NBER WORKING PAPER SERIES

GATT-Think

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NBER Working Paper No. 8005
November 2000
JEL No. F02, F11, F13, F15

ABSTRACT

We describe recent work on the theory of trade agreements that speaks to the purpose and design of GATT. Our discussion proceeds in three steps. First, we examine the purpose of a trade agreement. In both the traditional economic and the political-economy approaches to the study of trade agreements, the problem for a trade agreement to solve is the excessive protection that arises in the absence of an agreement as a consequence of the terms-of-trade externality. Second, we consider the origin and design of GATT. We note that GATT is a rules-based institution whose origin can be traced to the disastrous economic performance that accompanied the high tariffs of the 1920's and 1930's. Finally, we review the theoretical literature that interprets and evaluates the institutional features found in GATT. We consider in particular whether GATT articles can be interpreted as offering negotiation rules that help governments undo the inefficient restrictions in trade that are caused by the terms-of-trade externality. On the whole, our review suggests that the core principles of GATT indeed may be interpreted in this manner. Specifically, we report findings that indicate that the principles of reciprocity and non-discrimination work in concert to remedy the inefficiency created by the terms-of-trade externality. We also extract a variety of predictions from the literature on enforcement and trade policy, and we argue that these predictions are broadly compatible with both the design of GATT and certain historical experiences in trade-policy conduct. We thus interpret the literature reviewed here as providing a strong presumption for the view that GATT can be understood as an institution whose central principles are well-designed to assist governments in their attempt to escape from a terms-of-trade-driven Prisoners' Dilemma. Our review therefore offers support for the (politically-augmented) terms-of-trade theory as an appropriate framework within which to interpret and evaluate GATT.

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1. Introduction

The important role played in the world economy by GATT (and now its successor, the WTO) is widely accepted. Since its creation in 1947, GATT has grown in membership from an initial set of 23 countries to a roster that now exceeds 125 countries. The expanding GATT membership reflects the success that this organization has had in facilitating tariff reductions. Through the 8 rounds of trade-policy negotiations that have been sponsored by GATT, the average ad valorem tariff on industrial goods has fallen from over 40% to below 4%. In light of the significant impact that GATT has had on the world economy, it is therefore important to assess the progress that has been made toward providing a theoretical interpretation of GATT and its main features.

While the past success of GATT justifies in its own right a theoretical interpretation of its main features, this task is perhaps even more important when the future of this multilateral institution is considered. A critical question in the coming years is whether the same set of principles on which post-war multilateral liberalization has been based can or should be applied under the WTO to a host of "new" trade-policy issues. These issues include the spread of preferential trading agreements, the treatment of labor and environmental standards, the subsidization of agricultural exports, the harmonization of competition policies,

and the treatment of services, foreign direct investment and intellectual property. An understanding of why GATT's principles have worked well in the more traditional arena of multilateral tariff liberalization for industrial goods can lay the foundation for answers to this critical question.

In this paper, we present research that speaks to the purpose and design of GATT. The paper proceeds in three basic steps. We first discuss the major theoretical approaches to the study of trade agreements. Next, we develop the institutional context for our study with a description of the history and design of GATT and the WTO. Finally, we draw on the theoretical literature in order to interpret and evaluate the institutional design of GATT.

We begin in Section 2 with a review of the major theoretical approaches to trade agreements. We organize this discussion around a simple but basic question: What is the purpose of a trade agreement? In asking this question, we seek a "problem" that would arise for governments in the absence of a trade agreement and that could be "solved" with the creation of an appropriate trade agreement. Suppose, for example, that in the absence of a trade agreement governments would set their policies in a unilateral fashion. The creation of a trade agreement is then potentially appealing to governments provided that an inefficiency (relative to governments' preferences) exists when trade policies are set unilaterally. Once the inefficiency is identified, the purpose of a trade agreement can be understood as an attempt to "undo" the inefficient behavior that arises under unilateral tariff setting, so that all member governments may thereby enjoy higher welfare.

Our review of the theoretical literature suggests that there are two kinds of problems that a trade agreement might solve. The first possibility is that the trade-policy decisions of one government give rise to an externality that affects the welfare of another government. This is the possibility that is emphasized in the *traditional economic approach to trade agreements*. Under this approach, a government (of a large country) is assumed to set its import tariff in order to maximize national welfare, while recognizing that some of the burden of the tariff falls upon foreign exporters, whose products sell at a lower world price (i.e., at a diminished terms of trade). This "terms-of-trade externality" naturally leads governments to set unilateral tariffs that are higher than would be efficient. The purpose of a trade agreement is then to eliminate the terms-of-trade-driven restrictions in trade volume that arise when policies are set unilaterally, and thereby offer governments a means of escape from a Prisoners' Dilemma.[1]

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[1]The terms-of-trade externality is not the only possible "cross-border" externality, but it is the externality that has figured most prominently in the theoretical literature. For example,

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An apparent weakness of the traditional approach is the seemingly unrealistic hypothesis that governments maximize national welfare. Real-world governments, after all, have both political and economic motivations. It is thus important to assess whether the purpose of trade agreements identified by the traditional approach is in any sense tied to the hypothesis of national-welfare maximization. To explore this issue, we follow the recent political-economy literature and allow that governments are also concerned with the distributional consequences of their tariff choices. We refer to this generalization of the traditional approach as the *political-economy approach to trade agreements*. While the inclusion of political concerns enhances the realism of the model, we show that it does not offer any separate purpose for trade agreements. Whether or not governments have political motivations, it is their ability to shift the costs of protection onto one another through terms-of-trade movements that creates an inefficiency when tariffs are selected unilaterally. In both the traditional and political-economy approaches to trade agreements, therefore, the purpose of a trade agreement is to offer a means of escape from a terms-of-trade-driven Prisoners' Dilemma.

A second kind of problem for a trade agreement to solve arises when a government is unable to make credible commitments to its own private sector. A government, for example, may wish to commit that in the future it will not protect a certain industry, or that it will undertake extensive regulatory reforms. Such a commitment is potentially valuable to the government, since it induces behavior (for instance, investments in cost reduction or in export sectors) from the private sector that the government finds desirable. The problem in this case is that if the private sector does not respond in the desired fashion, then it may not be credible for the government to follow through on its proposed plan. A trade agreement can potentially help a government solve its time-consistency problem, if the agreement enhances the credibility of the government's plan, by calling for some form of retaliation in the event that the plan is not executed. The *commitment approach to trade agreements* thus identifies a distinct problem for a trade agreement to solve;

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an "environmental externality" can arise if the trade-policy decisions of one government affect production decisions that in turn alter the environment and thereby the welfare of a trading partner. See also Flam and Helpman (1987) and Helpman and Krugman (1989), who point out that unilateral tariff choices can be inefficient in the presence of monopolistic competition, even in the absence of terms-of-trade movements. Further, as Ethier (1998a, 1998b) argues, a "scale externality" may arise if production technologies exhibit international increasing returns to scale, in which case the value of a trade agreement to one government can be influenced by the volume of trade between other countries. Finally, Ethier (2000) considers the possibility of a "political externality" across countries.

however, the application of this approach to the study of GATT's institutional design is not yet well developed. While we describe recent insights that emerge from the application of the commitment approach, our primary emphasis is therefore directed toward the traditional economic and political-economy approaches.

The traditional and political-economy approaches indicate that a trade agreement can increase the welfare of member governments, if the agreement undoes the inefficient restrictions in trade volume that arise in the absence of an agreement. Governments can thus jointly benefit from a trade agreement that calls for a mutual reduction in the levels of protection. But this perspective raises a pair of further questions. First, how should the institution through which governments negotiate over trade policies be designed? Following the legal literature, we draw a distinction between "power-based" and "rules-based" approaches to trade negotiations. In a power-based arrangement, governments negotiate over tariffs in a fashion that is unconstrained by any previously agreed-upon rules of negotiation. The respective bargaining powers of the negotiating governments is then an important determinant of the eventual tariff-negotiation outcome. By contrast, under a rules-based approach, the governments agree upon a set of rules or principles by which subsequent tariff negotiations must abide. In this case, power asymmetries between governments can be expected to play a diminished role in trade-policy negotiations. We develop this distinction further in Section 2.

Second, how is the trade agreement to be enforced? Enforcement is an important concern, since each government has a short-term incentive to deviate to a higher-than-is-efficient tariff, in order to obtain the consequent terms-of-trade gains. Governments are dissuaded from such opportunistic behavior only if the pursuit of short-term gains results in long-term losses, as when other governments retaliate in kind. Viewed in this way, it is clear that the tariffs that governments can achieve as part of a "self-enforcing" trade agreement reflect a balance between the short-term gains from protection and the long-term losses from retaliation. While the "most-cooperative" tariffs that governments can enforce are more efficient than the tariffs that would occur in the absence of an agreement, they may not be fully efficient. In Section 2, we draw on the literature that directly addresses the enforcement of trade agreements and argue that a meaningful agreement must constitute an equilibrium of a repeated trade-policy game.

In Section 3, we turn to the second step of the paper and describe the origin and design of GATT and the WTO. We note that the origin of GATT can be traced to the disastrous economic performance that accompanied the high tariffs of the 1920's and 1930's. The design of GATT is rules-based: GATT members

accept a set of rules or principles that describe the manner in which any subsequent trade-policy negotiations may proceed. The primary enforcement task of GATT is then to ensure compliance with these rules. While there are a large number of specific articles in GATT, it is widely accepted that the pillars of the GATT approach are the principles of reciprocity and non-discrimination (MFN).

Broadly speaking, mutual adjustments in trade policy conform to the principle of reciprocity if these policy adjustments bring about changes in the volume of each country's imports that are of equal value to changes in the volume of its exports. This principle arises as a norm of behavior when governments negotiate tariff reductions (i.e., "concessions") in a GATT round, as it has been observed that governments seek to achieve a "balance of concessions" in these negotiations. The principle of reciprocity also appears as an explicit GATT rule when trading partners meet to renegotiate tariffs to higher levels. In this case, when one government withdraws a concession to which it had previously agreed, its trading partner is allowed under GATT rules to withdraw a "substantially equivalent concession" of its own. The principle of non-discrimination is a GATT rule that requires that the import tariff selected by a government on a particular good cannot be higher for the exports of one GATT member than for those of another.

With the creation of GATT, governments therefore constructed a rather elaborate set of rules with which to address their perceived trade-policy problems. But do these rules reflect an underlying economic logic? It is tempting to conclude that they do not. Putting aside the terms-of-trade externality mentioned above, standard economic theory holds that the optimal unilateral policy for a national-welfare maximizing government is free trade. From this perspective, the emphasis placed on reciprocity in GATT is surely mysterious. Why would one government be willing to help itself with a tariff reduction only if its trading partner made a similar "concession?" Indeed, according to standard economic reasoning, GATT should not exist, and so any attempt to offer an "economic" interpretation of GATT is destined for failure. This view is regularly advanced, but it is perhaps stated most eloquently in Krugman's (1991, pp. 25-27) writings:[2]

"There is no generally accepted label for the theoretical underpinnings of the GATT. I like to refer to it as 'GATT-think' – a simple set of principles that is entirely consistent, explains most of what goes on in negotiations, but makes no sense in terms of economics...The reason why GATT-think works is, instead, that it captures some basic realities of the political process."

[2]See also Krugman (1997).

By contrast, in what constitutes the third step of this paper, we review a literature that suggests that GATT does, in fact, make economic sense. This literature places the terms-of-trade externality at center stage, and argues that GATT may be understood as an institution whose central features assist governments - whether politically motivated or not - as they attempt to escape from a terms-of-trade-driven Prisoners' Dilemma.

We develop this argument in Sections 4 through 6, where we present various extensions of the traditional terms-of-trade model of trade agreements and interpret and evaluate GATT rules in the context of these extended models. We ask positive questions: Can GATT rules be understood as the means through which governments solve their terms-of-trade problem? Do the predictions that come from this perspective conform with GATT experience? And we also ask normative questions: If the terms-of-trade problem does account for the purpose of GATT, are the rules of GATT properly designed?

We begin the third step of the paper in Section 4, where we consider in some detail the principle of reciprocity. We then turn in Section 5 to the other pillar of the GATT system and analyze the principle of non-discrimination. As we discuss in these sections, it is possible to understand reciprocity as a principle that "neutralizes" all externalities that travel through world prices, while the principle of non-discrimination then ensures that no other trade-policy externalities arise across trading partners. Reciprocity and non-discrimination thereby serve as complementary principles that assist governments in their bilateral negotiations to achieve more efficient trade-policy outcomes. These principles have as well a virtuous property when the welfare of non-participants is considered: together, reciprocity and non-discrimination ensure that a bilateral negotiation between trading partners does not alter the welfare of the government of a third country. Reciprocity and non-discrimination thus limit the ability of negotiating partners to appropriate the welfare of non-participants. By the same logic, the "free-rider" problem that is often associated with the principle of non-discrimination can be eliminated if negotiations also abide by the principle of reciprocity.

In line with the abstract discussion of power-based and rules-based approaches to trade-policy negotiations, we suggest further that the specific rules of reciprocity and non-discrimination diminish the extent to which power asymmetries across countries influence trade-policy outcomes. More speculatively, we argue that the decision by governments to form a rules-based institution may have been motivated in part by a desire to encourage the participation of "weaker" countries. Recognizing that the governments of smaller countries might fear that they

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would eventually be "held up" at the bargaining table, the governments of powerful countries (i.e., the U.S. and Great Britain) effectively committed with a rules-based system not to exploit their weaker trading partners. From this perspective, the selection of a rules-based approach solved a commitment problem (across countries) that ensured participation, while the specific rules employed within this approach then served to solve the terms-of-trade problem.

We return to the topic of enforcement in Section 6. There, we note that the balance between the short-term incentive to protect and the long-term fear of retaliation can be altered when the trading environment changes; as a consequence, the most-cooperative tariffs that can be enforced may vary with underlying market conditions. Expanding on this basic viewpoint, we offer interpretations of some GATT rules and experiences. For example, we interpret the GATT escape clause, under which a government can temporarily raise its tariff if it faces a surge in imports, as a safeguard provision that works to maintain cooperation within a self-enforcing agreement when the market environment is volatile. We also describe work that emphasizes enforcement limitations and interprets the gradual manner in which tariffs have been liberalized over GATT's five-decades of history.

We conclude in Section 7. Here, we summarize the main lessons developed in the paper. We also present and evaluate some of the objections that have been raised against the terms-of-trade approach. In addition, we discuss how the traditional terms-of-trade model has been extended to study new trade-policy issues that currently face the WTO, and we propose directions for future research.

2. The Theory of Trade Agreements

Any theory of trade agreements must provide a reason for a trade agreement to exist. We thus begin by examining the purposes for trade agreements that are proposed in the literature. We also introduce in this section two additional issues to which we return in greater depth later in the paper. First, we consider the broad manner in which governments might design a trade agreement, and we distinguish between power- and rules-based approaches. Second, we consider the means through which a trade agreement might be enforced.

2.1. The Purpose of Trade Agreements

We begin, then, with the most basic question: What is the purpose of a trade agreement? In this subsection, we develop the answers to this question that are

offered by the three major theoretical approaches to the study of trade agreements. We first discuss the traditional economic approach, in which governments are assumed to set tariffs so as to manipulate their terms of trade with the objective of maximizing national welfare. Next, we consider the political-economy approach, wherein governments are assumed to also place emphasis on the distributional consequences of their tariff choices. The final approach that we describe is the commitment approach, which stresses the difficulty governments may face in making policy commitments to the private sector.

To facilitate comparison of the three approaches, we develop each approach in the context of a unified model of the underlying economic environment. In particular, we employ throughout a standard two-good general equilibrium model of trade between two countries. This model of the world economy is familiar, being analogous to those that can be found in any undergraduate international economics textbook. With the underlying economic environment captured in this fashion, we are then able to direct attention to the essential difference between the three approaches, namely, the modeling of government preferences. We begin by reviewing the general equilibrium model.

2.1.1. The General Equilibrium Model

The standard general equilibrium model of trade consists of two countries, home (no *) and foreign (*), that trade two goods which are normal goods in consumption and produced in perfectly competitive markets under conditions of increasing opportunity costs. Let $x(y)$ be the natural import good of the home (foreign) country, and define $p \equiv p_x/p_y$ ($p^* \equiv p_x^*/p_y^*$) to be the local relative price facing home (foreign) producers and consumers. The home (foreign) ad valorem import tariff is denoted as t (t^*), and we assume throughout that this tariff is not prohibitive. Defining $\tau \equiv (1 + t)$ and $\tau^* \equiv (1 + t^*)$, it then follows that $p = \tau p^w \equiv p(\tau, p^w)$ and $p^* = p^w/\tau^* \equiv p^*(\tau^*, p^w)$, where $p^w \equiv p_x^*/p_y$ is the "world" (i.e., untaxed) relative price. The foreign (domestic) terms of trade is then given by p^w ($1/p^w$), and we interpret $\tau > 1$ ($\tau < 1$) to be an import tax (import subsidy) and similarly for τ^*.[3]

Within each country, production occurs at the point on the production possibilities frontier at which the marginal rate of transformation between x and y is equal to the local relative price. This allows domestic and foreign production

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[3]Under the Lerner symmetry theorem, trade taxes and subsidies can be equivalently depicted as applying to exports or imports in this two-sector general equilibrium setting.

functions to be represented as $Q_i = Q_i(p)$ and $Q_i^* = Q_i^*(p^*)$ for $i = \{x, y\}$. Consumption is determined by the local relative price, which defines the trade-off faced by consumers and implies the level and distribution of factor income in the economy, and by tariff revenue R (R^*), which is distributed lump-sum to domestic (foreign) consumers and measured in units of the local export good at local prices. Domestic and foreign consumption may thus be represented as $D_i = D_i(p, R)$ and $D_i^* = D_i^*(p^*, R^*)$ for $i = \{x, y\}$, where tariff revenue is defined implicitly by $R = [D_x(p, R) - Q_x(p)][p - p^w]$ or $R = R(p, p^w)$ for the domestic country and by $R^* = [D_y^*(p^*, R^*) - Q_y^*(p^*)][1/p^* - 1/p^w]$ or $R^* = R^*(p^*, p^w)$ for the foreign country. Given the assumption that goods are normal, each country's tariff revenue is an increasing function of its terms of trade. With tariff revenue now expressed as a function of local and world prices, national consumption in each country may be written as $C_i(p, p^w) \equiv D_i(p, R(p, p^w))$ and $C_i^*(p^*, p^w) \equiv D_i^*(p^*, R^*(p^*, p^w))$.

We next introduce notation for imports and exports, so that the trade balance and equilibrium conditions may be expressed. For the home country, imports of x are denoted as $M_x(p(\tau, p^w), p^w) \equiv C_x(p(\tau, p^w), p^w) - Q_x(p(\tau, p^w))$ and exports of y are represented as $E_y(p(\tau, p^w), p^w) \equiv Q_y(p(\tau, p^w)) - C_y(p(\tau, p^w), p^w)$, where we now make explicit the dependence of the local price upon the tariff and the world price. Similarly, for the foreign country, we denote imports of y and exports of x as $M_y^*(p^*(\tau^*, p^w), p^w)$ and $E_x^*(p^*(\tau^*, p^w), p^w)$, respectively. For any world price, home and foreign budget constraints imply that trade is balanced:

$$p^w M_x(p(\tau, p^w), p^w) = E_y(p(\tau, p^w), p^w), \text{ and} \tag{2.1}$$

$$M_y^*(p^*(\tau^*, p^w), p^w) = p^w E_x^*(p^*(\tau^*, p^w), p^w). \tag{2.2}$$

The equilibrium world price, $\widetilde{p}^w(\tau, \tau^*)$, may now be determined by the requirement of market-clearing for good y:

$$E_y(p(\tau, \widetilde{p}^w), \widetilde{p}^w) = M_y^*(p^*(\tau^*, \widetilde{p}^w), \widetilde{p}^w), \tag{2.3}$$

with market clearing for good x then implied by (2.1), (2.2) and (2.3). Thus, given any pair of tariffs, the equilibrium world price is determined by (2.3), and the equilibrium world price and the given tariffs then determine in turn the local prices and thereby the production, consumption, import, export and tariff revenue levels. Finally, we assume that the Metzler and Lerner paradoxes are ruled out, so that $dp/d\tau > 0 > dp^*/d\tau^*$ and $\partial \widetilde{p}^w/\partial \tau < 0 < \partial \widetilde{p}^w/\partial \tau^*$.

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2.1.2. The Traditional Economic Approach

The antecedents of the traditional economic approach to trade agreements can be traced back to the writings of Torrens (1844) and Mill (1844), who discuss the role of terms-of-trade effects in determining optimal tariff policy. In a seminal contribution, Johnson (1953-54) formalizes the terms-of-trade-driven inefficiencies that a trade agreement can correct by combining the hypothesis that governments use tariffs to manipulate the terms of trade with the separate hypothesis that governments seek to maximize national welfare. As exemplified by the work of Dixit (1987), recent research has exposited this argument in formal game-theoretic terms. The modeling strategy taken there is to represent the governments' "payoffs" (i.e., national welfares) in terms of their "strategies" (i.e., tariffs), in order to characterize the Nash equilibrium welfares and tariffs.

While this modeling strategy reflects the usual game-theoretic specification, we choose here to represent governments' objectives directly in terms of the local and world prices that their tariff selections imply. This representation highlights the inefficiency that arises when governments are motivated by terms-of-trade considerations. Using the notation developed above, we therefore represent domestic national welfare as $V(p(\tau, \widetilde{p}^w), \widetilde{p}^w) \equiv v(p(\tau, \widetilde{p}^w), I(p(\tau, \widetilde{p}^w), \widetilde{p}^w))$, where v denotes the indirect utility function of the representative agent in the domestic country and I is domestic national income measured in units of good y at local prices.[4] The objective of the foreign government, $V^*(p^*(\tau^*, \widetilde{p}^w), \widetilde{p}^w) \equiv v^*(p^*(\tau^*, \widetilde{p}^w), I^*(p^*(\tau^*, \widetilde{p}^w), \widetilde{p}^w))$, is similarly defined.

