necessary to internalize the external effects of any further agreements. Thus, the agreements must now become *multilateral*, so that those who already have bilateral MFN agreements are brought into the negotiations and are made to contribute in terms of reciprocal concessions:

Observation 12. If MFN provides insurance against concession diversion in bilateral agreements, then with bilateral agreements being sufficiently widespread, further liberalization may eventually have to be multilateral.

An interesting and distinguishing feature of this analysis is its long-run, or "systemic" perspective. The object of study is not so much the individual round, but the evolution of trade liberalization over time. This broad perspective comes at the cost of a less detailed modeling of negotiations. The approach is to argue informally why MFN solves the concession diversion problem, and then build the analysis on the assumption that it does. However, the strategic interaction is

complex already with three players, as evidenced by Ludema's (1991) analysis, and with more players there are additional layers of complexity. Therefore, it is not self-evident that MFN would have the assumed effect.[32] It can also be noted that the model does not explain why there is a phase in which bilateral agreements are formed, only that agreements must eventually be multilateral. However, one could probably advance a plausible argument to this end based on the complexities and costs of conducting multilateral negotiations.

The models of Bagwell and Staiger, and of Ethier, are rather different and emphasize rather different aspects of MFN. The former shows how the *sole* role of trade negotiations is to address international externalities that go through terms of trade, while Ethier only focuses on political externalities that do *not* go through terms of trade. Interestingly, both approaches suggest a positive role for MFN, in both cases when complemented with another salient feature of the trading system. In the case of Bagwell's and Staiger's analysis, MFN is complemented by reciprocity: MFN and reciprocity jointly imply that there need not be any negative externalities from bilateral renegotiations. Ethier, on the other hand, puts no restrictions on negotiations other than MFN, but instead argues that multilateralism is what prevents MFN from being eroded through concession diversion. Since the equilibrium outcome in the former framework is one that is not renegotiated and, in the latter model, one where there is no concession diversion, the role of MFN is in both cases to restrict the possibilities in "out-of-equilibrium" events. Put differently, MFN is a restriction on the set of efficient outcomes and as such, may lower welfare. It has, however, the virtue of making constrained efficient outcomes of negotiations more stable.

4.6. MFN and PTAs

The WTO Agreement allows for several exceptions to MFN, and some of these, in particular, PTAs, have received considerable attention in the theory literature. While it may seem natural to include here a comprehensive discussion of this literature, we will abstain from doing so, partly due to space constraints, and partly to the fact that the PTA literature has been thoroughly surveyed a

[32] For instance, while MFN would indeed require country *C* to extend the concessions it is to give to *B* to its old partner *D*, as argued above, does it not at the same time also limit the amount that can, subsequently, be diverted from *B* to *D*? That is, does not MFN provide *B* with direct insurance in an agreement with *C*, and therefore tends to make this agreement more palatable, thus reducing the scope for an agreement between *A* and *B*? Likewise, does not the indirect insurance it provides to *B* in an agreement with *C* increase the probability that *B* will divert concessions already granted to *A*? If so, could iteration not be taken one step further and it be argued that MFN will support an agreement between *A* and *B* by undermining an agreement between *B* and *C* by supporting an agreement between *C* and *D*, etc.?

number of times fairly recently.[33] However, there is also another reason: while this literature studies phenomena that by themselves require exemptions from MFN, the focus is typically not on MFN versus non-MFN. It is, therefore, not so easy to draw any conclusions concerning MFN from this literature. For instance, it has been amply shown that there is no one-to-one correspondence between PTAs, trade diversion, and welfare. For example, the formation of a PTA is not sufficient for trade diversion to arise: if a product was not imported from *C* before the PTA between *A* and *B*, it will not be diverted despite the fact that imports of this product from *C* are discriminated against in the union. Nor is the formation of a PTA necessary for trade diversion: it may arise with other types of changes in tariffs than when a PTA is formed. While trade diversion is necessary for welfare to fall from a PTA (at least in the models employed in the earlier literature), it is not sufficient, since it may be dominated in welfare terms by trade creation. Moreover, there is no one-to-one correspondence between the abandonment of MFN and the formation of PTAs, since the abandonment of MFN may, but need not, lead to the formation of PTAs, and if it does, the type of PTA structure that arises matters greatly for welfare. Conversely, the formation of PTAs does not necessarily *introduce* a deviation from MFN, since the starting point could also be incompatible with MFN.