We now outline the rationale for trade agreements that the traditional economic approach provides. Figure 1 illustrates the main findings of this literature. The point labeled N depicts the non-cooperative Nash equilibrium of the tariff retaliation and counter-retaliation game as originally envisioned by Johnson (1953-54). At the equilibrium point N, the home (foreign) iso-welfare is vertical (horizontal), reflecting the fact that from this point neither government can improve its payoff with a unilateral change in its tariff policy. The outcome at N clearly represents an inefficient combination of tariff choices, as at this point the home and foreign iso-welfare contours are not tangent. Hence, as Johnson (1953-54) stresses, while neither country can improve its lot with unilateral trade-policy initiatives, each country could in principle be made better off under a trade

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[4]As $\widetilde{p}^w$ is a function of tariffs, it is apparent that the government's objective could also be represented as a function of tariffs, as in Dixit's (1987) model. Specifically, we could represent the government's objective as $F(\tau, \tau^*) \equiv V(p(\tau, \widetilde{p}^w), \widetilde{p}^w)$.

agreement that called for mutual tariff adjustments.

In subsequent work, Mayer (1981) shows that the efficient tariff pairs in this setting satisfy the relationship $\tau = 1/\tau^*$, as these tariff pairs equalize local prices across countries and thereby achieve world-wide economic efficiency. Of course, reciprocal free trade (i.e., $\tau = \tau^* = 1$) is among the efficient tariff pairs, but there is in fact an entire set of efficient tariff pairs that involve one country taxing and the other subsidizing its imports. This set is depicted in Figure 1 by the locus passing through the reciprocal-free-trade point and labeled $E \to E$, with each point on this locus representing an efficient tariff pair that is distinguished by the particular international distribution of income that the associated world price implies. The bold portion of the locus $E \to E$ corresponds to the contract curve (i.e., the tariffs that are efficient and yield greater-than-Nash welfare for each country). As pointed out by Johnson (1953-54) and later emphasized by Mayer (1981) and also Kennan and Reizman (1988), the contract curve need not include the point of reciprocal free trade if countries are sufficiently asymmetric. In the case depicted in Figure 1, any asymmetries between countries are sufficiently small that the contract curve includes the point of reciprocal free trade.

While the government preferences associated with the traditional economic approach are overly simplistic, an attractive feature of this approach is that the potential role of trade agreements is quite clear: trade agreements provide governments with an avenue of escape from a terms-of-trade-driven Prisoners' Dilemma. To confirm this, we consider the hypothetical trade policy that each government would pursue if it ignored its ability to affect the terms of trade. For the home government, this would amount to setting its tariff to satisfy the condition $V_p = 0$. Using standard properties of the indirect utility function, we then have that $V_p = t \cdot v_I \cdot \partial M_x(p(\tau, \tilde{p}^w), \tilde{p}^w)/\partial p$, and so $V_p = 0$ implies that a domestic policy of free trade would be chosen. In similar fashion, $V_{p^*}^* = 0$ implies that the foreign country would adopt a policy of free trade as well. Hence, according to the traditional economic approach, it is the pursuit of terms-of-trade gains - and this pursuit alone - that leads governments away from the efficient outcome of reciprocal free trade to the inefficient Nash outcome. The purpose of a trade agreement is then to guide governments back to a point on the contract curve.

The traditional economic approach offers a clear explanation for the creation of GATT, but many economists regard the practical relevance of this argument with some skepticism. As we discuss briefly in Section 2.1.3 and in greater detail in Section 7, this skepticism derives from several objections, and upon closer scrutiny the validity of some of these objections may be questioned. At this point,

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though, we simply note that the traditional approach ignores the manifest political constraints under which real governments operate. We therefore consider next the leading alternative, which adopts a political-economy perspective and emphasizes the political motivations that influence government preferences.

2.1.3. The Political-Economy Approach

The distinguishing feature of the political-economy approach is that governments may care about the political (i.e., distributional) as well as economic-efficiency consequences of the local-price movements that their tariff selections imply. When government preferences are generalized in this way, it may be expected that governments' economic incentive to manipulate the terms of trade again creates an inefficiency that a trade agreement can remedy. But does a separate political rationale for trade agreements arise as well? To address this question, we follow Bagwell and Staiger (1999a) and present here a general representation of government preferences that includes both the traditional case that governments maximize national welfare as well as the general possibility that governments are also motivated by distributional concerns. We then consider whether governments' tariff selections would be efficient (relative to their own preferences) if they were to ignore their ability to affect the terms of trade.[5]

Government Preferences We begin with a description of government preferences. The objectives of home and foreign governments are represented by the general functions $W(p(\tau, \widetilde{p}^w), \widetilde{p}^w)$ and $W^*(p^*(\tau^*, \widetilde{p}^w), \widetilde{p}^w)$, respectively. The only structure placed on W and W^* is that, holding its local price fixed, each government is assumed to achieve higher welfare when its terms of trade improve:

$$\partial W(p, \widetilde{p}^w)/\partial \widetilde{p}^w < 0 \text{ and } \partial W^*(p^*, \widetilde{p}^w)/\partial \widetilde{p}^w > 0. \tag{2.4}$$

The content of this assumption can be illustrated with the aid of Figure 2. There an initial tariff pair is represented by the point $A \equiv (\tau, \tau^*)$, and this tariff pair is associated with a domestic iso-local-price locus, $p(A) \to p(A)$, and an iso-world-price locus, $p^w(A) \to p^w(A)$.[6] A second iso-world-price locus is also depicted,

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[5]Notice that the simple argument used in the previous subsection to confirm the efficiency of such tariff selections utilized properties of the indirect utility function and thus cannot be applied in the context of the general representation of government preferences considered here.

[6]Under the assumptions that the Metzler and Lerner Paradoxes are absent, the iso-world-price locus has positive slope while the iso-local-price locus slopes down, as Figure 2 depicts.

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and along this locus the world price is lower than at point A, indicating an improved terms-of-trade for the domestic country. A reduction in the world price that maintains the domestic local price is thus achieved with the movement from A to B, corresponding to a higher (lower) domestic (foreign) import tariff. Condition (2.4) requires only that the international income transfer implied by the movement from A to B is valued by the domestic government. Throughout, we also assume that the second-order conditions associated with the maximization problems developed below are globally satisfied.

In both the traditional economic approach and the leading political-economy approaches to trade policy, governments set trade policy as if they were maximizing a function of this form. With respect to the former approach, we note that the national welfare of a country improves when it experiences a terms-of-trade improvement. Within the political-economy literature, one possibility is that the government arises from a representative democracy. In this case, as Mayer (1984) shows, the government sets its trade policy to promote the interests of the median voter, whose utility can be represented as a function of this form. Alternatively, as Baldwin (1987) observes, the major approaches to the political economy of trade policy, as represented in the work by Olson (1965), Caves (1976), Brock and Magee (1978), Feenstra and Bhagwati (1982), Findlay and Wellisz (1982) and Hillman (1982), can all be represented in this way. Finally, the lobbying models of Grossman and Helpman (1994, 1995) also fit within this framework.

A further possibility, suggested by Baldwin (1985), is that a government is motivated by autonomous ideological concerns that shape its general goals but faces a political-support constraint when setting trade policy to pursue these goals. A possibility of particular interest is that the home government is a "free-trader," whose ability to implement free-trade policies is hindered by the need to mobilize export support to offset political opposition to its liberalization efforts from import-competing sectors. To see that this possibility is included, let G represent the objectives of the domestic government and let the domestic government's political-support constraint be captured by the inequality restriction $S(p(\tau, \widetilde{p}^w), \widetilde{p}^w) \geq \overline{S}$. We may now form the associated Lagrangian, W, so that the domestic government ultimately seeks to maximize a function of the form:

$$W(p(\tau, \widetilde{p}^w), \widetilde{p}^w) = G(p(\tau, \widetilde{p}^w), \widetilde{p}^w) + \rho[S(p(\tau, \widetilde{p}^w), \widetilde{p}^w) - \overline{S}],$$

where ρ, the Lagrangian multiplier, is also a function of p and $\widetilde{p}^w$. Thus, the problem facing a liberalizing government that must mobilize export support can be represented within the modeling framework described here.

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Unilateral Trade Policies We consider next the unilateral trade policies that would arise in the absence of a trade agreement. Our general set-up can be used to illuminate the motivations that influence a government's tariff selection in the various political-economy models of trade policy. As we are no longer limited to the familiar framework associated with the traditional economic approach to trade agreements, we now explain these motivations in greater detail.

To begin, we suppose that each government sets its trade policy to maximize its objective function taking as given the tariff choice of its trading partner. These optimization problems generate home and foreign reaction functions, which are defined implicitly by

$$Home : W_p[dp/d\tau] + W_{p^w}[\partial \tilde{p}^w/\partial \tau] = 0 \qquad (2.5)$$

$$Foreign : W_{p^*}^*[dp^*/d\tau^*] + W_{p^w}^*[\partial \tilde{p}^w/\partial \tau^*] = 0, \qquad (2.6)$$

where subscripts denote partial derivatives. Letting $\lambda \equiv [\partial \tilde{p}^w/\partial \tau]/[dp/d\tau] < 0$ and $\lambda^* \equiv [\partial \tilde{p}^w/\partial \tau^*]/[dp^*/d\tau^*] < 0$, we may rewrite (2.5) and (2.6) as:

$$Home : W_p + \lambda W_{p^w} = 0, \qquad (2.7)$$

$$Foreign : W_{p^*}^* + \lambda^* W_{p^w}^* = 0. \qquad (2.8)$$

As (2.7) and (2.8) illustrate, each government's best-response tariff is determined by the combined impact on welfare of the induced local and world price changes.

The determinants of the best-response tariffs of politically-motivated governments can be further illustrated by returning to Figure 2. Starting from the initial tariff pair represented by the point $A \equiv (\tau, \tau^*)$, suppose now that the domestic government decides unilaterally to increase its tariff. Given the fixed foreign tariff τ^*, an increase in the domestic tariff from τ to τ^1 induces a new tariff pair, represented by point $C \equiv (\tau^1, \tau^*)$. This tariff pair lies on a new iso-local-price locus, given as $p(C) \to p(C)$, and also a new iso-world-price locus, represented as $p^w(C) \to p^w(C)$. Thus, by increasing its tariff, the domestic government induces a local price that is higher and a world price that is lower as compared to the prices associated with the original point A.

In analogy with (2.7), Figure 2 can be used to disentangle the overall movement from A to C induced by a unilateral tariff increase by the domestic government into separate movements in the local and world prices, respectively. Consider first the movement from A to B. This movement isolates the change in the world

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price, and the corresponding welfare effect for the domestic government is captured in (2.7) with the term λW_{p^w}, which is strictly positive by (2.4). Consider next the movement from B to C. This movement isolates the induced increase in the local price, holding fixed the world price, and the corresponding change in the domestic government's welfare is represented in (2.7) with the term W_p. The welfare implications of the local-price movement from B to C reflect the balance between the costs of the associated domestic distortions in production and consumption against any domestic political benefits. The welfare implications of the world-price movement from A to B, by contrast, reflect the benefits to the domestic government of shifting the costs of its policy onto the foreign government. It follows that, if the domestic government seeks to implement a local price corresponding to the iso-local-price locus $p(C) \to p(C)$, then a unilateral increase in the domestic import tariff shifts some of the costs of this outcome onto the foreign government. A similar interpretation applies for (2.8).

Consider now the Nash equilibrium that arises when both governments set tariffs unilaterally. A Nash equilibrium is a pair of tariffs, (τ^N, τ^{*N}), which simultaneously satisfy (2.7) and (2.8). We assume that the Nash equilibrium, which we take to be unique, represents the trade-policy decisions that governments would make if there were no trade agreement. The next step is to determine if these decisions are efficient for the governments.

The Value of a Trade Agreement We assume that governments seek a trade agreement in order to achieve mutually beneficial changes in trade policy. Put differently, through a trade agreement, governments seek tariff changes that result in Pareto improvements beyond the Nash government-welfare levels achieved under unilateral tariff setting. A trade agreement entails *reciprocal trade liberalization* if the tariffs of both countries are lower than in the Nash equilibrium. Finally, an *efficient trade agreement* must be on the efficiency frontier, which is defined by

$$[d\tau/d\tau^*]_{dW=0} = [d\tau/d\tau^*]_{dW^*=0}. \tag{2.9}$$

This frontier can be represented more concretely as the set of tariffs that satisfy

$$(1 - AW_p)(1 - A^*W_{p^*}^*) = 1, \tag{2.10}$$

where $A \equiv (1 - \tau\lambda)/(W_p + \lambda W_{p^w})$ and $A^* \equiv (1 - \lambda^*/\tau^*)/(W_{p^*}^* + \lambda^* W_{p^w}^*)$, with $A \neq 0$ and $A^* \neq 0$ under the further assumption that the partial derivatives of

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the welfare functions are always finite.[7]

The efficiency of the unilateral tariff decisions of politically-motivated governments may now be assessed. A first observation is that the Nash equilibrium is indeed inefficient, as can be confirmed by observing from (2.7) and (2.8) that the Nash tariffs fail to satisfy the efficiency condition (2.10). Intuitively, when governments set their trade policies unilaterally, they are motivated to shift costs onto one another through the change in the world price that their tariffs imply.

A second observation is that trade agreements among politically motivated governments must entail reciprocal trade liberalization. In other words, both governments can experience welfare gains relative to the Nash equilibrium only if each agrees to set its tariff below the Nash level.[8] The intuition for this observation is also clear. When governments set their trade policies in a unilateral fashion, they are led to set tariffs that are higher than is efficient, since they each recognize that some of the costs of a higher tariff can be passed on to the trading partner, through the consequent changes in the world price. Thus, if both governments are to gain through a trade agreement, it is not surprising that each must lower its tariff to a level that is below that which it chooses in the Nash equilibrium. Evidently, the appeal of reciprocal trade liberalization is in no way limited to the hypothesis that governments maximize national welfare.

A remaining question concerns the exact nature of the inefficiency that explains the appeal of a trade agreement under the political-economy approach. Clearly, the terms-of-trade externality is one inefficiency that can be remedied with an appropriate trade agreement. But are there additional "political externalities" that might be remedied as well? To establish conclusively that the terms-of-trade externality is the only inefficiency that a trade agreement can remedy in this environment, we proceed as in the previous section and consider a hypothetical world in which governments are not motivated by the terms-of-trade implications

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[7]See Bagwell and Staiger (1999a) for a derivation of the efficiency locus in this form. As noted above, in the case that governments maximize national welfare, Mayer (1981) shows that the efficiency locus reduces to the form $\tau = 1/\tau^*$, so that tariffs maintain equality in relative local prices between the domestic and foreign countries. In the more general formulation of government preferences considered here, it is again true that the efficiency locus determines a relationship between domestic and foreign tariffs, but it need not be the case that this relationship equates relative local prices across trading partners.

[8]See Bagwell and Staiger (1999a) for a proof of this statement. A reduction in tariffs from the Nash level, however, is not sufficient to guarantee mutual welfare gains. For example, as we noted in the previous section, Johnson (1953-54), Kennan and Reizman (1988) and Mayer (1981) show that a large country may be better off at the Nash equilibrium than with free trade, if countries are sufficiently asymmetric.

of their trade policy choices.[9] If unilateral tariff choices would be efficient in such a world, then we may conclude that the terms-of-trade externality is the *only* rationale for a trade agreement under the political-economy approach. To this end, we define *politically optimal tariffs* as any tariff pair (τ^{PO}, τ^{*PO}) that satisfies the following two conditions:[10]

$$Home: W_p = 0 \tag{2.11}$$

$$Foreign: W_{p^*}^* = 0. \tag{2.12}$$

When governments set politically optimal tariffs, it is as if they throw any welfare gains that are attributable to changes in the world price "back into the ocean." In the special case where governments seek to maximize national welfare, politically optimal tariffs correspond to reciprocal free trade, as we establish in Section 2.1.2. More generally, government objectives may also reflect political considerations, and in this case there is no expectation that politically optimal tariffs correspond to reciprocal free trade.

A third observation can now be made: politically optimal tariffs are efficient. Formally, this is direct from the definition of politically optimal tariffs given in (2.11) and (2.12) and the characterization of the efficiency locus presented in (2.10). To gain some intuition for this finding, let us suppose that the terms-of-trade motivation has been removed from the trade-policy decisions of each government. In this case, each government sets its trade policy so as to achieve its preferred local price. With tariffs thus set at their politically optimal levels, consider now a small increase in the tariff of the domestic country. This change has three effects. First, it induces a small increase in the local price in the domestic country. This effect, however, has no first-order impact on the domestic government's welfare, since the domestic government initially has its preferred local price. Second, the domestic tariff increase induces a small reduction in the local price of the foreign country. But this effect has no first-order impact on

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[9]We do not assume that governments fail to understand the terms-of-trade effects of their tariff choices. Rather, we wish to consider the hypothetical situation in which governments are not motivated by these effects. In terms of (2.7), governments understand that $\lambda < 0$, but we now suppose their welfare functions were such that $W_{p^w} \equiv 0$. We wish to identify the tariffs that would be selected by governments with these hypothetical preferences and then evaluate the efficiency properties of these tariffs with respect to actual government preferences.

[10]We assume further that a unique set of politically optimal tariffs exists and that the associated second-order conditions are globally satisfied.

the foreign government's welfare, since the foreign government also initially has its preferred local price. Finally, the small increase in the domestic government's tariff generates a corresponding reduction in the world price. The world-price reduction cannot generate an efficiency gain, however, as it represents a pure international transfer in tariff revenue. It thus follows that, once the terms-of-trade motivation is eliminated from the trade-policy choices of governments, there is no further scope for Pareto improvements.

These three observations regarding the political-economy approach can be summarized with Figure 3.[11] In line with the first observation reported above, notice that the Nash tariffs (point N) lie off of the efficiency locus as characterized by (2.10) and depicted by the curve $E \to E$. The figure also represents the Nash iso-welfare curves for the domestic and foreign governments, and these curves illustrate the second observation reported above: a trade agreement can increase the welfare of both governments beyond that received in the Nash equilibrium only if the agreement results in a reduction in both tariffs. Finally, as the third observation made above requires, the politically optimal tariffs (point PO) lie on the efficiency locus. Notice that iso-welfare curves are tangent at every point along this locus, including the politically optimal point. The novel feature of the politically optimal tariffs is that the iso-welfare curves at these tariffs are also tangent to the iso-world-price locus (the locus p_{PO}^w). The bold portion of the efficiency locus corresponds to the contract curve.

Figure 3 clarifies the basic task facing politically motivated governments who seek to design a trade agreement. In the absence of any attempt at cooperation, governments would set trade policies unilaterally, leading to the Nash outcome N. A trade agreement is then appealing to governments as a means to cooperate and move the tariffs from the inefficient Nash point to some alternative tariff pair that rests on the contract curve. Among the tariffs that lie on the contract curve, the politically optimal tariffs are quite focal, as these tariffs remedy the terms-of-trade inefficiency in a direct fashion. As Figure 3 illustrates, when governments have both political and economic objectives, the efficiency locus need not pass through the point of free trade. While governments' political concerns affect their preferences over tariffs (e.g., the location of the efficiency locus), however, it is the terms-of-trade externality that creates a problem when governments set tariffs

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[11]In drawing this picture, we assume that a unique Nash equilibrium exists, a unique political optimum exists, and that the political optimum lies on the contract curve (i.e., it is on the efficiency locus and yields greater-than-Nash welfare for each government). The latter assumption is satisfied provided that countries are sufficiently symmetric.

unilaterally which an appropriately designed trade agreement can solve.

The Interpretation of the Terms-of-Trade Externality   At the broadest level, the discussion above confirms a simple notion: governments can gain from trade-policy cooperation, if otherwise each would attempt to shift costs onto the other, resulting in inefficient unilateral policies. The terms-of-trade externality is then simply the means through which such cost shifting would occur.

Yet, as mentioned in Section 2.1.2, many economists are skeptical of the practical relevance of the terms-of-trade argument for trade agreements. In part, this skepticism derives from the abstract manner in which the traditional theory is usually interpreted. This interpretation stresses that trade is a process in which the home country exchanges its exports for those from a foreign country, and the government of a large home country can thus ensure that a given volume of its exports commands a greater volume of foreign exports (i.e., improve its terms of trade) if it imposes an import tariff (so that the foreign export is abundant on world markets) or an export tax (so that the home export is scarce on world markets). This interpretation is, of course, theoretically valid; however, it emphasizes a logic that would not likely enter the practical minds of policy makers.

At the same time, the terms-of-trade theory may be interpreted in other manners, which suggest greater practical relevance. First, from a partial-equilibrium perspective, cost shifting occurs via the terms-of-trade externality if foreign exporters bear some of the *incidence* of the import tariff. Then, unilateral tariffs are inefficient for an intuitive and plausible reason: the domestic government does not internalize the harm to foreign exporters that its import tariff implies.[12] In most economic settings, the natural presumption is that producers bear some of the incidence of a tax, and we argue in the concluding section that strong empirical support for this presumption exists in the trade context as well. Second, when the home government raises its import tariff and thereby shifts in its import demand curve, the consequent "price effect" (i.e., the home country's terms-of-trade improvement) has a corresponding "volume effect" (i.e., the foreign country's reduction in access to the home market). From this perspective, it is natural that real-world trade-policy negotiators emphasize the *market-access* implications of trade policy.[13]   Indeed, we may interpret "cost shifting," "terms-of-trade gain,"

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[12]This interpretation is developed further in Bagwell and Staiger (1997a), where we derive the three observations mentioned above in a partial-equilibrium model.

[13]This emphasis is well exemplified by the following excerpt from a GATT panel report (concerning a dispute between the U.S. and the E.E.C. concerning E.E.C. domestic subsidies for

and "market-access restriction" as three phrases that describe the single economic experience that occurs when the domestic government raises its import tariff and restricts foreign access to its market.