However, there are a few more recent strands in the literature on PTAs that are of more direct relevance for the issue at stake here. One is the "endogenous tariff" literature, which portrays situations where PTAs as well as outsiders set tariffs unilaterally, given exogenously assigned PTA structures. A conclusion that might be drawn from this literature is that MFN may increase welfare by preventing the formation of PTAs that only serve to exploit monopoly power.

The "endogenous tariffs" literature treats the structure of PTAs as exogenous, while at the same time suggesting that the welfare consequences may be very different, depending on the particular countries participating in the arrangement. There are some strands of literature, however, that seek to endogenously determine the structure of PTAs, and where the role of MFN is, thus, more easily seen.

An early model of endogenous formation of PTAs was provided by Riezman (1985). Among other things, it was shown that two countries may form a customs union (CU) despite the fact that its members would prefer free trade, and that free trade would be better for the three countries together. Another interesting contribution is offered by Yi (1996), who applies a noncooperative model of coalition formation to the formation of CUs. In contrast to Riezman (1985), the number of members of each CU is endogenously determined. The formation of CUs takes place under two alternative rules for entry into a CU: under the "open regionalism" rule entry is free, and with the "unanimous regionalism" rule every member must agree to an expansion. A main finding in the paper is that while the former

[33] See, e.g. Baldwin and Venables (1995), Bhagwati and Panagariya (1996), and Winters (1996).

rule leads to the formation of a CU comprising all countries (i.e., to global free trade), the latter does not. This model does not directly address MFN, since MFN is not equivalent to free trade. However, a lesson concerning MFN seems to be that its impact depends critically on the "rules of the game" of the formation of trading blocs.

Like any form of international integration, the formation of PTAs is likely to benefit some individuals and firms in integrating countries and be harmful to others. There are several recent analyses of the interplay between the domestic political system and the formation of PTAs. One contribution along these lines is provided by Grossman and Helpman (1995), who suggest a reason why Free-Trade Areas (FTAs) may more likely be formed in cases where trade diversion dominates trade creation. Other political economy frameworks that might shed light on the impact of MFN are presented by Levy (1997), and Krishna (1998), who examine how the formation of a PTA may affect future political decisions on multilateral trade liberalization. All three models suggest that MFN may have desirable welfare consequences by constraining the domestic political process, an idea that sometimes also put forth in the policy debate.

PTAs are almost invariably the outcome of bargaining. One of the very few formal studies of such a bargaining process is presented by Ludema (1996), who employs a noncooperative sequential bargaining model to study multilateral bargaining among three countries in a situation where this bargaining is conducted with the understanding that any pair of countries may choose to form a PTA. The latter, thus, serves as an outside option in multilateral bargaining. The paper could, therefore, also be seen as one of endogenous formation of PTAs, and it makes a number of interesting observations concerning strategic implications of PTAs in the context of multilateral negotiations. For instance, an MFN clause may influence the outcome of a multilateral negotiation by preventing the formation of PTAs, even in a case where a PTA would not be formed in equilibrium, even if permitted.

5. Summary and concluding discussion

It is not easy to summarize the economic literature on MFN in a few words, except that matters are complicated and "it all depends"; an expected conclusion given the complexity of the issues involved. However, a few themes do seem to emerge:

(1) Whether a world welfare maximizing tariff structure is nondiscriminatory depends on the rationale for the tariffs.

(2) Countries may choose globally inefficient discriminatory tariffs when these are determined unilaterally. However, the source of the problem is not discrimination per se, but the form it takes.

(3) A country that absent an MFN clause would choose to discriminate, may gain from the imposition of such a clause.

(4) An MFN clause may affect the outcome of negotiations even if imposed in situations where the negotiations would not result in tariffs violating MFN. More generally, MFN affects "out-of-equilibrium" events, and may, therefore, be of more importance than what meets the eye.

(5) Bilateral negotiations conducted under MFN are absent further restrictions associated with externalities, since the outcome of such negotiations affects parties not present in the negotiations.

(6) However, MFN may work in concert with other characteristic features of the GATT/WTO system, such as reciprocity, in order to render stability to multilateral trade agreements. It may also promote multilateral trade liberalization by making bilateral liberalization increasingly unattractive, the more widespread it has become.

(7) Free riding can be given at least two interpretations. One is that a country rejects an offer in order to let other countries reach agreements from which it can benefit without having to make concessions itself. This would be inefficient either because there would be delays in achieving an agreement, or because the agreement would feature higher tariffs compared to some other (undefined) situation. This possibility has seemingly not found any support in the literature—equilibrium offers are devised such that acceptance is immediate. The other possible definition is that there is free riding when the possibility of rejecting an offer in order to let other parties agree affects strategic interaction and, thus, the size and distribution of the surplus. The literature gives more support to this notion.

(8) MFN is likely to have distributional impacts, and there seems to be a presumption that it equalizes outcomes in negotiations, and benefits smaller countries.

(9) MFN may promote multilateral trade liberalization by countering political interests that would otherwise steer the political outcome toward the formation of PTAs. The implication for welfare partly depends on the rules for accession to these arrangements.

The above literature is rather small, considering the multitude of aspects of MFN that need to be taken into account in order to assess its pros and cons and, so far, many important aspects have received no or only limited attention; some of these will be pointed out below. However, if forced to make an overall assessment of the virtues of MFN *on the basis of findings above*, we would be inclined (but not without trepidation) to argue that the theoretical literature does tend to support the clause. We would then lean quite heavily against the analyses of Bagwell and Staiger, Caplin and Krishna, Ethier, and Ludema, which all reach positive conclusions. The above-mentioned political economy models of PTAs also seem to point in this direction, given the caveats mentioned above concerning the applicability of these models to the question concerning MFN. However, it can be

noted that this positive verdict is then typically based on rather involved analyses, whereas the simpler arguments for MFN do not seem to hold up.

So far, we have mainly been backward looking, trying to describe the main findings in the literature on MFN. We will end by looking forward, discussing some approaches and problems that seem worthy of more attention.

5.1. MFN and bargaining

An area where further progress could be made is the strategic impact of MFN on bargaining. Needless to say, the use of bargaining models is not unproblematic. One downside of the strategic models is easily spotted—their analytical complexity. Already two-person bargaining models of this type might be hard going for nonspecialists. However, with the addition of another player and the possibility to form subcoalitions, the complexity takes a quantum leap, and one must largely rely on models from the research frontier of bargaining theory.[34] Apart from limiting the potential authorship as well as readership of such analyses, this complexity also raises serious questions concerning the assumed mental capacity of negotiators.

Nevertheless, the strategic bargaining approach seems underexploited as a tool for the study of MFN. Its virtue does not lie so much in the particular propositions it yields; rather, when formulating a model of this kind, one must be explicit about a number of institutional aspects that are swept under the rug in other contexts. Some of these, like the sequence of offers and counteroffers, seem artificial, and it is disturbing when they have a significant impact on the outcome. On the other hand, many other institutional features that must be specified in the formulation of the model, may at first seem unimportant, but turn out to be of considerable significance at a closer look.

There also appears to be much more scope for fruitful applications of cooperative models of, e.g. coalition formation to studies of MFN. These models are particularly useful in situations where it is infeasible to analytically handle the strategic complexity of the interaction. By side-stepping details of this interaction, they sometimes allow the analyst to highlight phenomena that would otherwise go undetected.[35]

Bargaining models could be used to cast light on a number of issues; we will here only suggest a few.

[34] Some of the logic from the two-person models might even be reversed. For instance, while patience is typically an asset in a two-person bargaining situation, it may be a disadvantage in a three-player context, where two less patient negotiators may prefer to exclude the patient party from an agreement.

[35] Interestingly, while these models are not "politically correct" among many economists, they are often viewed much more eclectically by game theorists; see, e.g. Osborne and Rubinstein (1994).

5.1.1. The bargaining structure in the WTO

When modeling multilateral negotiations, there is need for clearer distinctions to be drawn between the level at which agreements are negotiated, formed and enforced. In the WTO, negotiations mainly take place between subsets of Member countries. Sometimes, this is "officially sanctioned", as in the case of Principle Supplier negotiations. However, also in seemingly multilateral negotiations, "actual" negotiations occur between a very limited number of countries. As far as we can see, the literature does not throw much light on the interplay between MFN and these informal bargaining procedures.

5.1.2. The role of information in trade negotiations

The bargaining models reviewed above presume full information. This seems appropriate since most claims about the impact of MFN on bargaining do not concern information problems, and from an analytical point of view, it is clearly a natural starting point due to the complexity of imperfect information bargaining models. A problem with perfect information bargaining models, however, is that they typically predict that parties will reach an agreement immediately—the bargaining, thus, in a certain sense takes place "out-of-equilibrium", or in the minds of negotiators. This raises the obvious question of the extent to which perfect information models are useful for understanding multilateral trade negotiations. In most bargaining, informational asymmetries play a role, and there is no reason to expect trade negotiations to be different. One might, therefore, wonder whether MFN may interact with informational asymmetries in any particular way in such bargaining. We are not aware of any models of this type; however, a paper by McCalman (1998) might suggest one such interaction, even though it does not model negotiations.