This linkage between the terms of trade and market access can be formalized with a few definitions. For a given world price p^w and domestic tariff τ, the *market access* that the domestic country affords to the foreign country is defined by the domestic import demand function, $M_x(p(\tau, p^w), p^w)$. Similarly, given a world price p^w and a foreign tariff τ^*, the market access that the foreign country affords to the domestic country is defined by $M_y^*(p^*(\tau^*, p^w), p^w)$. We may now say that a government *secures additional market access* from its trading partner through negotiations if there exists a world price such that the trading partner's negotiated policy changes provide additional access to the trading partner's market (i.e., if the trading partner's import demand curves shifts out for at least *some* world price). Given this definition, if the domestic government were to *fail* to secure additional market access from its foreign trading partner through negotiations, then the foreign import demand curve would shift in (weakly) at all world price levels. Assuming that the Marshall-Lerner stability conditions are met, such an inward shift in the foreign import demand curve would contribute toward a (weakly) higher equilibrium world price, $\widehat{p}^w$. Therefore, if the domestic government were to fail to secure additional market access from its foreign trading partner through negotiations, then the foreign country's agreed-upon tariff changes would contribute toward a terms-of-trade loss (weakly) for the domestic country.

With this linkage established, the findings developed above can be interpreted in terms of market access. For instance, it may be confirmed (see Bagwell and Staiger, forthcoming) that the essential inefficiency arising in the Nash equilibrium can be described as one of insufficient market access. Hence, the terms-of-trade externality provides a rationale for why negotiators would emphasize the market-access implications of trade policy. In fact, the second observation raised above can be re-stated as follows: Beginning at the Nash equilibrium, each government must secure additional market access from its trading partner in order to reach a mutually beneficial agreement. It may thus be seen that, upon closer scrutiny, the terms-of-trade externality provides a rather direct theory of the market-access concerns that dominate real-world trade policy negotiations.

oilseed producers): "...the main value of a tariff concession is that it provides assurance of better market access through improved price competition. Contracting parties negotiate tariff concessions primarily to obtain that advantage." (as quoted in Petersmann, 1997, p. 168)

2.1.4. The Commitment Approach

A third approach to the study of trade agreements is the commitment approach, which emphasizes the difficulty governments may face in making policy commitments to the private sector and suggests that trade agreements may provide one way to enhance policy credibility.[14] In contrast to the traditional economic and political-economy approaches reviewed above, the commitment approach redirects the focus of analysis from the game between governments to the game between each government and its private sector, in which the government chooses its trade policy and agents in the private sector make some production or investment decisions. A credibility problem may arise when a government has too much flexibility in setting trade policy.

This problem can be captured in a game between the government and its producers, in which the government sets its trade policy *after* production decisions are made. In this case, the government may have incentive to surprise producers with a level of protection that it would not choose ex ante, when producers' decisions are still unsettled. The government's preferred ex ante and ex post tariff selections differ, since, once producer decisions are determined, the government recognizes that its tariff choice only affects consumer decisions. Of course, if producers understand the government's incentives, then they will alter their production decisions in anticipation of the government's actions, and production decisions are therefore distorted. This production distortion is the real cost of trade-policy flexibility, and the identification of this cost suggests that a trade agreement could increase (ex ante) government welfare if it enables the government to commit to its (ex ante) preferred tariff.

The commitment role for a trade agreement is distinct from terms-of-trade considerations. Maggi and Rodriguez (1998) offer an interesting recent formalization of the commitment approach. They focus on a small-country model, so that the terms-of-trade argument for a trade agreement is eliminated, and they allow that one of the two sectors can form a lobby. The government values national welfare and contributions from the lobby, as in the Grossman-Helpman (1994) model. In this case, the political process can distort the equilibrium allocation of resources: the politically-organized sector may be larger than it would be under

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[14]Papers that consider credibility problems associated with the use of trade-policy instruments include Carmichael (1987), Staiger and Tabellini (1987, 1989, 1999), Gruenspecht (1988), Lapan (1988), Maskin and Newberry (1990), Matsuyama (1990), Tornell (1991), Devereaux (1993), Brainard (1994), Mayer (1994), Staiger (1995a), McLaren (1997, 1999), Grossman and Maggi (1998), Maggi and Rodriguez (1998), Krishna and Mitra (1999) and Mitra (1999).

free trade, as firms invest in this sector in order to enjoy the protection that their contributions induce. This distortion in turn can give the government an incentive to commit to free trade, and it is assumed that the government can accomplish this by joining a pre-constituted free-trade agreement. To the government, the benefit of this commitment is that the investment distortions are forestalled, while the cost of this commitment is that political rents (lobby contributions) are lost. The particular features of the political process are thus relevant for determining whether the government chooses the free-trade commitment: a commitment to free trade is most valuable when the government's bargaining position vis-a-vis the lobby is weak (as then the government cannot extract large rents through the political process) and when the government's responsiveness to contributions relative to national welfare is neither too low (as then the investment distortions are in any event modest) nor too high (as then the government is reluctant to forgo political contributions).

More broadly, there are a variety of commitment problems which a government might face, whether or not the government is politically motivated. For example, in line with Matsuyama's (1990) model, a government might seek to eliminate protection of an industry, once the industry invests sufficiently in cost reduction. It may be, however, that the government would maintain protection if the investment does not occur. A commitment problem then arises, as the private sector may foresee the government's dilemma and decide not to undertake the investment, effectively ensuring that the government's ex-post incentive is to continue the protectionist policy. If the government is unable to commit to withdraw protection on its own, it may then look to a trade agreement as a means to make credible the liberalization initiative. A trade agreement can serve this purpose, if trading partners credibly threaten to retaliate (say, by imposing tariffs on the domestic export product) should the liberalization process not occur. This threat can alter the government's ex-post incentives, such that it prefers to liberalize even if investment is not undertaken, which in turn ensures that the private sector does, in fact, undertake the desired investment.

2.1.5. Comparison of Approaches

Having reviewed the three major approaches to the study of trade agreements, we now summarize our findings. A comparison of Figure 3 with Figure 1 reveals the essential difference between the traditional economic approach to the study of trade agreements and the political-economy approach. By allowing that govern-

ments have political motivations, the political-economy approach "frees up" the efficiency locus to correspond to a richer set of potential outcomes than simply free trade. This represents an important advance over the traditional economic approach, in that it allows an interpretation of why free trade is so rarely the goal of trade agreements. But aside from this rescaling, the political-economy approach adds nothing to an understanding of the essential purpose of trade agreements based on traditional economic arguments. Under both the traditional economic and the political-economy approaches, trade agreements provide governments with an avenue of escape from a terms-of-trade-driven Prisoners' Dilemma. By contrast, the commitment approach identifies a distinct role that trade agreements may play, by suggesting that such agreements could help governments make commitments to their private sectors. With regard to the purpose of trade agreements, the literature therefore divides naturally according to which of two distinct roles the trade agreement is seen to fulfill. Strikingly, while many observers feel that "politics" is at the heart of understanding trade agreements, fundamental to neither role is the presence or absence of political considerations.[15]

This may be interpreted in either of two ways. On the one hand, if political considerations do explain the creation of GATT, then the existing models have failed to capture the relevant political ingredients. If this interpretation is adopted, then the immediate implication is that a political explanation for the existence of GATT requires a fresh modeling approach. On the other hand, one might conclude that either the traditional terms-of-trade externality or a commitment problem (or some combination of both) is indeed the central problem that GATT is designed to solve. From this perspective, the political-economy approach described above captures the essential terms-of-trade externality in an augmented framework that allows for broader political motivations. This conclusion carries with it a fundamentally different modeling implication, as it suggests that the (politically-augmented) terms-of-trade and commitment theories provide the necessary building blocks for a modeling framework with which to interpret and evaluate GATT and its features.

In the remainder of this paper, we adopt the latter interpretation. In fact, while the commitment approach may play an important eventual role in this regard, there are as yet only a few papers that use this approach to interpret and

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[15]While the political-economy approach does not offer a separate reason for the creation of a trade agreement (i.e., for a divergence between Nash tariffs and the efficiency frontier), models of this form can deliver new predictions concerning the extent to which tariffs will be reduced in a trade agreement (i.e., concerning the extent of the divergence).

evaluate certain features of GATT. For this reason, in the remainder of the paper, most of our discussion centers on research that adopts the traditional economic and political-economy approaches.

2.2. Rules versus Power

Let us suppose then that the purpose of a trade agreement is to provide an escape from a terms-of-trade-driven Prisoners' Dilemma. A fundamental question remains: How might governments structure their negotiations? In this section we consider possible negotiating approaches by which governments might move from an inefficient Nash equilibrium, such as that depicted by the point N in Figure 3, to a point on the contract curve. We highlight above a particular point on the contract curve, the political optimum, because politically optimal tariffs remedy the Nash inefficiency in a very direct way. But in general there is no a-priori reason to expect that governments would choose the political optimum over any other point on the contract curve, and indeed the outcome ultimately depends on the structure of negotiations. In broad terms, we can distinguish between two approaches to the negotiation of trade agreements, which we refer to as "power-based" and "rules-based" negotiations (see Jackson, 1997, pp. 109-112).

To illustrate the issues involved, we refer to Figure 4, where the contract curve from Figure 3 is depicted in welfare space, with W measured on the vertical axis and W^* on the horizontal axis. The origin measures the "disagreement" (i.e., status quo) welfare for each government, which we take to be the Nash welfare levels denoted by W^N and W^{*N}, and the political optimum (labeled PO) lies on the frontier as depicted, with the corresponding welfare levels denoted by W^{PO} and W^{*PO}. The slope of the contract curve in welfare space is easily calculated, and at the political optimum it is given by $W_{p^w}^{PO}/W_{p^w}^{*PO}$, as displayed in the figure.

When seeking a reciprocal trade agreement, governments require an approach to negotiations which serves to move tariffs from the inefficient disagreement point to the contract curve. One possibility would be a "power-based" approach, in which governments bargain over tariffs in a direct fashion that is not constrained by agreed-upon principles of negotiation. Consider, for example, the tariffs that would be implemented if negotiations were characterized by the Nash Bargaining Solution. This solution generates a point on the contract curve which maximizes $B \equiv (W - W^N)(W^* - W^{*N})$. In Figure 4, this point is labeled as NBS, and it corresponds to the point on the contract curve with slope $-(W - W^N)/(W^* - W^{*N})$. The welfare levels for each government associated with the Nash Bargaining So-

lution can then be achieved with the corresponding tariffs from Figure 3. Notice that the Nash Bargaining Solution induces the political optimum only in the "symmetric" case where $(W^{PO} - W^N)/(-W_{p^w}^{PO}) = (W^{*PO} - W^{*N})/W_{p^w}^{*PO}$. If the domestic country were the relatively more "powerful" of the two, in the sense that $(W^{PO} - W^N)/(-W_{p^w}^{PO}) < (W^{*PO} - W^{*N})/W_{p^w}^{*PO}$, then (as depicted in Figure 4) the Nash Bargaining Solution would favor the domestic country relative to what it would receive at the political optimum.[16] As such, a power-based approach to the negotiation of trade agreements would lead to negotiated outcomes on the contract curve, and any divergence in these outcomes from the political optimum could be said to reflect "power asymmetries" across negotiating partners.

While a power-based approach can serve to move tariffs from the inefficient disagreement point to the contract curve, this is not the approach to trade negotiations taken by members of GATT. The approach to negotiations embodied in GATT can be more aptly termed a "rules-based" approach. Under such an approach, governments identify and agree upon certain principles by which subsequent negotiations must abide.

Of course, to understand the outcomes of trade negotiations within GATT, it is necessary to appreciate the specific rules by which GATT member countries must abide. Indeed, if GATT as an institution has an impact on the trade policies which governments adopt, it may largely be through the particular set of rules by which the conduct of member countries is judged. A central question is then whether GATT rules can serve to reduce, or even eliminate, existing power asymmetries across negotiating partners. From the perspective of the (politically augmented) terms-of-trade theory, this question may be put more starkly: Do GATT rules serve to induce large countries to behave as if they were small countries, and thereby guide the outcome of trade negotiations toward the political optimum? In Section 3 below, we describe the core features of GATT's rules, and this description provides the basis for our subsequent evaluation and interpretation of GATT as an institution. But before turning to a description of the rules of GATT, we maintain the broader theoretical theme of the present section and consider how the outcome of negotiations, once agreed to, is enforced.

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[16]In the case of national-income maximizing governments, this measure of relative "power" reduces to a cross-country comparison of each country's national-welfare gain in moving from a trade war to reciprocal free trade (see, for example, Johnson, 1953/54, Kennan and Riezman, 1988, and Mayer, 1981). Our discussion above assumes for simplicity that neither country is in a position to "win" the tariff war, so that $W^{PO} \geq W^N$ and $W^{*PO} \geq W^{*N}$, but the remaining cases can be handled as well.

2.3. Enforcement

If a trade agreement is to provide an escape from a terms-of-trade-driven Prisoners' Dilemma, how is the agreement to be enforced? After all, the cost-shifting temptations which governments face when making trade-policy decisions do not simply go away once an agreement is signed. On the contrary, each government has a short-term incentive to deviate to a higher-than-is-efficient tariff, in order to reap the consequent terms-of-trade gains. For example, a government facing renewed political pressure to protect an import-competing sector would be tempted to provide a greater level of import relief than would be efficient, if it thought that it could get away with shifting part of the cost of this relief onto its trading partners. As there is no "world jail" into which government leaders can be thrown if they are shown to have violated a trade agreement, governments are likely to be dissuaded from such opportunistic behavior only if the pursuit of short-term gains results in long-term losses, as when other governments retaliate in kind. Looked at in this way, it is clear that the tariffs that governments can achieve as part of a "self-enforcing" agreement reflect a balance between the short-term gains from protection and the long-term losses from retaliation. The "most-cooperative" tariffs that governments can enforce are more efficient than Nash tariffs; they may not, however, be fully efficient. Moreover, a balance once achieved may subsequently be upset as underlying features of the trading environment change, and attempts to "rebalance" the agreement may then arise.

As McMillan (1986, 1989), Dixit (1987) and Bagwell and Staiger (1990) emphasize, the enforcement issues that are associated with trade agreements may be formally analyzed using the theory of repeated games. In particular, we may view the static framework described in Section 2.1.3 above as the "stage game" of an infinitely repeated game. As governments attempt to cooperate toward lower tariff combinations that approach the contract curve, they move below their reaction functions (as defined by (2.7) and (2.8) above), and consequently each government could benefit in the short-run from a unilateral tariff increase. However, if each government is concerned that such a deviation, once discovered, could undermine the entire agreement and ultimately drive countries back to the inefficient non-cooperative Nash point, then this concern may serve as an effective deterrent, provided that the short-run temptations to cheat do not become too large. In this way, some cooperation can be sustained.

In Sections 3 and 6, we consider the issue of enforcement in greater detail, but we note here that the formal approach to enforcement taken by the repeated-game literature is broadly consistent with the views expressed within GATT itself

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concerning the nature of the enforcement challenges it faces. For example, in discussing the challenges governments faced as they sought to enhance GATT's dispute settlement procedures as part of the Uruguay Round of GATT negotiations, Croome (1995) quotes GATT's then-Director General Arthur Dunkel:

"Dunkel summed up his view from the GATT Secretariat in a speech in London in March 1981. He concluded that governments were being restrained from a substantial slippage towards protectionism only by 'a kind of balance of terror': a fear that if they resorted to trade restrictions these would evoke retaliation, as well as undermining the trading system as a whole. Dunkel argued that this situation was untenable. The system could not cope with the pressures generated by rapid economic change, the debt difficulties of developing countries and other factors unless it could rely on a secure and reliable basis, which would not be achieved without a 'concerted effort to establish momentum in the right direction'. He added that he was 'not unhopeful that such an effort will be made.'

"Dunkel's hopes were founded primarily on his judgment that, acute though the differences of view among GATT member countries might be, all were acutely worried by the drift and deterioration in trade relations, and by the clear risk that the GATT itself - the rule of law in international trade - would be so undermined and bypassed that it would lose all credibility and effectiveness. He also had a more immediate and concrete reason for hope. A number of governments had told him that they would allow a frank assessment of the trading system's difficulties, and launch new efforts to overcome them." Croome (1995, pp. 11-12).

There is a broad consistency between the formal theory of repeated games and the expressed views of GATT officials concerning the means of restraining governments from engaging in opportunistic behavior. This suggests that limits on enforcement power may shape the kinds of agreements that can be negotiated within GATT, much as the literature on self-enforcing trade agreements would indicate. But it also raises additional issues regarding GATT's role as an institution, such as the purpose that GATT's dispute settlement procedures can serve in maintaining the "balance of terror." We return to these and related issues below.

3. The History and Design of GATT and the WTO

Having summarized the theoretical approaches to the study of trade agreements, we now turn to the world's major international trade institution and present an

overview of the history and design of GATT and now the WTO. This overview provides an institutional context that guides our survey in subsequent sections.

3.1. The Origin of GATT and the WTO

The origin of GATT can be traced to the trade-policy choices made by governments in the 1920's and 1930's. Trade barriers became increasingly restrictive in the aftermath of World War I, and they reached extreme levels when the U.S. enacted the Smoot-Hawley Tariff Act in 1930. Under this act, average U.S. tariffs rose from 38 to 52%. Not surprisingly, many U.S. trading partners were quick to respond, and in the following months tariffs were raised in Canada, Cuba, France, Mexico, Italy, Spain, Australia and New Zealand. Other countries, including Great Britain, joined the retaliatory outburst shortly after. Ultimately, retaliatory tariffs were imposed in an almost universal fashion, and the post-Smoot-Hawley tariffs rates for the major powers were on the order of 50%.[17]

According to Hudec (1990, p. 5), "the postwar design for international trade policy was animated by a single-minded concern to avoid repeating the disastrous errors of the 1920's and 1930's." We may think of the "tariff war" associated with the Smoot-Hawley tariffs as corresponding to the Nash point N in Figure 3.[18] The task before governments was then to implement a more cooperative trade-policy relationship, such as depicted in Figure 3 by the locus of efficient tariffs.

An important step in this direction was spearheaded by U.S. Secretary of State Cordell Hull, who emphasized bilateral trade-policy negotiations and whose efforts led to the U.S. Reciprocal Trade Agreement Act of 1934. Hull proposed that the U.S. offer import tariff reductions as "concessions" in exchange for reciprocal reductions in the import tariffs of a foreign trading partner. Hull's approach also included a multilateral component: the U.S. tariff reduction achieved through a bilateral negotiation would then extend without discrimination to all trading partners that had been granted MFN status by the U.S..

As Rhodes (1993, p. 56) argues, the Reciprocal Trade Agreement Act was important, as it marked the first time that the principles of reciprocity and non-

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[17]For further discussion of the origin of GATT, see, for example, Culbert (1987), Dam (1970), Enders (1997), Hoekman and Kostecki (1995), Hudec (1990), Jackson (1997), Low (1993), Rhodes (1993) and Trebilcock and Howse (1999). Coneybeare (1987) provides a comprehensive discussion of the Smoot-Hawley tariff wars.

[18]In fact, Whalley (1985, p. 246) argues that the tariff rates that prevailed among the major powers after the Smoot-Hawley Tariff Act were close to those that would be predicted for the Nash equilibrium for a computable general-equilibrium model

discrimination were united as fundamental components of U.S. trade policy. It is interesting to remark further on the rationales that were offered for this approach. In light of the disastrous economic performance that accompanied the Smoot-Hawley tariffs, Hull argued that an expansion in international trade was vital for global economic recovery and prosperity. At a national level, it was also recognized that an increase in U.S. exports was incompatible with a reduction in U.S. imports. With these economic relationships in mind, Hull proposed that the U.S. take the lead in negotiating reciprocal tariff reductions with its trading partners.[19] At the same time, it was understood that reciprocal tariff liberalization had an appealing political by-product: the export-sector support for a reduction in foreign tariffs would serve as a political counterweight against complaints from the domestic import-competing sectors. The principle of non-discrimination then served to provide breadth and speed to this liberalization program. In effect, with this principle, bilateral reciprocal tariff reductions could be "multilateralized."

By the 1940's, the U.S. experiences with the bilateral trade agreements reached under the Reciprocal Trade Agreement Act had been quite successful, and the lesson that reciprocal tariff reductions could promote mutual gains had been learned. The U.S. thus sought to establish a multilateral institution that would build upon the essential components of the Reciprocal Trade Agreements Act. In 1946, negotiations began concerning the establishment of an International Trade Organization (ITO). The ITO would specify the rules under which multilateral negotiations would proceed, as well as the manner in which these rules would be enforced. Tariffs were to be lowered in reciprocal and mutually advantageous agreements, and the reduced tariffs would then be extended to all member countries through the non-discrimination principle. In 1947, an interim agreement was reached. This agreement was known as the General Agreement on Tariffs and Trade (GATT), and it was drawn directly from ITO principles. While GATT was intended as an interim agreement, the ITO was never ratified by the U.S. Congress, and so subsequent multilateral negotiations were carried out within the GATT framework.[20]

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[19]Hull eventually persuaded President Roosevelt to approach Congress with this plan. In a message to the public on February 28, 1934, Roosevelt presented the case for reciprocity in the following manner: "Full and permanent domestic recovery depends in part upon a revived and strengthened international trade....American exports cannot be permanently increased without a corresponding increase in imports." (This quotation is found in Hull's memoirs (1948, p. 357) and Rhodes' book (1993, p. 57)).

[20]Under the intellectual leadership of James Meade, Great Britain was also an active proponent of a multilateral trade institution. In fact, as Culbert (1987) explains, Meade drafted a proposal for an "International Commercial Union" in 1942. While Meade also endorsed the

As the Preamble of GATT states, the objectives of the contracting parties include "raising standards of living, ensuring full employment and a large and steadily growing volume of real income and effective demand, developing the full use of the resources of the world and expanding the production and exchange of goods." The Preamble further states the participants' belief that "reciprocal and mutually advantageous arrangements directed to the substantial reduction in tariffs and other barriers to trade and to the elimination of discriminatory treatment in international commerce" would contribute toward the realization of these goals. It is notable that "free trade" is nowhere mentioned as the objective of GATT. Rather, the emphasis is on reciprocal tariff reductions extended in a non-discriminatory fashion in order that participating countries could mutually benefit from the resulting increase in income. This emphasis on "reciprocity" and "non-discrimination" has been maintained over GATT's five-decade history.