McCalman (1998) focuses on the role of MFN in a situation where trade agreements are concluded under asymmetric information. The model is roughly as follows. A dominant country A seeks to extract surplus from two small countries B and C with idiosyncratic, and to other countries unknown, valuations of a free-trade agreement with A. A's problem is to design a take-it-or-leave-it offer for tariff-free access to each of its trade partners in return for a "contribution" from each partner for the market access. If A asks B, say, for too large a contribution, there might not be an agreement, and if it asks for too little, it foregoes some surplus. However, A can design a mechanism such that B reveals its true valuation. It can also have an identical, but separate arrangement with C as long as the trade between A and B is unaffected by whether A makes an agreement with C and vice versa. These proposals must have the property that if B or C claim a sufficiently low valuation, they will not get an agreement, since otherwise they would both be claiming to have low valuations in order to limit their contribution to A. There might, therefore, be countries with valuations of free trade that exceed the cost to A of granting free trade that will, nevertheless, not get such an agreement—i.e., the offered contracts might give rise to an

inefficiency relative to a full information situation. Put differently, *A* will forego agreements with lower valuation countries in order to squeeze a surplus out of high valuation countries.

The possibility to use such a scheme is different under MFN, since the two partners must be treated the same ex post: *A* either grants both *B* and *C* free trade or neither of them. As a result, countries with too low a valuation of a free-trade contract to obtain one absent MFN, might get such an agreement with MFN. At the risk of taking the speculation too far, a similar impact of MFN might be found in the context of multilateral trade negotiations: perhaps MFN reduces the transmission of information between countries about their preferences over trade agreements?[36]

5.1.3. The incentives and possibilities to commit to MFN

The above method of analyzing MFN whereby the impact of exogenously imposing MFN on a bargaining situation is studied, is unsatisfactory in several ways. To start with, the MFN clause presumably requires some form of commitment possibility or enforcement in order to be effective, but this is not modeled.[37] This raises the question of what else could be done with this commitment possibility? Why only commit to MFN and not directly to an efficient trade agreement? Furthermore, how come that MFN is implemented at all, if certain countries gain and other lose, as suggested by many of the models examined above? In the case of the GATT/WTO at least, it might plausibly be argued that the MFN clause was agreed upon in a situation where the parties did not fully know the economic circumstances under which it would apply.[38] However, if this argument is to be taken seriously, uncertainty becomes a crucial ingredient in an evaluation of the (ex ante) welfare impact of an MFN clause, and there are very few analyses of this kind.

More generally, a major weakness with the literature is the fact that there does not appear to exist models where MFN is an *endogenous* feature of an agreement. MFN always seems to be the result of a previous agreement, imposed the negotiation, the countries under study. However, this previous agreement was presumably partly influenced by the expectations of the impact of MFN on future

[36] The analysis of Feenstra and Lewis (1991) takes a step in this direction by considering a two-country asymmetric information bargaining model of the GATT.

[37] One exception is the analysis by Bagwell and Staiger (1999b) of self-enforcing trade agreements. Using infinitely repeated tariff setting games with three countries, they ask whether the existence of a free-trade area or a customs union between two of the countries will enhance or reduce the possibility of a multilateral agreement. As it turns out, the answer could go in either direction for both types of PTAs.

[38] Ethier (2000b) underlines the importance of such uncertainty for understanding multilateral liberalization, but in the context of safeguards rather than MFN.

negotiations. It would be interesting to see these considerations laid out in more detail.

5.1.4. The components of multilateral MFN

Studies of the impact of MFN on bargaining normally (and quite naturally) view it as a joint undertaking among the negotiating countries; the alternative being the situation with no MFN obligations. From an analytical point of view, it might be fruitful to disentangle the joint undertaking into separate bilateral relations, and then analyze the implications of each such undertaking. For instance, already with three countries, *A*, *B* and *C*, there are several forms of MFN undertakings that might affect a negotiation between *A* and *B*:

- *A* is already committed to give *B* whatever *A* gives to *C*;
- *A* is already committed to give *C* whatever *A* gives to *B*;
- *C* is already committed to give *B* whatever *C* gives to *A*;
- *A* negotiates with *B* to give *B* whatever *A* gives to *C*; or
- *A* is expected to commit to give *C* whatever *A* gives to *B*.

This list is not meant to be exhaustive, but simply to show how a universal MFN clause might be decomposed into unilateral undertakings. A systematic study of these might provide a more thorough understanding of the strategic impact of the web of MFN commitments constituting a general MFN clause. If nothing else, it should highlight reasons why the MFN obligation is normally multilateral and reciprocal.