Since GATT's creation in 1947, there have been eight rounds of trade negotiations. The earlier rounds focused primarily upon the reduction of import tariffs on goods. By the mid-1980's, import tariffs had been considerably reduced on most goods. Still, important problems remained. First, there were some goods, such as agriculture and textiles, for which the liberalization process had moved slowly. Second, the treatment of many "new" trade-policy issues - preferential trading agreements, labor and environmental standards, agricultural export subsidies, and services, investment and intellectual property - is inadequate in GATT, and these issues were seen as increasingly important for the global economy. Finally, GATT is an interim agreement, which "limped along for nearly fifty years with almost no basic constitution designed to regulate its organizational activities and procedures" (Jackson, 1997, p. 42). The participating governments thus sought to return to their original quest with the ITO and develop an official international organization.

These problems (and others, too) were addressed in the GATT Uruguay Round, an ambitious and contentious round that lasted from 1986 to 1994. In this round, governments achieved some success in the liberalization of agricultural and textile goods, and they ventured into a number of new issues, including those mentioned above. The Uruguay Round also resulted in the 1995 formation

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principle of non-discrimination, he was less doctrinaire in this matter than was Hull. In particular, Meade favored the inclusion of a clause that allowed, at least to a moderate degree, the continuation of the preferential trade agreements to which Great Britain already belonged. This desire of Great Britain to maintain such agreements was strongly contested by the U.S.. Ultimately, as explained below, preferential trade agreements were permitted through Article XXIV as an exception to GATT's principle of non-discrimination.

of the World Trade Organization (the WTO). This organization embraces the rules and agreements made in the preceding GATT negotiations.[21] But it is also a full-fledged international organization, with an explicit organizational charter that defines various committees, bodies and councils, as well as the duties of and relationships between these groups. As we discuss further below, an important innovation associated with the WTO is a unified dispute-settlement system.

3.2. The Rules of GATT

As we observe above, GATT is not simply the codification of the tariff levels negotiated by its member governments. Rather, membership in GATT carries with it an obligation to abide by a set of rules under which future negotiations can occur and future conduct will be judged (authoritative references on GATT rules and procedures include Dam, 1970; Hudec, 1990; and Jackson, 1997). While these rules are laid out in a series of 38 articles, it is often observed that the pillars of GATT are the principles of reciprocity and non-discrimination (MFN), while enforcement mechanisms form the heart of the GATT system. We now interpret these core concepts with reference to the rules of GATT. We divide our discussion of these rules into three basic elements: substantive obligations, permissible exceptions to those obligations and dispute settlement procedures.

3.2.1. Substantive Obligations

As Jackson (1997, pp. 51-52) explains, the substantive obligations contained in GATT may be grouped into three categories: tariff commitments (Articles II and XXVIII bis.); most-favored-nation (MFN) treatment (Article I); and a series of other commitments that together represent a "code of conduct" regarding government behavior in the international-trade arena (Articles III through XVII).[22] At the broadest level, these provisions amount to an obligation to concentrate national protective measures into the form of tariffs (and possibly subsidies), to apply them on an MFN basis, and to honor any tariff ceilings that are agreed to

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[21] The WTO charter states in Article XVI:1 that the WTO "shall be guided by the decisions, procedures and customary practices followed by" GATT 1947.

[22] This includes national treatment (Article III), anti-dumping and countervailing duties (Article VI), customs valuation and procedures (Articles VII, VIII and X), marks of origin (Article IX), quantitative restrictions (Article XI), subsidies (Article XVI) and state-trading monopolies (Article XVII).

as "concessions" in a GATT negotiation. We focus here on the rules associated with tariff commitments and MFN.

Tariff commitments made under GATT are in the form of "bindings," with the actual tariff not to exceed the bound duty rate. As the discussion above suggests, MFN treatment requires further that, for any member country and given good, the member country does not discriminate with its import tariff between exporters from different member countries (and any tariff applied to exporters from non-member countries cannot be lower); in addition, all tariffs of each member country must conform to MFN regardless of whether these tariffs have been bound in a GATT negotiation. There are also specific obligations that accompany a tariff binding that are meant to insure that the binding can not be undone by other government measures, such as non-tariff charges, new subsidies, or new methods of classifying or valuing goods. Tariff bindings can be altered through time, and indeed GATT provides for its members to sponsor "rounds" of negotiations to lower the general level of tariff bindings "from time to time." Within any such round, a government offers a reduction in its binding on a completely voluntary basis, with the presumed goal of securing a mutually advantageous arrangement through a reciprocal reduction in the tariff bindings of its trading partners.

3.2.2. Exceptions

While the substantive obligations of GATT represent an attempt at the international level to restrain incentives for trade intervention that may exist at the national level, countries are not held rigidly to these "obligations." Instead, GATT provides for various exceptions that can be invoked in certain circumstances. Broadly speaking, exceptions can take two forms. First, an exception can be granted to a country for an "original" action. For example, GATT rules permit exceptions to tariff commitments that are associated with opportunities for (i). the renegotiation and modification of tariff schedules (Article XXVIII), and (ii). the suspension of concessions made under the escape clause (Article XIX). We discuss the specific provisions associated with each of these possibilities in subsequent sections. GATT rules also permit an exception to MFN treatment for the purpose of negotiating preferential trade agreements (Article XXIV).

The permissiveness with which GATT grants exceptions for original actions by member countries suggest that GATT "obligations" are not what they might appear, and indeed they are not. Dam (1970, p. 80) explains the rationale for the inclusion of such exceptions:

"The GATT has a special interest in seeing that as many agreements for the reduction of tariffs as possible are made. Enforcement of bindings is important in the GATT insofar as such enforcement gives contracting parties the confidence necessary to rely upon tariff concessions offered by other contracting parties. But because of the economic nature of tariff concessions and the domestic political sensitivity inherently involved in trade issues, a system that made withdrawals of concessions impossible would tend to discourage the making of concessions in the first place. It is better, for example, that 100 commitments should be made and that 10 should be withdrawn than that only 50 commitments should be made and that all of them should be kept."

Exceptions for original actions thus act as "safeguards" that are designed to encourage tariff commitments and confidence in the GATT system.[23]

Of course, exceptions for original actions must be subjected to some disciplining structure; otherwise, governments might abuse the permissive posture and claim exceptional circumstances on too frequent a basis. GATT rules therefore also permit a second kind of exception, which is granted to member countries for "retaliatory" actions. For example, when a government seeks to modify or withdraw a previous concession, GATT rules recognize the consequent cost borne by the trading partner that is the "principal supplier" of the relevant good. If this trading partner is unable to negotiate satisfactory "compensation" (e.g., the government may offer to compensate for its original action by reducing the tariff on some other good), then it is allowed to achieve that compensation through retaliation: in other words, the trading partner can then reciprocate by withdrawing a concession of a "substantially equivalent" nature. Thus, as a general matter, the temptation that a government may have to request exceptions for original actions is tempered by the permitted responses of its trading partners, who are allowed to seek compensation by retaliating with reciprocal adjustments of their own.

Taken together, GATT's substantive obligations and its permitted exceptions to those obligations define a set of rules under which GATT members are expected to abide. Within this set of rules, it is then up to each member government to decide whether and when to engage in negotiations with any other member government, and any bargains struck are implemented subject to these rules. We consider next the manner in which these rules are enforced.

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[23]Ostry (1997, p. 68) reaches a similar conclusion. She explains the purpose of exceptions as follows: "These exceptions were considered essential as a means of promoting liberalization, for in the absence of legitimate 'escapes,' governments would be reluctant to undertake any significant reduction of trade barriers."

3.2.3. Dispute Settlement Procedures

When a government makes a tariff commitment as part of a GATT negotiation, is it then compelled under its domestic law to honor that commitment? As Jackson (1997, pp. 79-105) details, the relationship between international and domestic law varies from country to country. In the U.S., the authority to enter into trade agreements is granted by the legislative to the executive branch, and the conditions under which this authority is granted influence the domestic legal standing of the corresponding trade agreement. According to Jackson (1997, pp. 96-97), the key parts of GATT and also the WTO agreements reached in the Uruguay Round appear not to be "self-executing," which is to say that such agreements do not have full standing as domestic law without further governmental acts. As Low (1993, p. 48) explains, this has the practical implication that "nothing in U.S. domestic law...prevents the president from subsequently violating U.S. tariff commitments under GATT...In practice, this means that the status of the GATT and associated agreements under U.S. law gives virtually limitless potential in U.S. trade policy for noncompliance with GATT."[24]

This discussion raises an obvious, but fundamental, question: By what means are GATT commitments enforced? As no external enforcement mechanism exists to punish GATT violations, meaningful commitments must be self-enforcing, with violations deterred by the credible threat of subsequent retaliation. The general argument is nicely summarized by Dam (1970, pp. 80-81):

"The best guarantee that a commitment of any kind will be kept (particularly in an international setting where courts are of limited importance and, even more important, marshals and jails are nonexistent) is that the parties continue to view adherence to their agreement as in their mutual interest...

"Thus, the GATT system, unlike most legal systems,..., is not designed to exclude self-help in the form of retaliation. Rather, retaliation, subjected to established procedures and kept within prescribed bounds, is made the heart of the GATT system."

The dispute settlement and enforcement provisions contained within GATT itself are thus essential to the functioning of the multilateral trading system.

The central components of the GATT dispute settlement system evolved through GATT practice with reference to the provisions contained in Articles XXII and

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[24]For further discussion of the domestic legal standing of GATT commitments, see also Dam (1970) and Hudec (1990).

XXIII. Article XXII calls for bilateral consultations when disputes arise, while Article XXIII ("Nullification or Impairment") is the real centerpiece of the GATT dispute settlement process, as it defines the circumstances under which the actions by one country serve to "nullify or impair" the benefits expected under the agreement by another country. Nullification or impairment has been interpreted to include actions taken by one country "...which harmed the trade of another, and which 'could not reasonably have been anticipated' by the other at the time it negotiated for a concession" (Jackson, 1997, p. 115). As Petersmann (1997) details, a nullification-or-impairment complaint may take several forms. A "violation complaint" occurs when a country is alleged to have failed to carry out its GATT obligations (as when a tariff binding is broken), while a "non-violation complaint" occurs when there is no claim that the harmful action is itself inconsistent with GATT rules (as when a production subsidy is offered to domestic firms). In GATT practice, over 90% of the disputes filed under Article XXIII have been violation complaints.[25]

An important distinction can be drawn between the procedures associated with "safeguard" exceptions as discussed above and those that are typically associated with nullification or impairment. The safeguards contained in Articles XIX and XXVIII provide for the lawful suspension, modification or withdrawal of previously negotiated concessions and spell out the permissible retaliatory responses of trading partners. Governments behave in a "GATT-legal" fashion when they act within the confines of these rules. By contrast, Articles XXII and XXIII describe the procedures for retaliating against a country that takes a harmful action which its trading partners could not have anticipated under GATT rules. In the typical case, that of a violation complaint, the actions of the offending country have violated GATT rules, and retaliation here is more fundamentally concerned with the enforcement of rules.

The GATT procedure for settling disputes involves three stages: consultation between or among the parties in the dispute; investigation, ruling and recommendation by a GATT panel; and as a last resort, authorization for one or more

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[25]The circumstances under which an action is interpreted to have nullified or impaired the expected benefits of another country are somewhat ambiguous, and the evolution of GATT practice has therefore led to the identification of three conditions for a *prima facie* finding of nullification or impairment: the breach of an obligation, the use of a domestic subsidy to inhibit imports in certain cases, and the use of quantitative restrictions. The burden of proof that no nullification or impairment occurred then falls on the country which breached or took such actions (Jackson, 1997, p. 115). The first condition corresponds to a violation complaint, but the other two conditions can arise without any explicit violation of GATT rules.

countries to suspend GATT obligations against another (i.e., retaliation). In practice, the greatest emphasis has been placed on consultation and negotiation rather than on retaliation. Resolution is sometimes achieved in the first stage, and on other occasions it follows the GATT panel ruling. When the panel finds that nullification or impairment has occurred, it recommends that the offending country bring its illegal measures into conformity with GATT rules. If the offending country is unwilling to do so, then it may seek a negotiated resolution by offering to "compensate" the harmed country with a reduction in its (MFN) tariff on other goods. As Petersmann (1997, pp. 80-82) explains, compensation is voluntary under GATT, but it is often used to forestall the last-resort response: an authorized (and discriminatory) suspension of tariff concessions by the harmed country.

In practice, retaliation under Article XXIII has been authorized only in a few cases.[26] There have been several attempts to seek authorized retaliation, however, and at times GATT disputes have resulted in unauthorized retaliation. Furthermore, other disputes between GATT members have occurred outside GATT procedures entirely (Kovenock and Thursby, 1992). As Rhodes (1993, p. 109) argues, while the number of authorized retaliations is small, the threat of authorized retaliation is often the catalyst that ensures resolution in the consultation/negotiation stage. This reflects a theme that emerges from the drafting history of Article XXIII. The drafters of Article XXIII clearly understood the necessity of the retaliatory threat, but they sought as well to construct a rule-based system under which retaliation is limited in frequency and scope.[27]

With the WTO, the member governments significantly strengthened the dispute settlement procedures. While the GATT dispute settlement process evolved over time from an initial beginning of a few paragraphs in GATT 1947, the WTO dispute settlement process is elaborately defined so as to construct a unified procedure that permits application to both traditional and new trade-policy issues. In this context, one important innovation is that the ability of a single country

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[26]Retaliation was authorized under GATT only in one case, concerning the use by the U.S. of import restraints on dairy products from the Netherlands. For seven years, The Netherlands was authorized to utilize import restraints on U.S. grain, but it never acted on that authorization (Jackson, 1997, p. 116). More recently, under the WTO, further cases have emerged in which retaliation has been authorized (and used). The U.S. and Ecuador were authorized to retaliate against the E.U. in response to discriminatory tariffs adopted by the E.U. on banana imports, and the U.S. was authorized to retaliate against the E.U. in response to the E.U. prohibition of imports of hormone-treated beef. Additionally, Canada was authorized to retaliate against Brazil as a consequence of Brazil's failure to remove illegal aircraft subsidies.

[27]We develop these points further in Section 6.1.

to "block" a panel's ruling is now eliminated.[28] A second important innovation is that the WTO has a Trade Policy Review Body, which conducts regular reviews of individual countries' trade policies. These trade policy reviews represent an explicit attempt on the part of the WTO members to monitor one another's trade policies and thereby enhance "transparency," so as to encourage governments to follow more closely WTO rules and to fulfill the obligations to which they have agreed under these rules.

3.3. Reciprocity, Non-discrimination and Enforcement under GATT

It should be apparent from the preceding discussion that the enforcement provisions are a central feature of GATT rules, as is the principle of non-discrimination (MFN). The representation of the principle of reciprocity in these rules, however, is much less clear. Yet, along with the principle of non-discrimination, the principle of reciprocity is widely recognized as a pillar of GATT. How is the principle of reciprocity represented in GATT?

Broadly speaking, the principle of reciprocity in GATT refers to the "ideal" of mutual changes in trade policy which bring about changes in the volume of each country's imports that are of equal value to changes in the volume of its exports. Upon closer examination, the preceding discussion contains two important instances in which a reference to reciprocity arises. First, when governments negotiate in GATT rounds as allowed under Article XXVIII bis, they do so with the presumed goal of securing a mutually advantageous arrangement through a reciprocal reduction in tariff bindings, and they seek a "balance of concessions" in their negotiations. In this case, reciprocity refers broadly to the philosophy with which governments approach negotiations.[29] Second, when a government seeks to modify or withdraw a previous concession as an original action, Article XXVIII

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[28]Under the GATT dispute settlement process, the approval of the panel's ruling required consensus among member countries, and so it was possible for the country losing a case to block the adoption of the ruling. By contrast, under the new WTO dispute settlement process, the panel's ruling is "automatic," in the sense that it can be blocked only if there is consensus among the member countries that the ruling should be rejected. The panel finding may be appealed, however, in which case an Appellate Body of three experts evaluates the dispute and the panel ruling. The appellate report is also adopted in "automatic" fashion. As well, under the WTO approach, all stages of the dispute settlement process are subject to fixed timetables, ensuring a timely resolution.

[29]For a discussion of the concept of reciprocity in GATT negotiations, as well as the ways in which reciprocity has been measured in practice, see Dam (1970, pp. 58-61 and pp. 87-91), Enders (1997) and Hoekman and Kostecki (1995, pp. 68-76). See also footnotes 31 and 33.

requires moderation in the retaliatory response of the affected trading partners, who are allowed to reciprocate by withdrawing "substantially equivalent concessions."[30] Thus, both when tariffs are being lowered in negotiation rounds and being raised as part of a renegotiation process, the principle of reciprocity implies a "balance" in the commercial treatment between GATT members.

This completes our general discussion of the history and design of GATT and the WTO. At this point, we are prepared to return to the theoretical framework developed in Section 2 and summarized in Figure 3. Within this setting, we investigate whether the rules of GATT assist governments as they attempt to navigate their way from the inefficient Nash point to the contract curve. At various points in our discussion, some further clarification of GATT rules is required. We present these additional remarks in the company of the corresponding theoretical analysis. This serves both to promote a broad perspective of GATT in the present section and to make subsequent sections more self-contained. We begin in the next section with a theoretical analysis of reciprocity.

4. Reciprocity

Our purpose in this section is to offer an assessment of reciprocity as a principle that assists governments as they attempt to escape from a terms-of-trade-driven Prisoners' Dilemma. Building on the general discussion of reciprocity presented in the previous section, we develop below a more detailed description of the role of reciprocity in GATT. We distinguish between the two ways in which reciprocity appears in GATT practice, and we then evaluate the economic logic of reciprocity. Finally, we return to the theme of rules-based versus power-based negotiations discussed above, and we discuss a broader interpretation of reciprocity as a means to bring "weaker" countries into the multilateral trading system.

4.1. Reciprocity in GATT

As mentioned above, the term "reciprocity" refers broadly to the ideal of mutual changes in trade policy which bring about changes in the volume of each country's

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[30]This second application of reciprocity comes up also in GATT's Article XIX, which provides for the temporary suspension of tariff commitments in response to injurious import increases, and as we discuss in Section 6.1 it can arise as well under Article XXIII. The application to Article XIX has been altered with the creation of the WTO, however, as we discuss further in Section 6.2.1.

imports that are of equal value to changes in the volume of its exports.[31] We begin by noting that the concept of reciprocity can be given a simple formal representation. Utilizing the two-country model of trade presented in Section 2 and following Bagwell and Staiger (1999a), we define reciprocity formally as follows: a set of tariff changes $\Delta\tau \equiv (\tau^1 - \tau^0)$ and $\Delta\tau^* \equiv (\tau^{*1} - \tau^{*0}))$ conforms to *the principle of reciprocity* if

$$
\begin{aligned}
&\widetilde{p}^{w0}[M_x(p(\tau^1, \widetilde{p}^{w1}), \widetilde{p}^{w1}) - M_x(p(\tau^0, \widetilde{p}^{w0}), \widetilde{p}^{w0})] \\
= \; &[E_y(p(\tau^1, \widetilde{p}^{w1}), \widetilde{p}^{w1}) - E_y(p(\tau^0, \widetilde{p}^{w0}), \widetilde{p}^{w0})]
\end{aligned}
$$

where $\widetilde{p}^{w0} \equiv \widetilde{p}^{w0}(\tau^0, \tau^{*0})$, $\widetilde{p}^{w1} \equiv \widetilde{p}^{w1}(\tau^1, \tau^{*1})$ and changes in trade volumes are valued at the existing world price. An analogous (and redundant) condition holds, under reciprocity, for the foreign country. We now use the trade balance condition (2.1) to rewrite this expression as

$$
[\widetilde{p}^{w1} - \widetilde{p}^{w0}]M_x(p(\tau^1, \widetilde{p}^{w1}), \widetilde{p}^{w1}) = 0. \tag{4.1}
$$

Thus, as (4.1) makes clear, mutual changes in trade policy that conform to the principle of reciprocity leave the world price unchanged. The potential importance of this property becomes apparent, when it is recalled from our previous review of the traditional economic and political-economy theories of trade agreements that a government sets its tariffs in an inefficient manner if and only if it is motivated by the *change* in the world price that its tariff choice implies.[32]

With a formal definition of the principle of reciprocity now at hand, we consider the application of this principle within GATT practice. As suggested in Section 3.3, reciprocity arises in GATT practice in two ways. First, the principle

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[31] In fact, nowhere in GATT is the term reciprocity specifically defined. Perhaps the clearest statement was given by the Legal Advisor to GATT's Director-General (GATT document C/M/220, pp. 35-36), as quoted in the context of Article XXVIII renegotiations in WTO (1995). In describing the "fairly well established criteria" that were considered in determining what would constitute the withdrawal of substantially equivalent concessions, it was noted that: "The first criterion was the development of the imports during, normally, the three years before the renegotiations started. What was taken into account was not just a statistical average, but also the trend in the development of trade during that period. Furthermore, account was taken of the size of the tariff increase being negotiated. Moreover, an estimate was made of the price elasticity of the product concerned." (WTO, 1995, p. 949). See also Enders (1997).

[32] While we have derived this property of reciprocity within the two-good two-country framework presented in Section 2 above, it also extends naturally to a many-good many-country setting (see Bagwell and Staiger, 1999a).

of reciprocity is often associated with the manner in which government negotiators approach trade negotiations. A common perception is that governments enter into negotiations seeking a "balance of concessions," whereby the tariff reduction offered by one government is balanced against an "equivalent" concession from its trading partner.[33] The emphasis that governments place upon reciprocity in this sense has attracted the interest of many economists, as it stands in sharp contrast to standard economic arguments in favor of unilateral liberalization. We therefore consider next in Section 4.2 an economic interpretation of this application of reciprocity. A second application of the principle of reciprocity can be found within the actual articles of GATT itself. This application concerns the manner in which governments may renegotiate agreements. While economists have traditionally placed less emphasis on this application of reciprocity, GATT legal scholars routinely point out its potential significance (see, for example, Dam, 1970, pp. 79-99; and Jackson, 1997, p. 143). We discuss this application in Section 4.3.