5.2. MFN and nontariff policy instruments

The discussion above focused entirely on models where MFN applies to tariffs, and was mainly relevant for goods markets. However, MFN also applies to other policy instruments. For instance, there is such a clause in GATS, an agreement primarily addressing government regulations (licensing, technical standards and qualification requirements, for instance), and quantitative restraints. There are, thus, strong reasons to believe that most of the analyses reviewed so far cannot readily be applied to these instruments. There is very little formal literature on the role of MFN in these contexts; however, to our minds, this is one of the most glaring deficiencies of the MFN literature, and a main area to which future research should be directed.

An interesting exception is Mattoo (2000), who discusses a variety of legal and economic aspects of MFN in the GATS. To get a glimpse of the type of issues that might arise in the context of services, consider a country *A* that can potentially import services from two partners *B* and *C*. *A* maintains a regulation of the supply of these services that increases the costs of supplying the market in *A*. Initially, both partners receive MFN treatment, in that neither of the national

regulations in *B* or *C* are recognized by *A*. Assume that *A* and *B* now sign a Mutual Recognition Agreement (MRA), allowing suppliers from *B* to avoid the extra cost when serving market *A*. This will affect the possibility for *C* to export to *A*, and the consequences are superficially similar to traditional trade creation and trade diversion effects. For instance, suppose that *C* serves the market initially. An MRA between *A* and *B* might now divert imports from *C* toward *B*. In the standard case, consumers would gain; however, there would be trade diversion in the form of lost tariff revenue, and the latter might dominate the former from a welfare point of view. In the present context, however, the diversion need not be associated with a cost. Suppose that the original barrier—the retraining in order to enter the market—did not give rise to any revenue in *A*. In this case, there would be no revenue to lose due to the diversion, and the MRA would improve *A*'s welfare. On the other hand, if retraining were previously done in country *A*, there would be a loss of income in *A*, and the diversion would incur social costs. Hence, in order to assess the welfare consequences even in this simple example, the exact way in which regulation is costly would have to be modeled in more detail.

Needless to say, this example only captures a small part of the story since it takes no account of possible gains from regulation. In the example, professionals were implicitly assumed to be perfect substitutes; however, in practice, they might differ, which might have important implications for the welfare analysis. For instance, suppose that the example concerns medical services, and that *A* and *B* are developed countries providing good medical educations, while *C* is a very poor country with limited resources for medical training. Should a multilateral MFN agreement in such a case require that the MRA between *A* and *B* is extended to *C*? This clearly raises issues that are not dealt with in the existing MFN literature.[39]

5.3. MFN and administered protection

One of the major sources of actual and permitted deviations from MFN in the WTO is administered protection in the form of, e.g. antidumping duties, countervailing duties, safeguards, etc. There is a correspondingly large literature on these policy tools. However, most of this literature does not directly address MFN, partly for the same kind of reason that much of the PTA literature is of less relevance to this issue.

It is clear that administered protection is typically discriminatory, and as such violates the nondiscriminatory spirit of the WTO Agreement. However, its role in the multilateral system may be more multifaceted than this. For instance, Ethier

[39] Mattoo (2000) informally discusses MFN-related aspects of a number of other issues, including competition policy, grandfather provisions, and quantitative restrictions in the services context.

(2000b) argues that such unilateral actions, or rather the possibility to undertake them, actually *increase* the rate of trade liberalization. When governments negotiate during rounds, it is understood that there will be future changes in the distribution of comparative advantages across countries; however, these are very hard to foresee at the time of negotiation. Bindings cannot be made state dependent, for a number of reasons, however. A central feature of administrative protection is that it introduces a degree of state dependence into the trade liberalization agreement, since it allows governments to, at least temporarily, dampen the adverse effect for special interest groups of changes in comparative advantages. By being discriminatory, these measures target the main sources of the adverse trade effects, and in a sense, thus, limits the amount of protection introduced. As a consequence, governments will find it desirable to proceed further in multilateral liberalization than otherwise. That is, in Ethier's (2000b) model, multilateral trade liberalization under MFN actually requires these exceptions in order to be attractive. The problem is, naturally, to limit the use of these instruments sufficiently to avoid completely undoing the negotiated trade liberalization.

Given the practical importance of administrative protection, and the obvious tension between these tools and MFN, this should be a main area for future research.

5.4. MFN and foreign direct investment

A recent strand of literature suggests that MFN may have important consequences through its impact on foreign direct investment. Several such channels are suggested. One is explored by Motta and Norman (1996), who show how PTAs may induce inward foreign direct investment (FDI), while reducing the degree of FDI within the PTA. A similar type of adjustment to the formation of PTAs is suggested by Puga and Venables (1997) in the context of an economic geography model, in which the reduction of trade costs between a subset of countries may pull industry into these countries.

Another mechanism is highlighted by Glass and Saggi (2000), who look at the incentives for a host country to tax local production by multinationals from two countries differently. An MFN clause might prevent such discrimination, and might, therefore, have consequences for the incentives for FDI.[40]

Yet, another perspective is provided by Ethier (1998b). In his model, successful multilateral liberalization induces countries with less open trade regimes to liberalize. However, these countries see inward FDI as necessary in order to enter world markets. Due to the competition for FDI, the credibility of policy reforms is

[40] Such taxation would violate the MFN clause in the GATT if the legal entities through which the multinational firms produce in the host country were foreign nationals.

crucial to success. A PTA involving deeper integration with a larger established partner may help in this respect, partly by presenting enforcement mechanisms that the multilateral trading system lacks. Once the necessary reforms have been undertaken, these countries will become integrated with the multilateral framework. As in the case of Ethier's (2000b) model incorporating administered protection, the exemption from MFN promotes multilateral liberalization in the longer run.

Considering the actual magnitude of FDI today and the extent of multinational production, it is clear that more research on the impact of MFN for FDI is highly warranted.

5.5. Quantifying the importance of MFN

The economic literature discussed so far has been entirely theoretical. It would definitely be very interesting to know more about the empirical importance of the MFN clause. It is clear that a significant proportion of world trade is exempt from MFN, for instance, due to PTAs. It might perhaps also be argued, as do Schwarz and Sykes (1996), that to the extent the temptation to discriminate stems from differences in export supply elasticities, MFN is likely to be quantitatively unimportant, since these differences can on average not be large, given the like product requirement.

An attempt to quantify these effects is made by Ghosh et al. (1998), who employ a numerical model calibrated to 1992 Global Trade Analysis Project. As in Caplin and Krishna (1988, Section 3), the object of study is an exchange economy. However, the model of Ghosh et al is more general, in particular, by allowing for a more general representation of preferences and also allowing for differences across countries in the endowment of the exportable. The model assumes perfect competition in all markets, and that consumer preferences can be represented by a CES two-stage utility function. The upper stage distinguishes between the domestically produced good and a composite of imports, thus reflecting an Armington assumption, while the lower stage distinguishes between different imports. The world is divided into seven regions, each endowed with a fixed amount of its export good.

Several experiments are undertaken. One of the exercises in the paper compares the benchmark 1992 equilibrium with two types of Nash equilibria. In one equilibrium, countries are free to discriminate, while they are constrained to MFN tariffs in the other. This exercise can, thus, be seen as being of the same type as those above, where MFN is imposed on unilateral tariff setting. It might also be of interest from another point of view, since these Nash equilibria are often viewed as "trade war" outcomes. The question highlighted can, hence, be viewed as whether adherence to MFN would quantitatively make much of a difference for the "threat points" in negotiations. The answer is that in this model it would not, neither to the smaller nor to the larger regions. However, the interest of this finding is

somewhat limited by "... the admittedly strong assumption that in a trade war, even if countries violate their GATT/WTO bound tariff levels, they still abide by the terms of GATT Article 1" (Ghosh et al., 1998, p. 6).

A second exercise is based on the notion that side payments are required in order to sustain free trade as a bargaining outcome. These payments need not be in cash, but may come in terms of changes in domestic policies. Similar to in Caplin and Krishna (1988, Section 5), MFN affects the bargaining structure, since it rules out bilateral bargaining, and instead leads to multilateral bargaining. The authors compute the difference in payments from small to large regions when comparing a regime of bargaining without MFN to one with MFN, using both the Nash bargaining solution, and the Kalai–Smorodinsky solution, with the noncooperative Nash equilibrium as a threat point. MFN is reported to significantly benefit smaller countries.

We should probably not be too optimistic concerning the possibility to compute the quantitative importance of MFN with any degree of precision. For instance, as we have seen above, much of the "action" might be out-of-equilibrium, which gives rise to formidable difficulties for measurement. Nevertheless, there might be interesting lessons to be had in the process of trying to quantify the importance of the clause.

Acknowledgements

This paper was written while Horn worked for the Economic Research and Analysis Division, World Trade Organization. The views expressed here are not intended to reflect those of the WTO or any of its Members.