4.2. Reciprocity and Trade Negotiations

The first application of reciprocity in GATT practice reflects the balance of concessions that governments seek through a negotiated agreement. This practice is described by Dam (1970, p. 59), who explains that, under the language of Article XXVIII bis that outlines the manner in which GATT tariff negotiations are to occur, negotiations are voluntary and are to be conducted on a "reciprocal and mutually advantageous basis." Dam (1970, p. 59) explains further that:

"This permissive approach to the content of tariff agreements is often referred to under the heading of reciprocity. From the legal principle that a country need make concessions only when other contracting parties offer reciprocal concessions considered to be 'mutually advantageous' has been derived the informal principle that exchanges of concessions must entail reciprocity."

This informal principle of reciprocity stands in contrast to standard economic logic, which implies that optimal unilateral policy for a country is free trade. From

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[33]For example, Preeg (1970, pp. 130-134) remarks that in the GATT Kennedy Round, negotiators sought to achieve a balance in value between the forecasted increases in the volume of imports and the estimated increase in the volume of exports that would accompany a proposed set of tariff concessions. This observed practice of reciprocity in negotiation fits squarely with the formal definition of reciprocity presented above. Bhagwati (1988, 1991) also notes that reciprocity in tariff negotiations is defined with reference to a balance in the value of changes in trade volume, referring to this process as *first-difference reciprocity.*

this perspective, it is perplexing that a government would require a "concession" from its trading partner in order to do what is in any event best for its country. Appealing to this apparent violation of economic logic, many economists interpret the observation that governments seek reciprocity in negotiated agreements as direct evidence that government negotiators adopt a mercantilist perspective that is incompatible with basic economic reasoning and that therefore derives from underlying political forces. For example, Krugman (1991, p. 25) observes:

"To make sense of international trade negotiations, one needs to remember three simple rules about the objectives of negotiating countries:
   1). Exports are good.
   2). Imports are bad.
   3). Other things equal, an equal increase in imports and exports is good.
In other words, GATT-think is enlightened mercantilism."

Against this backdrop, it can now be argued that the mercantilist approach to trade negotiations that seems to drive actual negotiations admits a simple economic interpretation.[34]

   To see this, suppose that governments begin at the Nash equilibrium point. Appealing to (2.4), (2.7) and (2.8), at the Nash equilibrium it is true that $W_p < 0 < W_{p^*}^*$. This means that if governments could agree to liberalize tariffs in a reciprocal manner that preserved the world price, then the domestic local price p would fall (since $\partial p/\partial \tau = \widetilde{p}^w > 0$) and the foreign local price p^* would rise (since $\partial p^*/\partial \tau^* = -(\widetilde{p}^w)/(\tau^*)^2 < 0$), and as a consequence the domestic-government welfare would rise (since $W_p < 0$) and the foreign-government welfare would also rise (since $W_{p^*}^* > 0$). The simple point is that at the Nash equilibrium both governments would prefer more trade, if the increase in trade volume could be obtained without a deterioration in the terms of trade. A unilateral liberalization effort would indeed result in a decline in the terms of trade, and so neither government would seek unilateral liberalization. On the other hand, if the liberalization occurs under the principle of reciprocity, with one country's tariff reduction balanced against that of the other, then the terms of trade are held constant and each

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[34]The main argument is developed more fully in Bagwell and Staiger (1999a). The view that GATT negotiations are incompatible with economic reasoning and instead reflect mercantilist logic is further developed by Krugman in his more recent paper (Krugman, 1997). Some of the advantages of reciprocity described by Bhagwati (1991, pp. 50-51), Gilligan (1997) and McMillan (1986, 1989) are more in line with the results we report here.

government can gain from an expansion in trade volume without experiencing a consequent decline in the terms of trade.

Reciprocal liberalization of this nature is sure to increase the welfare of both governments if they start at the Nash equilibrium. In fact, beginning at the Nash equilibrium, reciprocal liberalization that leaves the world price unchanged increases each government's welfare monotonically until this liberalization has proceeded to the point where one government has achieved its preferred local price (given the Nash world price). If the domestic government achieves its preferred local price first, then mutually beneficial liberalization proceeds until $W_p = 0$, and similarly this liberalization continues until $W_{p^*}^* = 0$ if the foreign government first achieves its preferred local price. A case of particular interest arises when the domestic and foreign countries are symmetric. In this case, liberalization that preserves world prices raises the welfare of both governments monotonically until the single tariff pair is reached at which $W_p = 0 = W_{p^*}^*$. That is to say, when countries are symmetric and liberalize according to the principle of reciprocity, the liberalization process leads to the politically optimal tariffs.

Drawing from the perspective of the (politically-augmented) terms-of-trade theory, in which governments seek an escape from a terms-of-trade-driven Prisoners' Dilemma, it is therefore possible to offer a formal economic interpretation of the apparent mercantilist behavior that seems to characterize actual trade negotiations. Just as Krugman's (1991) three rules of "enlightened mercantilism" would suggest, this perspective implies that governments have every reason to believe that "exports are good," since a reduction in the import tariff levied by the trading partner serves to improve the terms of trade. In addition, governments naturally regard import liberalization as a concession, with the broader implication that "imports are bad," because unilateral liberalization entails reducing the import tariff below the best-response value and suffering a terms-of-trade decline. Finally, each government benefits from a concession at home that is balanced under reciprocity against an "equivalent" concession abroad, so that "other things equal, an equal increase in imports and exports is good," since the balance of concessions so achieved serves to neutralize the terms-of-trade decline that would have made unilateral liberalization undesirable.

Recalling now the discussion of the origin of GATT presented in Section 3, we note that the interpretation of reciprocity developed here is in some respects a formal confirmation of the economic benefits associated with reciprocity that Hull suggested. It is also interesting to contrast this explanation of reciprocity with a seemingly separate political argument. As Hull recognized, a practical

benefit of reciprocal (as opposed to unilateral) liberalization is that the reduction in the foreign import tariff mobilizes political support among domestic exporters that acts as a counterweight against the objections to liberalization that arise from domestic import-competing firms. It is clear, however, that the proposed export-sector support for reciprocity ultimately must derive from the anticipated economic benefit that is associated with a reduction in the foreign tariff. This benefit, moreover, travels through the improved world price that domestic exporters can expect to receive. Consequently, the foreign tariff reduction benefits domestic exporters by contributing to an improvement in the domestic terms of trade. Evidently, this "political" explanation of reciprocity can in fact be offered within the (politically-augmented) terms-of-trade theory; furthermore, it then becomes apparent that the ability of reciprocity to neutralize the adverse terms-of-trade implications of unilateral liberalization is the essence of this explanation as well.[35]

At the same time, it should be noted that a more sophisticated political argument for reciprocity also exists. This argument is developed in some detail by Gilligan (1997), who notes that the benefit to domestic exporters of a foreign tariff reduction is transmitted through an improved world price.[36] He then goes further to offer an interpretation of the political aspects of reciprocity that highlights a dynamic process through which government preferences change over time. As Gilligan (1997, p. 35) puts it, "Reciprocity really created a 'friendly cycle' of liberalization: each round of trade agreements encouraged more exporter lobbying, and, as more exporters became politically active, legislatures became willing to allow deeper reductions in protection."

Krishna and Mitra (1999) explore a formal version of this process. In their model, the domestic country first sets its import tariff, and this selection alters the world price and thereby affects the incentives of private actors in the foreign country, who must decide whether to incur the fixed costs that are associated with forming a lobby. Lobbies can be formed in the import-competing sector or the exporting sector. Once the lobby structure is determined, the game within the foreign country proceeds as in the Grossman-Helpman (1994) model: the schedule of lobby contributions is presented to the government, who then selects its import tariff to maximize its welfare function.[37] There is an interesting analogy here to

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[35] Recall from Section 2 that the model developed here can include a political-support constraint.

[36] Bhagwati (1991, pp. 50-51) also discusses some of the political advantages of reciprocity.

[37] Krishna and Mitra (1999) build off of Mitra (1999), who introduces to the Grossman-Helpman (1994) model a fixed cost for lobby formation and endogenizes the structure of lobbies.

the commitment approach described in Section 2.1.4. In the Krishna-Mitra model, the private-sector "investment" corresponds to the fixed costs that are associated with the endogenous formation of lobbies. The novel wrinkle, though, is that the government of the domestic country may offer a low tariff, in order to *influence* the commitment game between the foreign government and its private sector. In particular, the domestic government seeks to steer lobby formation in the foreign country away from the import sector and toward the export sector, since this in turn induces the foreign government to offer a low tariff.

This suggests that unilateral trade liberalization may be desirable, because of the *subsequent* reciprocal tariff liberalization that it induces. As such, this argument offers an interesting interpretation of important historic episodes of unilateral liberalization (e.g., the unilateral repeal of England's Corn Laws in the 1840's). The argument may also contribute toward an improved understanding of the gradual process through which tariff liberalization has occurred (as discussed further in Section 6.2.2). But the argument succeeds less well in directly accounting for the rules described by Krugman, which pertain to negotiations between trading partners who seek *simultaneous* reciprocal tariff liberalization.

4.3. Reciprocity and Renegotiation

While the application of reciprocity considered above reflects the broad manner in which governments appear to approach trade negotiations, there is in fact no requirement in GATT that negotiations proceed in this manner. There is, however, a second application of the principle of reciprocity in GATT, and in this application GATT rules do require reciprocity. This second application concerns the manner in which trade agreements may be renegotiated. Under GATT Article XXVIII, a country may propose to modify or withdraw a concession agreed upon in a previous round of negotiation. In this case, if the country and its trading partner are unable to reach agreement regarding a renegotiated tariff structure, then the country is free to carry out the proposed changes anyway, and the notion of reciprocity is used to moderate the response of the country's trading partner, who is permitted to withdraw substantially equivalent concessions of its own.[38]

This suggests that GATT negotiations may be understood as a multi-stage game, in which governments first agree to an initial set of tariffs in a round

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[38]For further discussion of Article XXVIII and the GATT rules that govern renegotiation, see Dam (1970, pp. 79-99), Enders (1997) and Jackson (1997, p. 143). Bagwell and Staiger (1999a) provide a formal analysis of reciprocity and renegotiation along the lines discussed here.

of negotiations under Article XXVIII bis, and then each government considers whether it would prefer to raise its tariff with the understanding that the outcome of any Article XXVIII renegotiation that follows will, under GATT's reciprocity rule, preserve the world price implied by the original negotiation. Viewed from this perspective, it is clear that governments must evaluate the future incentives for renegotiation that might accompany a proposed initial agreement. A figure can capture some of the key ideas.

Consider then Figure 5. This figure depicts three possible tariff pairs that might represent an initial agreement. These tariff pairs are represented as points A, B and PO and, to make the argument as clear as possible, we suppose that each of the tariff pairs is on the efficiency locus. Figure 5 also depicts the iso-world-price loci that run through each of the candidate tariff pairs. Finally, the loci for which $W_p = 0$ and $W_{p^*}^* = 0$, respectively, are also represented. These loci are assumed downward sloping, although the argument developed here is not limited to this assumption. According to (2.10), each locus intersects the efficiency frontier at the politically optimal point PO and nowhere else.[39]

Consider first an initial agreement that corresponds to point A. Observe in this case that the foreign government would prefer to move up the associated iso-world-price locus to the point A', where it achieves its preferred local price (given the world price determined at point A). Thus, while the tariff pair at point A is efficient, it is not robust to the type of renegotiation that GATT allows through Article XXVIII. The foreign government would request a renegotiation to raise its tariff to the value corresponding to point A', knowing that the domestic government would then be permitted under Article XXVIII to withdraw a substantially equivalent concession that would preserve the world price and therefore deliver the tariff pair at point A'. A similar argument applies for the efficient tariff pair associated with point B, except in this case it is the domestic government that first withdraws its original concession in order to induce the point B'. Reasoning in this fashion, it is now direct to see that there is only one efficient tariff pair which, if agreed to originally, would not be lost in the renegotiation process. This tariff pair is the politically optimal tariff pair, since this is the only point on the efficiency locus at which both governments achieve their preferred local prices given the associated world price.[40]

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[39] As (2.10) indicates, efficiency is possible if and only if both $W_p = 0$ and $W_{p^*}^* = 0$ (corresponding to the politically optimal point) or both $W_p \neq 0$ and $W_{p^*}^* \neq 0$.

[40] Recall that the iso-welfare curves of each government are tangent to the iso-world-price locus at the politically optimal tariffs. In the special case of national-welfare-maximizing governments

The logic embodied in Figure 5 suggests that the principle of reciprocity as it applies to renegotiations of GATT agreements can allow governments to reach the efficiency locus. On the other hand, not every set of tariffs on the efficiency locus is compatible with the ability to renegotiate as allowed under the principle of reciprocity. In fact, as Figure 5 implies, the politically optimal tariffs are the only efficient tariffs that are "renegotiation-proof" in this sense. From the perspective of the (politically augmented) terms-of-trade theory, there is a certain appeal to this finding, since the politically optimal tariffs are also those tariffs which arise when the source of inefficiency - governments' motivations to influence the terms-of-trade - is directly eliminated.

As the political optimum represents the only efficient outcome that survives renegotiation under GATT's reciprocity rule, the set of outcomes that are renegotiation-proof in this environment rest inside the efficiency frontier except at the political optimum. An implication is that governments are "penalized" under GATT's reciprocity rule if they seek to negotiate an outcome on the efficiency frontier other than the political optimum. For example, at point A in Figure 5, notice that the home government achieves higher welfare than it would obtain at the political optimum. However, a portion of the gains which the home government might achieve in pushing the negotiations away from the political optimum and toward point A would be lost under GATT's reciprocity rule in the subsequent renegotiation to the point A', and the home government may therefore be less apt to push the negotiations in this direction. A similar observation applies to the foreign government with reference to the point B. In this way, GATT's reciprocity rule can be viewed as helping to mitigate the power asymmetries that governments might otherwise wield at the bargaining table, as this rule serves to direct them toward the political optimum, an outcome that is defined without reference to countries' relative power status.[41] This observation is in line with the our discussion in Section 2.2 above regarding the nature of rules-based approaches

associated with the traditional economic approach depicted in Figure 1, the political optimum corresponds to reciprocal free trade and the locus at which the domestic (foreign) government achieves its preferred local price is horizontal (vertical) out of the reciprocal-free-trade point. The efficiency locus passes through this point as well, but it otherwise lies below the loci associated with the preferred local prices. Thus, when governments maximize national welfare, the point of reciprocal free trade is the only point on the efficiency locus that can survive renegotiation under GATT's reciprocity rules.

[41]Bagwell and Staiger (1999a) define a "Bilateral Negotiation Game" and show for this game that reciprocity guides negotiations toward the politically optimal outcome, unless sufficient asymmetries are present.

to negotiations, but it does raise an important new question: Why would powerful countries agree to participate in GATT under the rule of reciprocity? We consider this question next.

4.4. Reciprocity and Participation: Rules versus Power

In Section 2.2 we illustrate how a power-based approach to trade negotiations could allow governments to move to a point on the contract curve. Any difference between the negotiated outcome and the political optimum would then reflect "power asymmetries" across negotiating partners. In Section 4.3 we argue that GATT's reciprocity rule serves to mitigate the influence of power asymmetries on negotiated outcomes. The reciprocity rules thereby guides negotiating governments back toward the political optimum. Why, then, would powerful countries support a multilateral system built on the pillar of reciprocity, when evidently this pillar serves to undercut their bargaining advantage?

At a broad level, the question of why powerful governments submit to a rules-based system is a fundamental question of international relations, and we do not presume to provide a complete answer here. We do, however, offer a partial answer: by serving to moderate the lawful response of powerful countries in case of disagreement, GATT's rule of reciprocity may encourage weaker countries to overcome their fear of exploitation by stronger trading partners and participate in GATT negotiations.[42]

The general idea draws from the commitment approach described in Section 2.1.4, and McLaren's (1997) model suggests an especially interesting version. Let us suppose that the government of a smaller country were to contemplate entering into tariff negotiations with a large trading partner. As news of the negotiations spread, a process might naturally begin in which producers in the smaller country raced to make investments to position themselves so as to serve the large foreign market once trade barriers had been reduced. Such investments, however, once sunk, would tend to undercut the position of the smaller country's government at

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[42]The notion that a rules-based institution can assist small countries is advanced on the WTO web cite (http://www.wto.org/wto/about/devel5.htm), where the importance of trade rules for small- and medium-sized countries is explained as follows: "The WTO provides a rules-based multilateral trading system. All members have both rights and obligations. The alternative is bilateral commercial relations based on economic and political power - small countries are then at the mercy of the large trading powers. Differences in influence between individual countries remain, of course, but even the smallest WTO member has a wide range of rights which are enforceable under the WTO's impartial dispute settlement procedures."

the bargaining table, as a breakdown in negotiations would now be quite costly for the smaller country. As a result, the government of the smaller country might well be "held up" at the bargaining table, and pushed by its larger trading partner into accepting terms that make it worse off than if negotiations had never begun. Anticipating this possibility, the government of the smaller country may be especially cautious about engaging in any trade negotiations with its larger trading partners, and potential efficiency gains from negotiations may remain unexploited.

It is in such a situation that prior commitments to a set of rules by which subsequent negotiations must abide could provide efficiency gains, as a commitment to rules could solve the "hold up" problem, and thereby serve the objectives of all governments by encouraging smaller countries to participate in negotiations with their more powerful trading partners. In particular, GATT's reciprocity rule can help to serve this purpose, as it can insure weaker countries against the possibility of exploitation by guiding negotiations toward the political optimum.[43]

5. MFN

Does the principle of MFN assist governments as they attempt to escape from a terms-of-trade-driven Prisoners' Dilemma? In this section we consider this question. We begin with a general discussion of MFN in GATT, and in particular of the difficulty in providing a formal rationale for MFN in bargaining environments. We then outline an extension of our general equilibrium modeling framework that allows for multiple countries, so that we may consider the role of MFN in a multi-country setting, and we argue that the case for MFN in GATT can be seen most clearly when it is viewed in the company of GATT's principle of reciprocity.

5.1. MFN in GATT

As the discussion in Section 3 indicates, MFN is a pillar of the multilateral trading system under GATT, and yet an account of the central benefits of MFN has largely eluded formal analysis. The difficulty in providing a formal rationale for MFN arises from several sources.

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[43]See Bagwell and Staiger (1999a) for a full treatment of reciprocity as a means to induce participation along the lines outlined above. A similar hold-up problem can be generated using the political-economy model of Fernandez and Rodrik (1991), which allows that voter preferences may change through time.

On the one hand, the principle of MFN carries with it potential costs associated with "free riding" on the bargaining outcomes of others, and these costs have been emphasized since the work of Viner (1924, 1931, 1936). The free-rider effects associated with MFN are formalized in a bargaining framework by Caplin and Krishna (1988), who highlight the externality that MFN creates across bargaining pairs and argue that this ability to free ride can prevent governments from reaching the efficiency frontier. Ludema (1991) extends the analysis to allow each country the subsequent ability to disapprove any agreement negotiated by its government before the agreement can come into force. This ratification process has the effect of reducing the ability of any government to free ride on the agreements of others via the MFN clause, and so can be seen as a way to minimize the free-rider costs associated with MFN. Nevertheless, the free-rider issues associated with MFN raise a potentially important cost associated with the adoption of this principle.

On the other hand, the potential benefits of the principle of MFN are less easily identified. As we discuss in Section 3, Hull regarded MFN as beneficial, since it offered a way to "multilateralize" the reciprocal tariff reductions that governments might negotiate bilaterally. The formal validity of Hull's assessment, however, is not obvious. More generally, there is a basic impediment to formalizing the benefits associated with MFN. As Caplin and Krishna (1988, pp. 281-82) note:

"There is a simple observation which illustrates the difficulties in providing a general bargaining-theoretic rationale for MFN. There is a grand utility possibility frontier available to countries using all the commercial trading instruments at their disposal, such as tariffs. If we view the bargaining process as yielding efficient outcomes, as for example with the Nash bargaining solution, then MFN simply limits the tools available to different countries, shifting in the utility possibility frontier. Hence the most positive aspects of MFN can only be illustrated when the bargaining process absent-MFN yields inefficient outcomes."

This observation suggests that any potential benefits of MFN that can serve to counter-balance its free-riding costs can only become apparent in an environment where bargaining inefficiencies already exist in the absence of MFN.

What, then, is the source of the bargaining inefficiency which the principle of MFN could correct? There are a number of possible sources which might be considered.[44] We identify in this section two institutional sources of bargaining

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[44]The economics literature has recently considered several sources of inefficiency which MFN may help to correct. We mention here three possibilities. First, McCalman (1997) explores

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inefficiency that arise under multi-country negotiations when MFN is not imposed. A first source emerges when trade negotiations occur through time and between the governments of many countries, so that there is a possibility of "bilateral opportunism" through discriminatory agreements. We describe how MFN can by itself offer only a partial solution to the bilateral opportunism problem, but we show that MFN in combination with reciprocity eliminates this problem. A second source of bargaining inefficiency arises when governments are permitted to renegotiate their agreements under reciprocity and discriminatory tariffs are allowed. In this case, it is the reciprocity rule itself that is the source of the bargaining inefficiency in discriminatory environments, and we describe how this inefficiency is eliminated with the addition of the MFN rule. With each of these cases, we thus establish that MFN can eliminate a problem when reciprocity is also present, and in this way we provide an institutional rationale for MFN in the company of reciprocity. To develop this rationale, we first outline the essential features of the multi-country general equilibrium model that underlies our discussion. We then proceed as in the previous section, considering first trade negotiations under reciprocity and second renegotiation under reciprocity.

5.2. The Multi-Country Model

The basic insights can be communicated with the development of a three-country model, in which the home country imports good x from foreign countries *1 and *2 and exports good y to these same countries. To simplify the discussion, we suppose further that the two foreign countries do not trade with one another. The home government is thus the only government that has the opportunity to set discriminatory tariffs across its partners. After describing the essential features of this model, we define government preferences for the multi-country setting and consider the externalities that arise between governments.

the possible efficiency-enhancing role of MFN in a bargaining setting where private information prevents countries from reaching efficient outcomes in the absence of MFN. Second, Choi (1995) considers the role that MFN may play as a commitment device that promotes greater investment, in a strategic trade-policy game between an importing government and foreign exporting firms who make investment decisions. And third, in a recent paper (Bagwell and Staiger, 1999b), we examine the implications of MFN when governments have heteregeneous discount factors and enforcement considerations prevent them from reaching the efficiency frontier. The economics literature that addresses the broader implications of MFN is comprehensively surveyed by Horn and Mavroidis (2000).

5.2.1. The General Equilibrium Model

We begin with the direct extension of our two-country notation to the multi-country setting. As before, the home local relative price is denoted as $p = p_x/p_y$, and similarly we now represent the local relative price in foreign country i as $p^{*i} = p_x^{*i}/p_y^{*i}$, for $i = 1, 2$. The ad valorem tariff that the home government places on imports of x from foreign country i is denoted as t^i, and t^{*i} is likewise the ad valorem tariff levied by the government of foreign country i on imports of y from the home country. The world price for trade between the home country and foreign country i – the ratio of exporter prices for trade between them – is defined as $p^{wi} \equiv p_x^{*i}/p_y$. Next, letting $\tau^i \equiv (1 + t^i)$ and $\tau^{*i} \equiv (1 + t^{*i})$, we represent local prices in terms of world prices and tariffs: $p = \tau^i p^{wi} \equiv p(\tau^i, p^{wi})$ and $p^{*i} = p^{wi}/\tau^{*i} \equiv p^{*i}(\tau^{*i}, p^{wi})$. Thus, as in the two-country model, local prices are determined, once tariffs and world prices are given.

Consider now the possibility that the home government selects discriminatory tariffs, in which case the home tariff on imports from foreign country 1 differs from that on imports from foreign country 2, or $\tau^1 \neq \tau^2$. Under discriminatory tariffs, there exist two distinct world prices, but the world prices are linked by the requirement of a single home local price:

$$p = \tau^1 p^{w1} = \tau^2 p^{w2} \tag{5.1}$$

By contrast, the principle of MFN requires that the home country levy the same tariff on good x, whether the good emanates from foreign country 1 or 2, or $\tau^1 = \tau^2$. Under MFN tariffs, therefore, a single world price arises: $p^{w1} = p^{w2} \equiv p^w$. Whether or not tariffs are discriminatory, the world price p^{wi} represents foreign country i's terms of trade. Likewise, we may understand $1/p^{wi}$ as the home country's *bilateral* terms of trade with foreign partner i. The home country, however, has multiple trading partners, and the representation of its overall *multilateral* terms of trade is more involved.

As might be expected, the home country's multilateral terms of trade can be defined as a function of the trade-weighted average of the bilateral terms of trade. To see this, we first define bilateral trade shares by

$$s_x^{*i}(p^{*1}, p^{*2}, p^{w1}, p^{w2}) \equiv E_x^{*i}(p^{*i}, p^{wi})/ \sum_{j=1,2} E_x^{*j}(p^{*j}, p^{wj}), \tag{5.2}$$

where $E_x^{*i}(p^{*i}, p^{wi})$ is the export supply function for foreign country i. With this, we next define the domestic country's *multilateral terms of trade* by the trade-

weighted average of the bilateral world prices:

$$T(p^{*1}, p^{*2}, p^{w1}, p^{w2}) \equiv \sum_{i=1,2} s_x^{*i}(p^{*1}, p^{*2}, p^{w1}, p^{w2}) \cdot p^{wi}.^{45} \qquad (5.3)$$

Using (5.1) and (5.3), we may already spot an important relationship between the principle of MFN and the multilateral terms of trade. In particular, if the home government adopts an MFN-tariff policy, then it follows that $T = p^{wi} \equiv p^w$. The multilateral terms of trade under MFN is thus given by the single world price that then prevails. On the other hand, under a discriminatory tariff policy, there are two world prices, and so $T \neq p^{wi}$ for all i. As we discuss further below, this means that the multilateral terms-of-trade externality then fundamentally derives from the bilateral terms of trade *and* the respective export shares.

We confirm in Bagwell and Staiger (1999a, 2000a) that the relationships and definitions presented above can be used to determine all domestic and foreign economic quantities for any set of local and world prices, and we verify that the requirements of market-clearing and world-price linkage (i.e., equation (5.1)) suffice for the determination of the equilibrium world prices, $\widetilde{p}^{w1}(\boldsymbol{\tau})$ and $\widetilde{p}^{w2}(\boldsymbol{\tau})$, where $\boldsymbol{\tau} \equiv (\boldsymbol{\tau}^1, \tau^2, \tau^{*1}, \tau^{*2})$. Summarizing, with their selections of tariffs, governments determine the equilibrium world prices, and the tariffs and world prices together then imply equilibrium values for all local prices and quantities.

We assume that the prices so determined depend upon tariffs in the "standard" manner. As in the two-country model, we assume that if foreign country i confronts a higher tariff on its exports (i.e., if τ^i increases) or if it lowers its own tariff (i.e., if τ^{*i} decreases), then it experiences a reduction in its terms of trade (i.e., $\widetilde{p}^{wi}$ decreases). We assume as well that foreign country i experience a terms-of-trade gain (i.e., $\widetilde{p}^{wi}$ increases) whenever the other two countries raise tariffs on one another (i.e., whenever τ^j increases or τ^{*j} increases). Intuitively, if the home government taxes more heavily the exports of foreign country j, then the home demand for exports from foreign country i is increased, resulting in a terms-of-trade gain for foreign country i. Likewise, if foreign country j were to raise its import tariff on exports from the home country, then those exports would be diverted to foreign country i, who would enjoy a lower price on the home export and thus a terms-of-trade gain. Finally, if the home government selects among MFN tariffs, then an increase in the home tariff amounts to a simultaneous increase in the tariff applied to the exports of both foreign countries. In this case,

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[45] In fact, T is a measure of the reciprocal of domestic terms of trade: an improvement in the domestic terms of trade corresponds to a lower value for T.

we assume that the direct effect of a higher tariff applied to one's own exports dominates, so that each foreign country experiences a terms-of-trade loss.

5.2.2. Government Preferences

We next extend the representation of government preferences to the multi-country setting. As before, we allow for a general representation. The objectives of the home and foreign governments are respectively given as $W(p, T)$ and $W^{*i}(p^{*i}, \widetilde{p}^{wi})$, where all prices and terms of trade are evaluated at their market-clearing levels. The key assumption is again that, with local prices held fixed, each government strictly prefers an improvement in its terms of trade:

$$W_T(p, T) < 0 \text{ and } W^{*i}_{p^{wi}}(p^{*i}, p^{wi}) > 0. \tag{5.4}$$

In other words, each government prefers an international redistribution in income from other countries to its own country.[46]

The multi-country model admits an interesting pattern of externalities. Consider first the government of foreign country i. This government is affected by the tariffs of the home country and foreign country j, but, as in the two-country model, in each case the tariff externality travels through the associated world price, $\widetilde{p}^{wi}$. The home government's situation is more novel. As a general matter, the effect of foreign tariffs on home-government welfare travels through the multilateral terms of trade, T. But, as we have seen, T may be further decomposed into world-price and foreign-local-price (i.e., export share) influences, suggesting a potentially more complicated underlying pattern of externalities.

In particular, if the home government adopts discriminatory tariffs, then the externalities that are associated with foreign tariff choices travel through world prices *and* foreign local prices (and thereby through T). Intuitively, imagine that the government of the home country selects a tariff that is higher on imports from foreign country 1. Then the government of the home country is affected by the

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[46]This assumption ensures a welfare gain when the terms of trade are improved and the local price is held fixed. In our discussion below, we rely on a slightly stronger assumption: the initial tariffs from which negotiated adjustments are made are positioned so that government welfare rises (falls) whenever a single tariff is changed that induces for this government a terms-of-trade gain (loss). This assumption simplifies the exposition, and it ensures that the welfare effect of a change in any particular tariff is always consistent with the terms-of-trade implications of this change. We thereby eliminate the possibility that a government would be so desirous of a local-price change that it would gain even if this change came about from a single policy adjustment (e.g., an increase in a trading partner's tariff) that resulted in a terms-of-trade loss.

composition of the trade volume across its foreign trading partners: all else equal, the government of the home country would prefer that more of a fixed total trade volume come from foreign country 1, on whom it places the highest tariff. But the respective export shares from foreign countries 1 and 2 are determined (in part) by the local prices in these countries, and so under discriminatory tariffs both world- and foreign-local-price externalities arise. On the other hand, if the government of the home country selects MFN tariffs, then $T = p^{wi} \equiv p^w$, and so the foreign-local-price externality is removed. Intuitively, under MFN tariffs, the home government no longer has a direct interest in the composition of trade volume, and so the welfare of this government is no longer separately affected by foreign local prices. Therefore, the MFN principle ensures that the *only* externality that arises between governments is the world-price externality.

At a broad level, a benefit of the MFN principle within the GATT system may now be anticipated, when it is recalled that the principle of reciprocity works to neutralize the world-price externality. The two principles together therefore may be generally interpreted to embody efficiency-enhancing properties.[47] In the next two sections, we discuss two specific representations of this general interpretation.

5.3. MFN, Reciprocity and Trade Negotiations

Our discussion begins with the observation that GATT negotiations occur through time and between the governments of various countries. Horn and Mavroidis (2000, p. 34) describe the GATT/WTO bargaining process in this way:[48]

"In the WTO, negotiations for the most part take place between subsets of member countries. Sometimes this is 'officially sanctioned,' as in the case of Principal Supplier negotiations. But also in seemingly multilateral negotiations, the 'actual' negotiations occur between a very limited number of countries."

This negotiation process raises a natural concern: A government may worry that the value of concessions that it wins today may be eroded in a future bilateral negotiation to which it is not party. This worry, in turn, may feed back to affect current negotiations. For example, if governments suspect that current market

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[47] This rationale for the principle of non-discrimination appears to be distinct from the "multilateralization" benefits that Hull associated with this principle. As Culbert (1987) discusses, Hull also attached to the principle of non-discrimination wider benefits, including a reduction in the risk of war.

[48] See also Hoekman and Kostecki (1995, pp. 56-83).

access relations may be vulnerable to opportunistic bilateral agreements in the future, then they may well exchange concessions today with trepidation. As a general matter, then, the potential for "opportunistic" bilateral agreements suggests a bargaining inefficiency, and raises the possibility that negotiation rules such as MFN might provide a remedy.

Two questions are suggested. First, how significant is the potential for bilateral opportunism, anyway? Second, if there is indeed significant potential, can the key GATT rules in fact play an efficiency-enhancing role by protecting the welfare of non-participating governments?

5.3.1. Significance

To get a feel for the potential significance of the problem, let us suppose that the three governments have reached an efficient trade agreement, and let us consider whether the home government and the government of foreign country i can then negotiate a bilateral trade agreement in which they each gain. Given that the initial arrangement is efficient, the two negotiating governments can gain only if they reach a bilateral agreement that is opportunistic (i.e., that extracts welfare from the non-participating foreign government j). With the assumption of an initial efficient agreement, we are thus able to gain easily a rough sense of the general potential for bilateral opportunism.

As we show in Bagwell and Staiger (2000a), any point on the efficiency frontier must take the form that is illustrated in Figure 6. This figure depicts the iso-welfare curves of the three governments, where the axes represent the negotiated tariffs τ^i and τ^{*i} that the home government and the government of foreign country i respectively apply to each other's exports. Notice that the iso-welfare curve for the (non-participating) government of foreign country j is downward sloping, since this government gains when either of the two negotiating governments raises the tariff that it applies to the exports of the other.[49] The iso-welfare curve for each negotiating government, however, is upward sloping, indicating that each negotiating government can maintain indifference only if the benefit of its own tariff increase is balanced against the cost of a tariff increase from its partner.

The most important lesson from the figure concerns the location of the lens within which the negotiating governments can both gain. The lens lies below

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[49]In Figure 6, the iso-welfare curve for the government of foreign country j can also be described as an iso-$\widetilde{p}^{wj}$ curve. This is because, with its own tariff held fixed, the government of foreign country j is affected by changes in τ^i and τ^{*i} only in so far as these changes affect its terms of trade, $\widetilde{p}^{wj}$.

the iso-welfare curve of the government of foreign country j.[50] The negotiating governments thus enter this lens by *reducing* the tariffs that they apply to one another, and the welfare gains that they enjoy reflect directly the welfare that they extract from the non-participating government of foreign country j, whose country then experiences a terms-of-trade loss. In fact, as every efficient tariff vector must generate a lens such as that depicted in Figure 6, *every* efficient tariff vector is vulnerable to bilateral opportunism through "concession erosion" in this sense. While a complete analysis would fully describe the dynamic process through which governments pick negotiation partners (form coalitions), the discussion presented here strongly suggests an answer to our first question: the potential for bilateral opportunism appears quite significant.

5.3.2. MFN and Reciprocity

We turn now to our second question and consider whether the key GATT rules can play an efficiency-enhancing role. Such a role would arise if these rules served to protect the welfare of non-participating governments, so that the value of concessions previously received could not be later eroded through an opportunistic bilateral agreement. It seems intuitive that MFN might play this role. Indeed, after considering the various costs and benefits of the MFN rule, Schwartz and Sykes (1997, p. 62) argue that the main benefit of MFN is that it prevents the concession erosion that opportunistic bilateral agreements imply:

"More important, the MFN obligation protects the value of concessions against future erosion through discrimination. If country A receives a concession from country B and is not entitled to MFN treatment from B, then the value of the concession can be undermined if country B later makes an even better concession to country C on the same goods (or close substitutes). Faced with this uncertainty, country A would offer less for the concession in the first place (as would country B for the reciprocal concession), and fewer valuable deals would be struck."

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[50]To understand the location of the lens, it is instructive to consider the opposite possibility, in which the lens lies above the iso-welfare curve of the government of foreign country j. The negotiating governments could then gain by *raising* their tariffs, but this would generate a terms-of-trade improvement for foreign country j, resulting in a welfare gain for all three governments, in contradiction to the assumption that the initial tariff configuration is efficient. A more subtle possibility is that there is no lens: the iso-welfare curves of the negotiating governments are tangent at the point at which they intersect the iso-welfare curve of the government of foreign country j. This arrangement also fails to be efficient, but a more involved alteration of tariffs is now required to produce gains to all three governments (see Bagwell and Staiger, 2000a).

While it is clear that MFN provides some protection in this regard, we argue next that MFN on its own does not fully eliminate the potential for opportunistic bilateral agreements.

To establish this point, we imagine that the three governments have previously negotiated to some initial tariff configuration. The home tariffs satisfy the MFN rule, but we do not assume that this tariff configuration is necessarily efficient (even within the MFN class). We then consider whether the home government and the government of foreign country i can subsequently liberalize tariffs through a bilateral agreement, in a manner that *reduces* the welfare of the government of foreign country j, even though this government receives the home-country tariff reduction on an MFN basis and does not alter its own tariff. To see that this is possible, observe that the government of foreign country j is affected as a non-participant by the bilateral agreement only through any consequent change in its terms of trade. On the one hand, the government of foreign country j is pleased to experience a reduction in the MFN tariff of the home government, since this benefits its exporters and correspondingly improves its terms of trade. On the other hand, though, the government of foreign country j is distressed by the reduction in the tariff of foreign country i, since this diverts home-country exports away from foreign country j, harming foreign country j's consumers and diminishing its terms of trade. Clearly, if the reduction in foreign country i's tariff is large in comparison to the MFN tariff reduction of the home country, then the government of foreign country j experiences an overall terms-of-trade loss and thus a reduction in welfare.[51]

As this discussion clarifies, the bilateral opportunism problem remains, so long as the rules of negotiation allow that the governments of the home country and foreign country i may enter into a bilateral agreement in which they alter foreign country j's terms of trade, $\widetilde{p}^{wj}$. Taking this general perspective, MFN

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[51] It may be wondered if the government of foreign country i would be willing to participate in such a bilateral agreement. Under the MFN rule, the two foreign countries share the same terms of trade, and so a bilateral agreement can extract welfare from foreign country j only if it also reduces the terms of trade for foreign country i. In Bagwell and Staiger (2000a), we examine this issue, showing that the negotiating partners can find a bilateral agreement that reduces tariffs under which they both gain at the expense of the non-participating government, while still respecting the MFN rule, if the government of foreign country i would prefer a greater trade volume at the initial world price. In this case, the bilateral agreement results in a change in tariffs that compensates the government of foreign country i for its terms-of-trade loss with a less trade-restrictive local price. (Note that this finding is consistent with the assumption presented in footnote 46, since the bilateral agreement results in a change in two tariffs.)

fails to protect non-participant welfare for a simple reason: While MFN ensures a single world price, $\widetilde{p}^w \equiv \widetilde{p}^{wi} = \widetilde{p}^{wj}$, it does not *fix* that world price. In a similar manner, it can be demonstrated that reciprocity alone also fails to protect non-participant welfare. If the rules of negotiation restrain the home government and the government of foreign country i to consider only bilateral agreements that satisfy the principle of reciprocity, then, as in the two-country model of Section 4, we may derive that such an agreement preserves the terms of trade between the negotiating partners, $\widetilde{p}^{wi}$. This, however, is not the same thing as fixing the non-participant's terms of trade, $\widetilde{p}^{wj}$.

Suppose, though, that MFN and reciprocity are *both* required. In this case, MFN ensures a single world price, while reciprocity guarantees that this world price is fixed. Together, MFN and reciprocity therefore ensure that the non-participant's terms of trade cannot be altered. It follows that the welfare of the non-participant government is not affected - for better or worse - by any bilateral agreement that strictly respects the principles of MFN and reciprocity. Under these rules, then, governments can negotiate without fear of future bilateral opportunism and the consequent erosion in concession value.[52] In fact, by the same logic, the traditional "free-riding" cost of MFN disappears when this rule is tightly joined with reciprocity. This is because the non-participant also gains nothing from a bilateral agreement that respects both MFN and reciprocity.[53]

5.4. MFN, Reciprocity and Renegotiation

In Section 4, using a two-country model, we argue that the potential to renegotiate subject to reciprocity directs the negotiation outcome toward the particular point on the efficiency frontier at which governments select their politically optimal tariffs. We now reconsider the implications of renegotiation under reciprocity in the context of our multi-country model. We argue that a bargaining inefficiency is assured when GATT's reciprocity rule is followed and discriminatory

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[52] As noted in Section 4.3, while reciprocity is often sought by GATT members in their negotiations, it is not in fact required by GATT. In Bagwell and Staiger (2000a) we account for this feature. There we develop the interpretation of GATT's principle of reciprocity as providing a "first line of defense" against the problem of bilateral opportunism when this principle is joined with MFN, and we show that GATT's non-violation nullification-or-impairment clause can then provide an important second line of defense against the bilateral opportunism problem.

[53] Bagwell and Staiger (2000c) consider a two-period model in which trading relationships change through time and governments engage in MFN tariff negotiations in each period, and show how the free-rider problem in the presence of MFN can be solved when MFN is joined with the principle of reciprocity.

tariffs are used. But we argue that this inefficiency can be prevented if the home government's tariffs are non-discriminatory. In this way, GATT's pillars of reciprocity and MFN again may be seen as complementary principles that permit governments to achieve efficient outcomes in a multi-country setting.

We begin by considering the properties of politically optimal tariffs in the presence of multiple countries. For the multi-country model, a configuration of tariffs $\{\tau^1, \tau^2, \tau^{*1}, \tau^{*2}\}$ is *politically optimal* if $W_p = W_{p^{*i}}^{*i} = 0$ for $i = 1, 2$. In other words, the tariff configuration is politically optimal if each government achieves its preferred local price, when its terms of trade are fixed. If the home government is allowed to choose discriminatory tariffs ($\tau^1 \neq \tau^2$), then the property of political optimality amounts to three requirements (one for each country) that are placed on four tariffs. In the multi-country model, there are thus many politically optimal tariffs. But if the tariffs of the home government must satisfy the MFN rule ($\tau^1 = \tau^2$), then there are only three tariffs to consider, and the model thus admits a unique configuration of *politically optimal MFN tariffs*.

We now recall that there are two fundamental channels through which foreign government i's tariff policy (τ^{*i}) may alter the home country's multilateral terms of trade (T) and thereby impose an externality upon the welfare of the home government. First, the foreign tariff selection affects the home government through the induced change in the bilateral terms of trade ($\widetilde{p}^{wi}$). Second, when the home government uses a discriminatory tariff policy, it cares as well about the composition of its trade volume across its foreign trading partners. Under discriminatory home tariffs, therefore, the tariff policy selected by the government of foreign country i can also affect home-government welfare by altering the foreign local price (p^{*i}) and thus changing the export share that emanates from this country.

Using the arguments developed in Section 2, it may be verified that politically optimal MFN tariffs are efficient in the multi-country setting. The underlying idea is now familiar. Under MFN, the only externality between governments arises through the (single) world price, and governments are not motivated by world-price movements when they select politically optimal tariffs. A more surprising finding concerns the necessity of MFN tariffs: politically optimal tariffs are efficient *only if* they also conform to MFN. The bottom line, then, is that the politically optimal MFN tariffs are efficient and all other politically optimal tariffs are not.

Why are politically optimal tariffs efficient only if they satisfy MFN? We present a formal proof in Bagwell and Staiger (1999a), but the basic argument is easily related. Suppose that the governments adopt politically optimal tariffs and

that the home tariffs violate MFN, with the home government placing a higher tariff on exports from foreign country 1. The home government could then suggest that, if the government of foreign country 1 would slightly lower its tariff, then the home government would in return adjust both of its tariffs downward slightly, in a manner that would leave both world prices unchanged. The government of foreign country 2 would be indifferent to these adjustments, since it does not change its own tariff and the combination of tariff adjustments maintains its original terms of trade. The government of foreign government 1 also experiences no change in its terms of trade; however, since this government adjusts its own tariff downward, it experiences a change in its local price. This local-price change does not result in a (first-order) welfare loss for the government of foreign-country 1, though, since under political optimality this government begins with its preferred local price ($W_{p^{*1}}^{*1} = 0$). The suggested tariff adjustment thus leaves unaltered the welfares of both foreign governments.