We are very grateful for extensive and very helpful exchanges with Kyle Bagwell, Wilfred J. Ethier and Robert Staiger, for comments by and discussions with Rodney Ludema, James Markusen and Håkan Nordström, and for editorial assistance by Christina Lönnblad. Financial support from the Foundation for Economics and Law, Stockholm, and Jan Wallander's and Tom Hedelius' Research Foundation, is gratefully acknowledged.

References

Bagwell, K., Staiger, R., 1998. Will preferential agreements undermine the multilateral trading system? Economic Journal 108, 1162–1182.

Bagwell, K., Staiger, R., 1999a. An economic theory of GATT. American Economic Review 89, 215–248.

Bagwell, K., Staiger, R., 1999b. Regionalism and multilateral tariff cooperation. In: Piggott, J., Woodland, A. (Eds.), International Trade Policy and the Pacific Rim. MacMillan, London, pp. 157–185.

Bagwell, K., Staiger, R., 2000. Multilateral trade negotiations, bilateral opportunism and the rules of the GATT. Mimeo.

Bagwell, K., Staiger, R., 2001. Reciprocity, non-discrimination and preferential agreements in the multilateral trading system. European Journal of Political Economy 17 (in preparation).

Baldwin, R., 1987. Politically realistic objective functions and trade policy. Economic Letters 24, 287–290.

Baldwin, R., Venables, A., 1995. Regional economic integration. In: Grossman, G., Rogoff, K. (Eds.), Handbook of International Economics, vol. 3. North-Holland, Amsterdam, pp. 1597–1644.

Bhagwati, J., Panagariya, A., 1996. Preferential trading areas and multilateralism—strangers, friends, or foes? In: Bhagwati, J., Panagariya, A. (Eds.), The Economics of Preferential Trade Agreements. The AEI Press, Washington, DC, Chap. 1.

Caplin, A., Krishna, K., 1988. Tariffs and the Most-Favored-Nation clause: a game theoretic approach. Seoul Journal of Economics 1, 267–289.

Chatterjee, K., Dutta, H., Ray, D., Sengupta, K., 1993. A theory of noncooperative coalitional bargaining. Review of Economic Studies 60, 463–477.

Choi, J.P., 1995. Optimal tariffs and the choice of technology: discriminatory tariffs vs. the 'Most Favored Nation clause'. Journal of International Economics 39, 143–160.

Cooper, T., Fries, T., 1991. The Most-Favored-Nation pricing policy and negotiated prices. International Journal of Industrial Organization 9, 209–223.

Cottier, T., Mavroidis, P.C. (Eds.) 2000. Regulatory Barriers and the Principle of Non-Discrimination in World Trade Law: Past, Present, Future. World Trade Forum, vol. 2. Univ. Michigan Press, Ann Arbor, USA, pp. 67–116.

Davis, H., 1942. America's trade equality policy. American Council on Public Affairs, Washington, DC.

Ethier, W.J., 1998a. The international commercial system. Essays in International Finance, No. 210. Department of Economics, Princeton University.

Ethier, W.J., 1998b. Regionalism in a multilateral world. Journal of Political Economy 106, 1211–1245.

Ethier, W.J., 2000a. Reciprocity, non-discrimination and a multilateral world. Mimeo.

Ethier, W.J., 2000b. Unilateralism in a multilateral world. Mimeo.

Ethier, W.J., 2001. Theoretical problems in negotiating trade liberalization. European Journal of Political Economy 17, 209–232, This issue.

Feenstra, R., Lewis, T., 1991. Negotiated trade restrictions with private political pressure. Quarterly Journal of Economics 106, 1287–1306.

Gatsios, K., 1991. Preferential tariffs and the 'Most-Favoured-Nation' principle: a note. Journal of International Economics 28, 365–373.

Ghosh, M., Perroni, C., Whalley, J., 1998. The value of MFN treatment. Working Paper 6461, National Bureau of Economic Research, Cambridge, MA.

Glass, A.J., Saggi, K., 2000. Crowding out and distributional effects of FDI policies. Mimeo.

Grossman, G., Helpman, E., 1995. The politics of free trade agreements. American Economic Review 85, 667–690.

Hillman, A.L., 1989. The Political Economy of Protection. Harwood Academic Publishers, Churchill.

Horn, H., Persson, L., 2000. Endogenous mergers in concentrated markets. International Journal of Industrial Organization, in preparation.

Horn, H., Wolinsky, A., 1988. Bilateral monopolies and incentives for merger. Rand Journal of Economics 19, 408–419.