The remaining step is to establish that the suggested tariff adjustment generates a strict welfare gain for the home government. Such a gain cannot derive from a consequent change in the home local price, since under political optimality the home government begins with its preferred local price ($W_p = 0$). A strict welfare gain for the home government therefore occurs if and only if the suggested tariff adjustment improves the home country's multilateral terms of trade. How could this happen? By construction, neither world price changes. Remember, though, that the tariff adjustments cause a local-price change in foreign country 1 that induces this country to trade a greater volume. The home government's multilateral terms of trade (T) are thus improved, since a greater share of trade now emanates from the partner on whom it places a higher tariff. As a consequence, when the home country uses discriminatory tariffs, politically optimal tariffs can be improved upon and are thus inefficient.

Intuitively, it can now be argued that an efficient trade agreement in which the home government uses discriminatory tariffs cannot be implemented when governments are allowed to renegotiate under reciprocity.[54] Building on the intuition developed in the two-country model of Section 4.3, it may be shown that when governments can renegotiate under reciprocity, at least one government obtains its preferred local price. If we require as well that the eventual outcome is efficient, then the fact that one government achieves its preferred local price implies

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[54]The argument that we present here is intuitive in nature, as the formal analysis is somewhat involved. The interested reader is referred to Bagwell and Staiger (1999a), where we consider a Multilateral Negotiation Game and formalize this point (as well as those that follow).

that the other governments must as well.[55] Therefore, if an efficient outcome is to emerge when governments have the ability to renegotiate under reciprocity, then the outcome must be politically optimal. But, as the discussion just above establishes, a politically optimal outcome is *not* efficient when home tariffs are discriminatory. When governments can renegotiate under reciprocity, a bargaining inefficiency is therefore implied, unless the home government selects MFN tariffs.

At the same time, there does exists an efficient trade agreement in which the home government uses MFN tariffs that can be implemented when governments are allowed to renegotiate under reciprocity. Intuitively, when home tariffs conform to MFN, the multi-country model behaves like the two-country model, with all externalities channeled through the world price. Recalling the two-country discussion of reciprocity and renegotiation of Section 4.3, it is thus not surprising that an efficient and non–discriminatory trade outcome - namely, the politically optimal MFN tariffs - can be implemented under reciprocity.

6. Enforcement

In the previous two sections, we focus on a literature that assumes that a trade agreement once negotiated can be enforced. While this focus serves to highlight the efficiency properties that may be associated with the principles of reciprocity and non-discrimination, the manner in which a trade agreement is enforced is also of fundamental importance. As we discuss in Section 3.2.3, an international agreement must be self-enforcing if it is to be credible, and an agreement to open markets is in turn self-enforcing only if it also specifies credible retaliatory measures against any country that deviates from the agreement and places additional restrictions on trade. In the present section, we return to the topic of enforcement and develop more fully some of the themes from this literature. We begin with a careful consideration of the various roles for retaliation within GATT. We next draw relationships between these roles and the theory of repeated games, on which we rely in offering a formal representation of the requirement of a self-enforcing trade agreement. We then discuss a pair of predictions that emerge, once enforcement considerations are featured. Finally, we discuss the possibility that a multilateral institution such as GATT can better enable governments to

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[55]For the two-country confirmation of this point, see footnote 39. We show in Bagwell and Staiger (2000a) that this point requires some slight modification when the home government's tariffs are restricted to satisfy the MFN rule and when efficiency is evaluated with respect to this restrictive class of instruments.

enforce trade agreements.

6.1. GATT Enforcement and the Theory of Repeated Games

The basic enforcement problem may be understood with reference to Figure 3. As this figure illustrates, each government could gain if both agreed to adhere to a rule that binds tariffs at a tariff pair on the contract curve corresponding, say, to the political optimum. It is also true, however, that each government has an immediate incentive to cheat on such an agreement, by deviating to a tariff on its tariff reaction curve (not pictured) and exploiting its ability to shift the costs of intervention onto its trading partner. This raises a central issue that confronts governments as they design a trade agreement: By what mechanism is the tariff binding to be enforced?

Since countries trade repeatedly over time, the natural possibility is that a trade agreement is made self-enforcing through the prospect of retaliation. According to this logic, each government balances its short-term incentive to cheat against the long-term cost that such behavior implies, once the other governments retaliate by raising their own tariffs. Governments can thus push tariffs down and achieve a more efficient arrangement, until the incentive to cheat becomes so large that it matches the long-term welfare loss that would be associated with the retaliatory consequences. An interesting implication of this repeated-game perspective is that the tariffs specified by a trade agreement ultimately may be determined by the enforcement incentive constraints.

As we discuss in Sections 2.3 and 3, the GATT dispute settlement procedures may be generally understood from this perspective. In broad terms, the creation of GATT and its Article XXII and XXIII nullification-or-impairment procedures may be interpreted as an attempt to move from a non-cooperative to a cooperative equilibrium outcome, by limiting the use of retaliation along the equilibrium path and repositioning retaliation as an off-equilibrium-path threat that enforces cooperative equilibrium-path rules. This perspective is consistent, for example, with the following statement of one of the drafters of Article XXIII (as found in Petersmann, 1997, p. 83):

"We have asked the nations of the world to confer upon an international organization the right to limit their power to retaliate. We have sought to tame retaliation, to discipline it, to keep it within bounds. By subjecting it to the restraints of international control, we have endeavored to check its spread and growth, to convert it from a weapon of economic warfare to an instrument of international order."[56]

At the same time, it should be stressed that a limited role for retaliation indeed *does* arise along the equilibrium path, and this role for on-equilibrium-path retaliation is spread across a number of GATT articles.[57] For instance, retaliation along the equilibrium path arises when a government seeks a retaliatory exception to obtain compensation for an original tariff adjustment by its trading partner, where the original adjustment is justified as a GATT-permissible exception, as allowed under Article XIX (safeguards) or Article XXVIII (renegotiation). A role for retaliation along the equilibrium path can arise as well when a government uses the non-violation provisions of Article XXIII to seek redress for nullification or impairment that was caused by an original action taken by its trading partner that was not itself proscribed by GATT rules. As we discuss further below, it even may be argued that a role for retaliation arises along the equilibrium path, if a trading partner takes an action that nullifies or impairs a government's market access rights, and this action is subsequently determined in an Article XXIII ruling to be in violation of GATT rules. This all suggests that the role of retaliation as it is found within the various GATT articles is more subtle than a standard application of repeated-game theory might suggest.

The distinct roles for retaliation within GATT are recognized by legal scholars. For example, Jackson (1969, pp. 169-71) points to a potential conflict between the various goals for retaliation that are found even within Article XXIII itself. On one the hand, the drafters sought to use the prospect of retaliation within Article XXIII to "play an important role in obtaining compliance with the GATT obligations." This goal resonates with the off-equilibrium-path role for retaliation in the standard repeated-game formulation, as here the role of retaliation is to generate a balance between the short-term incentive to cheat on the agreement and the long-term costs of retaliation. On the other hand, the drafters sought as well to use retaliation in Article XXIII "as a means for ensuring continued reciprocity and balance of concessions in the face of possibly changing circumstances." The

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[56]Similarly, a drafter of Article XXIII remarks (as quoted in Jackson, 1969, pp. 170-71): "What we have really provided, in the last analysis, is not that retaliation shall be invited or sanctions invoked, but that a balance of interests once established, shall be maintained." Further support for this perspective is offered by Dam (1970, pp. 80-81), as quoted in Section 3.2.3.

[57]Jackson (1969, p. 165), lists seven different GATT articles within which provisions for the compensatory withdrawal or suspension of concessions may be found. As Petersmann (1997, pp. 177-178) explains, the integrated dispute settlement system of the WTO attempts to unify to some extent the settlement of disputes, and thereby provides less scope for "rule shopping" than did the "legally fragmented" GATT procedures, but many of the agreements within the WTO still contain their own special dispute settlement rules and procedures.

role of retaliation here may be best interpreted as an on-equilibrium-path means of obtaining compensation, so that "unilateral" actions can be converted to "reciprocal" actions, as in this way it is possible to allow for policy adjustments to changing circumstances without upsetting the balance of concessions.

The distinction between the on- and off-equilibrium-path roles of retaliation within GATT may be further clarified with the consideration of three situations. Suppose first that a foreign government raises its tariff above its bound rate and justifies its behavior as a GATT-permissible exception. The home government may then seek compensation. If, however, the parties are unable to reach an agreement on the appropriate compensation, then the home government may take its own retaliatory exception, with a tariff hike that is of a "substantially equivalent" nature.[58] Retaliation here is best interpreted as an on-equilibrium-path event, whose purpose is to discipline the use of GATT-permissible exceptions, so that their application reflects a legitimate purpose and not a desire to shift the costs of intervention onto a trading partner.

As a second possibility, suppose that the foreign government raises its tariff, but argues that the circumstances are such that its tariff hike does not warrant compensation or retaliation. The home government disputes this interpretation of GATT rules, and takes the case to a GATT panel. Suppose further that the panel rules in favor of the home government and authorizes the home government to impose retaliatory tariffs.[59] This second possibility is different from the first, only in that a panel decision is required to resolve the legality of the protectionist measure. Given the wide range of issues that may be raised between trading partners, it is to be expected that honest disputes of interpretation will arise from time to time. Arguably, in such a case, the authorized retaliation which follows a panel's resolution of a dispute may again be viewed as an on-equilibrium-path retaliation, whose purpose is effectively to ensure that the unilateral action of the foreign government is converted to a reciprocal action by it and its domestic trading partner, so that the foreign government does not shift the costs of its

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[58] See, however, Section 6.2.1 for a discussion of the extent to which retaliation under Article XIX is allowed following the formation of the WTO.

[59] As an example of such a possibility, the E.U. has argued that it is entitled under GATT Article XX to prohibit the importation of hormone-treated beef, due to the possible associated health risks and its intepretation of the WTO Sanitary and Phytosanitary Agreement, which provides for governments to impose product standards on imports when scientific evidence indicates a health risk. The U.S., by contrast, has argued that scientific studies do not support the E.U. view and that the ensuing protection requires compensation or retaliation. The WTO panel ruled in favor of the U.S. position and authorized the U.S. to pursue retaliatory tariffs.

intervention onto home-country exporters.[60]

Finally, consider a third possibility. Suppose that the home government complains that a change in the foreign trade-policy has nullified or impaired the access to the foreign market that it initially expected. The two governments again disagree as to the legality of the foreign-government action, and the case is brought before a dispute panel. Now allow for either of two scenarios. First, the panel finds in favor of the foreign government, and yet the home government proceeds anyway to set (unauthorized) retaliatory tariffs. Second, the panel finds in favor of the home government, but after the home government sets its (authorized) retaliatory tariffs the foreign government counter-retaliates with its own (unauthorized) tariff increases. These two scenarios describe episodes of unauthorized retaliatory tariffs that are set in contradiction to the then-known ruling of the dispute panel. The line is not perfectly clear, but it seems reasonable to interpret such defiant behavior as an off-equilibrium-path deviation. The fundamental deterrent to such behavior, and the deterrent that therefore rests at the foundation of all others, is the fear of initiating a breakdown in the entire cooperative arrangement and thereby causing a "trade war." Simply, if a government plows over the final backstop (the panel ruling) in the GATT dispute settlement process, other governments may naturally question the relevance of this process. This view is in line with Dunkel's perception of a "balance of terror," discussed in Section 3.2.3.

With this institutional description as a backdrop, we turn now to a formal representation of a repeated game of tariff formation. We begin with a standard infinitely-repeated tariff game between two governments. The two governments interact in each of an infinite number of periods, where the environment is stationary over time and the static tariff game of the (politically-augmented) terms-of-trade theory serves as the associated stage game. Thus, in each period, the two governments observe all previous import tariff selections and simultaneously make

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[60]The distinction between on- and off-equilibrium-path retaliation is not as clear in this second possibility, because technically the foreign government stands in violation of the agreement if it does not bring its policy into conformity with GATT rules once the panel ruling (subject to possible appeal) is issued. But as Petersmann (1997, p. 77) observes, "...the illegality of a trade measure may be removed not only by the withdrawal of the measure concerned but also by its justification through invocation of one of GATT's safeguard clauses...". Such an invocation would have the effect of converting the (illegal) unilateral act of the foreign government into a (legal) reciprocal act between it and the domestic government. Hence, we interpret this second possibility as an on-equilibrium-path retaliation, since as a result of the "rebalancing" brought about by this retalitation the market access outcome associated with the foreign government's illegal action is converted effectively to what it would be under a legal action.

their respective current import tariff selections. In order to feature the key issues that are associated with the enforcement of trade agreements, we assume further that the two countries are symmetric. We consider stationary and symmetric subgame perfect equilibria, in which the two governments select the same tariff in each period. If a deviation from this common tariff occurs, then we assume that a retaliatory trade war erupts, in the spirit of the third example above, whereby in the next and all future periods governments revert to the Nash equilibrium tariffs of the static game, given by τ^N.[61] The discount factor is denoted as $\delta \in (0, 1)$.

In this repeated tariff game, governments may enforce a cooperative tariff τ^C, with $\tau^C < \tau^N$, since the short-term benefit that any government enjoys from raising the current-period tariff above the agreed-upon level is balanced against the long-term loss that this (and the other) government experiences as future cooperation is lost and a retaliatory war is initiated. Intuitively, an agreement to bind tariffs at τ^C can be enforced if the short-term incentive to cheat is sufficiently small relative to the discounted future value of avoiding the trade war that would be triggered as a consequence. We assume, however, that governments are unable to enforce the politically optimal tariff, τ^{PO}. This assumption ensures that the level of cooperation that governments may achieve is indeed determined by the enforcement constraint. This will be the case if each government anticipates a significant short-term gain in defecting from τ^{PO} and discounts sufficiently the cost of future retaliation.

We now formally characterize the short-term incentive that a government has to cheat. Given the assumed symmetry across countries, there is no loss of generality in considering only the incentives of the domestic government. For a fixed cooperative tariff $\tau^C < \tau^N$, and given the class of subgame perfect equilibria upon which we focus, if the domestic government deviates and selects $\tau \neq \tau^C$, then it will deviate to its best-response tariff, $\tau^R(\tau^C)$ as defined implicitly by (2.7). The domestic government's incentive to cheat is thus given by

$$
\begin{aligned}
\Omega(\tau^C) &\equiv \int_{\tau^C}^{\tau^R(\tau^C)} \frac{dW(p(\tau, \widetilde{p}^w), \widetilde{p}^w)}{d\tau} d\tau \\
&= \int_{\tau^C}^{\tau^R(\tau^C)} W_p(p(\tau, \widetilde{p}^w), \widetilde{p}^w) \frac{dp(\tau, \widetilde{p}^w)}{d\tau} d\tau + \int_{\tau^C}^{\tau^R(\tau^C)} W_{p^w}(p(\tau, \widetilde{p}^w), \widetilde{p}^w) \frac{\partial \widetilde{p}^w}{\partial \tau} d\tau
\end{aligned}
$$

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[61]The formal points that we wish to emphasize here are not particularly sensitive to the exact specification of the retaliatory process. Thus, we may also view the Nash reversion threat as a simple means of representing the qualitative idea that a deviation today results in diminished cooperation and a corresponding loss in welfare tomorrow.

where $\widetilde{p}^w \equiv \widetilde{p}^w(\tau, \tau^C)$ in the integrands.

We separate the short-term benefit from cheating into two components, the first of which represents the welfare impact of the deviation through the change in the local price and the second of which represents the welfare impact of the deviation through the change in the terms of trade. The first component is negative (since $W_p < 0$ over the entire range of integration), and it reflects the unfavorable trade-off between the benefits and costs of achieving the local price implied by the best-response tariff when the welfare impact of the associated terms-of-trade improvement is not included. The second component is positive, as it reflects the welfare gain to the government from the transfer of income to itself from its trading partner that occurs through the change in the terms of trade (i.e., from shifting costs onto its trading partner). The sum of these two terms is positive for $\tau^C < \tau^R(\tau^C)$ and is zero at $\tau^C = \tau^R(\tau^C)$, by the definition of the domestic tariff reaction function in (2.7). It follows that $\Omega(\tau^C)$ is strictly positive for $\tau^C < \tau^N$, and the domestic government is faced with the temptation to cheat on the agreement by succumbing to cost-shifting motives.

When the domestic government cheats, however, it triggers a retaliatory phase, and the long-term cost of this retaliation must also be considered. We characterize first the one-period value to the domestic government of avoiding a trade war and sustaining the cooperative tariff. This value is given by

$$\omega(\tau^C) \equiv -\int_{\tau^C}^{\tau^N} \frac{dW(p(\tau, \widetilde{p}^w), \widetilde{p}^w)}{d\tau} d\tau = -\int_{\tau^C}^{\tau^N} W_p(p(\tau, \widetilde{p}^w), \widetilde{p}^w)\widetilde{p}^w d\tau$$

where $\widetilde{p}^w \equiv \widetilde{p}^w(\tau, \tau)$ in the integrands.[62] With the world-price effects of a trade war neutralized under the assumed symmetry, the short-term value in avoiding a trade war and sustaining the cooperative tariff reflects the gains from the more-efficient local prices that are associated with the greater trade volume that cooperation implies. Under our assumption that $\tau^C > \tau^{PO}$ we have that $W_p < 0$ for $\tau \in [\tau^C, \tau^N]$; therefore, it follows that $\omega(\tau^C) > 0$ for $\tau^C < \tau^N$, while $\omega(\tau^C) = 0$ for $\tau^C = \tau^N$.

We are prepared now to define the total discounted value to cooperation that the domestic government forfeits when it cheats. This value is given as $V(\tau^C) \equiv [\delta/(1-\delta)]\omega(\tau^C)$, since once a government deviates and selects a higher tariff, the cooperative tariffs are thereafter replaced by the higher Nash tariffs. With this, it follows that the domestic government's incentive constraint can be written as

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[62]In deriving this expression, we use the fact that under symmetry $d\widetilde{p}^w(\tau, \tau)/d\tau = 0$ and $dp(\tau, \widetilde{p}^w(\tau, \tau))/d\tau = \widetilde{p}^w$.

$$\Omega(\tau^C) \leq V(\tau^C). \tag{6.1}$$

Any cooperative tariff τ^C that satisfies this incentive constraint can be enforced as a subgame perfect equilibrium of the repeated tariff game.

Consider now the "most-cooperative" tariff, $\bar{\tau}^C$, defined as the smallest tariff that satisfies the incentive constraint given in (6.1). Under our assumption that the politically optimal tariff cannot be enforced (i.e., that τ^{PO} violates (6.1)), we have $\bar{\tau}^C > \tau^{PO}$. The determination of the most-cooperative tariff is illustrated in Figure 7. Observe there that $\Omega(\tau^C)$ is monotonically decreasing in τ^C for $\tau^C < \tau^N$, while $\Omega(\tau^C)$ is flat and equal to zero at $\tau^C = \tau^N$. Intuitively, a government gains less in deviating from a cooperative tariff τ^C the closer is that tariff to the Nash tariff τ^N, and the government gains nothing from cheating when the "cooperative" tariff is already at the Nash level. Observe also that $V(\tau^C)$ is zero at $\tau^C = \tau^N$, monotonically decreasing in τ^C for $\tau^C < \tau^{PO}$, and flat at $\tau^C = \tau^{PO}$. These properties arise because the gains from avoiding a trade war decline to zero as the tariffs stipulated in the agreement rise from τ^{PO} and approach the Nash level that would be selected in a trade war anyway; furthermore, at τ^{PO}, a small symmetric increase in cooperative tariffs has no impact on government welfare (by the first-order condition that defines τ^{PO}). The range of tariffs that can be enforced is thus represented by the interval $[\bar{\tau}^C, \tau^N]$, and the most-cooperative tariff $\bar{\tau}^C$ is the tariff at which the incentive constraint in (6.1) binds.[63]

This completes our description of the standard infinitely-repeated tariff game. Retaliation plays an important role in this game, as it represents the off-equilibrium-path and long-term cost that would be experienced were a government to cheat in the present. This game, however, is stationary, and so it fails to offer a role for GATT-permissible exceptions and the associated on-equilibrium-path retaliation that we discuss in the first and second examples above. As well, this stationary framework fails to account for the gradual manner in which trade liberalization has proceeded under GATT. We turn to these possibilities in the next subsection.

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[63]In the formal model of Section 2.1.3, the functions Ω and V possess the properties ascribed to them at and around τ^N and τ^{PO}. The functions may or may not be convex and concave, respectively, as depicted in Figure 7, and so it is possible that the functions intersect more than once. We assume here that the curvature properties are met, and simply note that the analysis can be generalized to handle the possibility of multiple intersections.

6.2. Predictions

When viewed from the perspective of Figure 7, the task of enforcing a trade agreement amounts to first achieving and then maintaining a balance between (i). the short-term temptation to deviate unilaterally from an agreed-upon trade policy and enjoy the terms-of-trade benefits, and (ii). the long-term costs of a consequent future loss of cooperation. This balance is reflected in the determination of the most-cooperative tariff in Figure 7. If the world were stationary as we represent it here, then the role of a dispute settlement mechanism simply might be to allow governments to coordinate on this most-cooperative tariff once and for all, and then monitor the agreement for violations.

The world, however, is not stationary, and a self-enforcing agreement must be responsive to this fact. In view of the balance between short- and long-term incentives that a self-enforcing trade agreement requires, it is evident that any event that alters the current incentive to cheat or the expected future value of cooperation can upset this balance. The enforceable level of cooperation may thus change with underlying market conditions. This suggests that countries cannot be held rigidly to tariff commitments in a self-enforcing agreement: if properly designed, GATT must provide its members with ample flexibility to adjust tariff levels up or down as underlying circumstances change. We describe next two predictions that emerge from this suggestion.