Hull, C., 1948. The Memoirs of Cordell Hull. Hodder and Stoughton, London.

Hwang, H., Mai, C.-C., 1991. Optimum discriminatory tariffs under oligopolistic competition. Canadian Journal of Economics 24, 693–702.

Irwin, D., 1993. Multilateral and bilateral trade policies in the world trading system: an historical perspective. In: de Melo, J., Panagariya, A. (Eds.), New Dimension in Regional Integration. Cambridge Univ. Press, Cambridge, pp. 90–119.

Jackson, J., 1997. The World Trading System—Law and Policy of International Economic Relations. 2nd edn. MIT Press, Cambridge, MA.

Johnson, H., 1976. Trade negotiations and the new international monetary system. In: Curzon, G., Curzon, V. (Eds.), Commercial Policy Issues. A.W. Sijthoff, Leiden.

Klemperer, P., 1987. The competitiveness of markets with switching costs. Rand Journal of Economics 18, 225–248.

Krishna, P., 1998. Regionalism and multilateralism: a political economy approach. Quarterly Journal of Economics 113, 227–252.

Krugman, P.R., 1991. The move toward free trade zones. Policy Implications of Trade and Currency Zones: A Symposium. Sponsored by The Federal Reserve Bank of Kansas City, The Federal Reserve Bank of Kansas, Jackson Hole, pp. 7–41.

Levy, P., 1997. A political–economic analysis of free-trade agreements. American Economic Review 87, 506–519.

Ludema, R., 1991. International trade bargaining and the Most-Favored-Nation clause. Economics and Politics 3, 1–20.

Ludema, R., 1996. On the value of preferential trade agreements in multilateral negotiations. Georgetown University Working Paper No. ewp-it/9802003.

Mattoo, A., 2000. MFN and the GATS. In: Cottier, T., Mavroidis, P.C. (Eds.), Regulatory Barriers and the Principle of Non-Discrimination in World Trade Law: Past, Present, Future. World Trade Forum, vol. 2. Univ. Michigan Press, Ann Arbor, USA, pp. 67–116.

McCalman, P., 1998. Multilateral trade negotiations and the Most-Favored-Nation clause. PhD dissertation, The University of Wisconsin.

McMillan, J., 1989. A game-theoretic view of international trade negotiations: implications for the developing countries. In: Whalley, J. (Ed.), Developing Countries and the Global Trading System vol. 1. Univ. Michigan Press, Ann Arbor, MI, pp. 26–44.

Motta, M., Norman, G., 1996. Does economic integration cause foreign direct investment? International Economic Review 37, 757–783.

Osborne, M.J., Rubinstein, A., 1994. A Course in Game Theory. MIT Press, Cambridge, MA.

Puga, D., Venables, A., 1997. Preferential trading arrangements and industrial location. Journal of International Economics 43, 347–368.

Riezman, R., 1985. Customs unions and the core. Journal of International Economics 19, 355–366.

Rhodes, C., 1993. Reciprocity, U.S. Trade Policy, and the GATT Regime. Cornell Univ. Press, Ithaca, NY.

Rodrik, D., 1995. Political economy of trade policy. In: Grossman, G., Rogoff, K. (Eds.), Handbook of International Economics, vol. 3. North-Holland, Amsterdam, pp. 1457–1496.

Schwarz, W., Sykes, A., 1996. Toward a positive theory of the Most Favored Nation obligation and its exceptions in the WTO/GATT system. International Review of Law and Economics 16, 27–51.

Staiger, R., 1995. International rules and institutions for trade policy. In: Grossman, G., Rogoff, K. (Eds.), Handbook of International Economics, vol. 3. North-Holland, Amsterdam, pp. 1495–1551.

Takemori, S., 1994. The Most Favored Nation clause. Keio Economic Studies 31, 37–50.

To, T., 1998. Dynamics and discriminatory import policy. University of Warwick, mimeo.

Viner, J., 1924. The Most-Favored-Nation clause in American commercial treaties. Journal of Political Economy 32, Reprinted in: Viner, J., 1951, International Economics, The Free Press, Glencoe, IL.

Viner, J., 1931. The Most-Favored-Nation clause. Index VI, January, Svenska Handelsbanken, Stockholm. Reprinted in: Viner, J., 1951, International Economics, The Free Press, Glencoe, IL.

Winters, A., 1996. Regionalism versus multilateralism. Discussion Paper No. 1525, Centre for Economic Policy Research, London.

Yi, S.-S., 1996. Endogenous formation of customs unions under imperfect competition: open regionalism is good. Journal of International Economics 41, 153–177.