6.2.1. Rebalancing the Agreement: The GATT Escape Clause

In GATT Article XIX, a government is allowed to temporarily suspend a concession agreed upon in a previous negotiation, if its import-competing industry is injured as a consequence of a temporary surge in import volume. In line with our earlier work (Bagwell and Staiger, 1990), we argue here that this "escape clause" can be interpreted as providing the flexibility that promotes greater cooperation as part of a self-enforcing trade agreement for an economic environment that is characterized by trade-volume volatility. To make this point, we assume for simplicity that the politically optimal tariff is invariant in the presence of trade-volume fluctuations. This is the case, for example, if governments maximize national welfare, as in this event the politically optimal tariff corresponds to free trade.

The basic idea can be understood with reference to Figure 7. If the import volumes experiences a temporary surge, then the function Ω shifts up, reflecting the greater terms-of-trade gains that are possible in light of the larger trade volume. On the other hand, given that the import swing is temporary, the func-

tion V tends to remain stable, as the future value of cooperation is unaffected by temporary fluctuations.[64] As Figure 7 suggests, if governments were to prohibit an adjustment in the cooperative tariff, then the incentive constraint would be "out of balance," as the short-term incentive to cheat would be larger than the long-term cost of a breakdown in cooperation. If, however, governments were to include in the trade agreement an "escape clause" under which the import tariff could be temporarily increased in the event of an import-volume surge, then the higher tariff would diminish the incentive to cheat, thereby restoring intertemporal balance. Arguing in this fashion, GATT's Article XIX may be interpreted as an escape clause or "safeguard" that prevents a breakdown in cooperation that would otherwise occur were imports to surge.[65]

Taking this perspective, when a country experiences a surge in its import volume, it restores the intertemporal balance between its short- and long-term incentives by adopting a higher tariff. This exception, however, raises the prospect that a government may be motivated in part by a desire to shift the costs of its intervention onto its trading partner, thus upsetting a different balance: the balance of concessions. In its original formulation, GATT's Article XIX addresses this possibility by allowing that the trading partner can then take a retaliatory exception (on the equilibrium path) and withdraw its own substantially equivalent concession. In this way, governments simultaneously maintain balance with respect to their intertemporal enforcement incentives and their concessions. Put differently, this approach enables governments to maintain the incentives for cooperation in the face of changing circumstances, without providing a means for one government to shift the costs of its intervention onto the other.[66]

Despite the theoretical virtue of this approach, however, the practical experience with GATT's Article XIX has been somewhat mixed. As Ostry (1997, pp. 77, 99-100, 178-79) and Grimwade (1996, 89-92) explain, while GATT members

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[64]This is the case if trade-volume shocks are i.i.d. across periods. More generally, shocks of a "temporary" nature exert a greater influence on short-term (i.e., Ω) than long-term (i.e., V) incentives. See Bagwell and Staiger (1995) for an analysis that predicts countercyclical protection in the presence of "persistent" shocks to the trade-volume growth rate, such as might occur in the context of the business cycle.

[65]Further support for this interpretation is offered, for example, by Dixit (1996), Hoekman and Kostecki (1995, p. 167) and Ostry (1997, p. 68). Hoeckman and Kostecki (1995, p. 168) further observe that Article XIX safeguard actions were used 150 times from the inception of GATT through 1994.

[66]A similar interpretation may be offered for episodes of (on-the-equilibrium-path) retaliation under Article XXIII.

used Article XIX to legitimize temporary protection with great frequency in the 1970's, they turned more toward instruments of managed trade (e.g., VER's) in the 1980's. The apparent reason was that managed-trade policies often fell outside of GATT rules and were in any case somewhat "non-transparent;" by contrast, when a government raised a tariff under GATT Article XIX, the affected countries required notification and consultation and were permitted to seek retaliatory exceptions as compensation for the original action.

This trend toward managed trade motivated the member governments to adopt a number of changes as part of the formation of the WTO. Governments agreed to phase out managed-trade policies, make trade-policy actions more "transparent," and amend Article XIX so that retaliatory responses by affected partners were prohibited for a three-year period following the original action. These changes are designed to encourage governments to use Article XIX as opposed to managed-trade policies when temporary import surges result in injury. At the same time, these changes limit the scope for retaliation and thus diminish the discipline that is applied to the safeguard exception, raising the possibility that governments may now be tempted to shift costs onto one another through this exception.

6.2.2. Gradualism: Rounds of Trade Liberalization

While the extent of liberalization achieved under GATT is certainly remarkable for the depth in the reduction of trade barriers, the process by which this liberalization has occurred through 8 rounds of negotiation spread over a 5-decade period is no less remarkable for its gradualism. This feature is not well-explained in the context of a stationary model of enforcement; for example, in the context of Figure 7, there is no reason that the liberalization from the high Nash tariff to the lower most-cooperative tariff couldn't be achieved in one great leap. What, then, accounts for the gradual manner in which tariffs have been reduced through GATT rounds?

We sketch here an argument that derives from the work of Devereux (1997). He emphasizes that production technologies may exhibit "learning by doing": as a firm produces more in the current period, it learns better how to produce its output, and its production costs in all future periods fall. Consider now the implications of learning-by-doing for the enforcement of trade agreements. Suppose that the two governments initially select some high tariff but then, through a GATT round, negotiate a lower cooperative tariff that reflects the current balance between the short-term benefits from protection and the long-term value of a cooperative relationship. The initial liberalization effort induces exporting firms

to produce greater output, and, as time passes, these firms experience the lower production costs that learning by doing implies. As a consequence, the gains from trade for the two countries tend to grow as well, which is to say that the value of cooperation as represented by the function V in Figure 7 tends to shift up as time passes. When governments enter the next GATT round, therefore, they may find that they can enforce a lower most-cooperative tariff than was possible in the previous round.[67]

This reasoning suggests that the gradual manner in which tariffs have been reduced through GATT rounds reflects a "virtuous cycle" that plays out through the incentive constraints associated with enforcement: an initial round of liberalization gives rise to changes in the economy (e.g., learning by doing), which in turn enhances the value of cooperation, thereby permitting a further round of liberalization, and so on.[68]

6.3. The Exchange and Aggregation of Enforcement Power

Our discussion to this point describes in some detail the role of retaliation in GATT and a pair of predictions that emerge once enforcement constraints are considered. This suggests that GATT is an instrument through which governments coordinate and achieve a self-enforcing cooperative trade-policy relationship. In the real world, such large-scale coordination is not a trivial accomplishment.[69]

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[67] As the countries specialize further, the volume of trade grows, and the function Ω may also shift up, reflecting a heightened incentive to cheat. As Devereux (1997) finds, this means that the Nash tariffs are higher when more learning has occurred. The flip-side of this is that the gains to cooperation also rise with time, and Deveraux shows that the corresponding increase in the function V dominates, in that most-cooperative tariffs decline through time.

[68] A related theory is presented by Staiger (1995b), who develops a model in which workers have skills that are specific to the import-competing industry but gradually depreciate when not in use. The relocation of these workers in response to trade liberalization plays a role analogous to learning by doing in Deveraux's (1997) model. See also Chisik (1999) and Furusawa and Lai (1999). This approach is related to that of Bhagwati (1990), Gilligan (1997) and Krishna and Mitra (1999), in their analyses of reciprocity (as described above in Section 4.2). In all of these cases, gradualism reflects a changing government preference function, where the change may be explained by learning-by-doing technology, worker relocation, or growing political support from exporters. A distinct approach to modeling gradual trade liberalization is taken by Bond and Park (1998), who show that a form of gradualism can also arise in stationary environments when countries are asymmetric.

[69] Indeed, as described in a League of Nations (1942) report, there were many failed multilateral attempts during the 1920's and 1930's to reverse the rising levels of protection and achieve a cooperative trade-policy relationship.

Putting aside the issue of coordination, however, there remains the further theoretical question of whether GATT's multilateral enforcement mechanism facilitates greater cooperation than would occur were instead cooperation achieved through a web of bilateral agreements. The question is addressed by Maggi (1999), whose work we now describe.

Maggi (1999) identifies two broad categories of gains from a multilateral enforcement mechanism over a collection of bilateral agreements. The first gain arises in the presence of local "imbalances of power," defined as a situation in which different governments stand to lose different amounts from a trade war, with the more "powerful" governments standing to lose less. In such a circumstance, the exchange of enforcement power that can be affected under a multilateral dispute settlement procedure can serve to support lower tariffs than would be possible under purely bilateral procedures. Specifically, in a multilateral enforcement mechanism, each country can serve as a third-party enforcer of low tariffs in bilateral relationships where it is "strong" in exchange for receiving third-party enforcement from others in bilateral relationships where it is "weak." Purely bilateral enforcement mechanisms cannot affect this exchange of enforcement power.

An extreme example illustrates the underlying idea. Suppose that there are three countries, A, B and C, and think of the three countries as being positioned at the vertices of a triangle. Suppose further that the preferences and endowments in the three countries are such that any given country imports a good from the country to its right and exports a good to the country to its left. Thus, country A might export a good to country B while having as its only import a good from country C. Can the governments of these countries use the threat of retaliation to achieve cooperative (i.e., below-Nash) tariffs? If the government of Country B were to cheat and raise its tariff on the good it imports from Country A, then the Country-B government would experience a short-term welfare gain. Notice, though, that the Country-A government is unable, on its own, to retaliate: there is no good that Country A imports from Country B (and export taxes are ruled out by assumption). The governments can thus cooperate and achieve greater-than-Nash welfare only if a multilateral agreement is in place, in which the Country-C government stands ready to retaliate with a Nash tariff on the good it imports from Country B, if the government of Country B cheats the government of Country A in the described manner.

A second kind of gain from multilateral enforcement mechanisms identified by Maggi (1999) is associated with the aggregation of enforcement power. The key idea is that tariffs levied by different governments on the same imported good

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tend to be strategic complements (see Bagwell and Staiger, 1997b, for an initial statement of this property). Intuitively, when two countries import the same good, if the government of one country raises its import tariff, then a greater volume of the good is diverted to the other country, whose government thus has an increased incentive to increase its own import tariff and enjoy the associated terms-of-trade gains. As a consequence of this property, a multilateral enforcement mechanism which has many governments joining in the punishments can lead to proportionately more severe punishments than would be forthcoming under bilateral enforcement procedures.

When either local imbalances of power or strategic tariff complementarity effects are present, Maggi (1999) shows that a multilateral dispute settlement procedure is necessary to achieve the gains from exchange and aggregation of enforcement power. This perspective of GATT suggests that the monitoring and information dissemination effects of the dispute settlement procedure represent a key ingredient in facilitating greater cooperation from multilateral trade agreements. This suggestion is directly consistent with the creation through the WTO of a Trade Policy Review Mechanism. As we discuss in Section 3.2.3, this represents a process through which the WTO gathers and disseminates information concerning the trade policies of its member governments. The "transparency" so implied enables governments to monitor each other's compliance with previous agreements, permitting in turn a level of cooperation that may exceed that which would occur in the absence of such a multilateral institution.[70]

7. Conclusion

We describe recent work on the theory of trade agreements that speaks to the purpose and design of GATT. Our discussion unfolds in three steps. First, we examine the purpose of a trade agreement. In both the traditional economic and the political-economy approaches to the study of trade agreements, the problem

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[70]Renato Ruggiero (1995), the current Director-General of the WTO, explains further: "For all countries, new and detailed obligations have been created to notify policies and measures, so that trading partners can be confident that they have full knowledge of each other's policies. Transparency is an essential ingredient for fostering mutual trust and encouraging respect for the rules. Indeed, one of the results of the Uruguay Round was the creation of a trade policy review mechanism, whereby the trade policies of individual WTO members are examined multilaterally by turn, and in depth. These examinations provide an opportunity for countries to hold frank and non-litigious exchanges of views about each other's policies. They are a valuable contribution to transparency, and help to raise awareness among trading partners of policy issues."

for a trade agreement to solve is the excessive protection that arises in the absence of an agreement as a consequence of the terms-of-trade externality. Second, we consider the origin and design of GATT. We note that GATT is a rules-based institution whose origin can be traced to the disastrous economic performance that accompanied the high tariffs of the 1920's and 1930's. Finally, we review the theoretical literature that interprets and evaluates the institutional features found in GATT. We consider in particular whether GATT articles can be interpreted as offering negotiation rules that help governments undo the inefficient restrictions in trade that are caused by the terms-of-trade externality.

On the whole, our review suggests that the core principles of GATT indeed may be interpreted in this manner. Specifically, we report findings that indicate that the principles of reciprocity and non-discrimination work in concert to remedy the inefficiency created by the terms-of-trade externality. We also extract a variety of predictions from the literature on enforcement and trade policy, and we argue that these predictions are broadly compatible with both the design of GATT and certain historical experiences in trade-policy conduct. We thus interpret the literature reviewed here as providing a strong presumption for the view that GATT can be understood as an institution whose central principles are well-designed to assist governments in their attempt to escape from a terms-of-trade-driven Prisoners' Dilemma. Our review therefore offers support for the (politically-augmented) terms-of-trade theory as an appropriate framework within which to interpret and evaluate GATT.

There are at least three important topics that warrant further discussion. First, as we mention in Section 2.1.3, many economists are skeptical as to the practical relevance of terms-of-trade considerations for actual trade-policy negotiations. Below, we consider the objections in greater detail. Second, as we mention in the Introduction, an important issue concerns the possible application of GATT principles to the new trade-policy issues that currently confront the WTO. We touch briefly below on some conclusions that come from recent research on this issue. Finally, we conclude the paper with a discussion of three important directions for future research.

The Practical Relevance of Terms-of-Trade Considerations What explains the skepticism that many economists hold with respect to the terms-of-trade approach to trade agreements? This skepticism seems to derive from three main objections.

The first objection concerns the inherent plausibility of the terms-of-trade

argument. As we discuss in Section 2.1.3, the traditional presentation of the terms-of-trade argument for trade intervention involves a large and national-income-maximizing government that uses its tariff to manipulate the world price and thereby assure that in the commercial trade across nations its exports command a greater volume of imports. Stated this way, the argument certainly sounds implausible. Relatedly, the plausibility of the theory may be questioned, in light of the fact that terms-of-trade considerations rarely receive explicit mention in actual trade-policy negotiations.

As we emphasize in Section 2.1.3, however, the terms-of-trade argument is more plausible than the traditional presentation might suggest. First, the essential argument is that inefficient unilateral tariffs arise, because governments are tempted to shift the costs of their intervention onto one another. At a broad level, then, negotiators reason in a manner consistent with the terms-of-trade theory if they are cognizant of the temptation to shift costs onto one another. And more specifically, if a partial-equilibrium perspective is taken, such cost-shifting clearly occurs provided only that some of the incidence of a government's tariff is borne by foreign exporters (i.e., the full tariff is not passed through to domestic consumers). When such cost-shifting does occur, it is plausible to expect that governments distort their policy choices, as they do not bear the whole cost of their decisions, and a role for a trade agreement is thus created.[71] Second, while it is true that trade-policy negotiators rarely mention the terms of trade, they do emphasize the market-access consequences of a trading partner's tariffs. As we argue in some detail in Section 2.1.3, when a foreign trading partner raises its tariff, the loss in market access that home-country exporters experience is simply the "quantity effect" that accompanies the "price effect" of a deterioration in the home country's terms of trade.

A second objection questions the consistency of the main predictions of the terms-of-trade model with observed tariff patterns. For example, it is sometimes argued that the terms-of-trade theory is inconsistent with observed patterns, because small countries often have high tariffs. Likewise, it is sometime argued that the theory is inconsistent with the trade-policy choices of large countries (such as

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[71]See, for example, Jackson (1997, p. 23) for a discussion of cost-shifting motives and GATT. He notes: "More subtle is the possibility that a national consensus could explicitly opt for a choice of policies that would not maximize wealth (in the traditionally measurable sense, at least), but would give preference to other non-economic goals...It can be argued that when a nation makes an 'uneconomic' choice, it should be prepared to pay the whole cost, and not pursue policies which have the effect of unloading some of the burdens of that choice one to other nations. In an interdependent world, paying the whole cost is not often easy to accomplish."

the U.S.), who set positive tariffs but do not seem to select "optimal tariffs."

But these criticisms are misguided. The traditional terms-of-trade theory of trade agreements is formalized under the joint hypotheses that governments (i). are motivated by terms-of-trade considerations, (ii). are not motivated by political considerations, and (iii). either interact non-cooperatively (optimal tariffs) or cooperate through a trade agreement and reach the efficiency frontier (free trade). Yet the first hypothesis need not be bundled with the others. Thus, a small country may set high tariffs because its government is politically motivated to redistribute income to its import-competing sector. And large countries may form a trade agreement and select low tariffs, precisely because they want to avoid the high (optimal) tariffs that would otherwise arise. Their cooperative tariffs may stop short of free trade, though, because of either enforcement difficulties that prevent perfect cooperation or political motivations that place free trade off of the efficiency frontier. Finally, we argue throughout that the (politically-augmented) terms-of-trade theory provides a framework that yields implications which, in the main, are consistent with the observed GATT design and practice.

The third and perhaps most serious objection directly questions the empirical relevance of the terms-of-trade theory. Are governments in fact able to improve their terms of trade with their trade-policy choices? And, if so, can they do so in a quantitatively significant fashion? These questions certainly warrant further empirical analysis. But strong affirmative presumptions already can be drawn from existing empirical work, as we now explain.

The hypothesis that governments can improve their terms of trade with their tariff choices is supported if a reduction in the domestic tariff is not fully passed through as a reduced price for domestic consumers. It is therefore relevant to refer to the study of GATT negotiations by Kreinin (1961, p. 314), who finds that:

"less than a third...of the tariff concessions granted by the United States were passed on to the U.S. consumer in the form of reduced import prices, while more than two-thirds...accrued to the foreign suppliers and improved the terms of trade of the exporting nations."[72]

Kreinin's study provides rather direct evidence that the effects of one country's tariff policy extend across national borders. In this regard, it is also relevant to note that a large empirical literature exists that documents imperfect-pass-through of exchange rate shocks. Presumably, if the cost increase to foreign

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[72]See also Winters and Chang (1997) for a study which finds substantial terms-of-trade effects associated with regional liberalization.

exporters takes the form of a tariff increase as opposed to an exchange rate shock, then imperfect pass through would once again occur, confirming that some of the incidence of the import tariff is borne by foreign exporters. Empirical support for this presumption is offered by Feenstra (1995).[73]

Next, empirical studies by Goldberg (1995) and Berry, Levinsohn and Pakes (1999) strongly support the hypothesis that the terms-of-trade effects of trade-policy choices can influence the national cost of intervention in quantitatively important ways. In both studies, evidence is presented indicating that the terms-of-trade implications of the U.S. decision in the 1980's to restrict automobile imports from Japan with VER's (rather than tariffs) increased substantially the cost to the U.S. of achieving the reduced import volumes. The study by Berry, Levinsohn and Pakes is of particular significance. They compare the actual VER policy with a hypothetical equivalent-tariff policy, calculating that the equivalent-tariff policy would have yielded revenue sufficient to turn what was a losing trade policy in terms of U.S. national income into a policy that would have generated a net gain to the U.S. national income of $12.5 billion. The study is relevant for the arguments developed in this review, since the only difference between the two policies is that they generate distinct world prices. The role of world prices in determining the incidence of the costs of intervention across trading partners lies at the core of the terms-of-trade theory of trade agreements.[74]

On the basis of these observations, we conclude that a broad skepticism concerning the empirical relevance of the (politically augmented) terms-of-trade model

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[73]In this context, it also should be emphasized that even seemingly "small" countries may be able to impose some tariff incidence on foregein exporters. First, the analysis of Gros (1987) suggests that truly small countries may be difficult to find in practice, as even apparently small countries have some power over the terms of trade, provided that the industry is monopolistically competitive. Second, transportation costs encourage greater trade between proximate countries, and even between seemingly small countries some of the incidence of an import tariff can be passed onto exporters. As an example, we note that Mexico brought a WTO case against Guatemala, whose government imposed an 89% tariff on imports of Mexican cement (see, for example, Tuckman, 1997). Apparently, in the context of the market for cement, Mexico does not regard the neighboring Guatemala as a small country.

[74]It may be tempting to infer that the decision of the U.S. to "give away" such an amount indicates that governments in fact do not care about the terms of trade, even when the associated implications for income are large. This inference, however, does not follow from the U.S. VER experience. In particular, as Low (1993, p. 114) emphasizes, the relevant policy alternative for the U.S. was not a set of unilateral tariff increases (corresponding to the equivalent-tariff policy above), which surely would have incited a retaliatory "trade war" with Japan, but rather a set of tariff changes from the U.S. and Japan that were consistent with GATT rules.

for the study of trade agreements is unwarranted. This is not to say, however, that other approaches to the study of trade agreements are unimportant. A more complete understanding of the role of trade agreements will undoubtedly rely on elements of various approaches. For example, the terms-of-trade theory can easily account for why truly "small" countries would wish to join GATT (they value the market access to large trading partners that MFN treatment assures), but this theory has more difficulty explaining why such countries might also bind tariffs on products where they are world-price takers (and hence are incapable of imposing international externalities with their unilateral decisions). The commitment approach surveyed in Section 2.1.4 could readily provide an explanation for such behavior.[75] Also perplexing from the perspective of the terms-of-trade theory is GATT's treatment of export subsidies (export subsidies are restrained under GATT's rules, yet they would seem to encourage trade, which the terms-of-trade theory suggests is GATT's fundamental purpose), and perhaps the commitment approach (or some other approach) can help to provide a more complete understanding of this important issue.[76] These and other puzzles might best be solved by looking beyond terms-of-trade considerations. But the literature reviewed above suggests strongly that the (politically augmented) terms-of-trade theory must be the centerpiece of a coherent theory of GATT.

New Trade-Policy Issues Our review has of necessity maintained a tight focus on a literature which speaks to core features of GATT's architecture: reciprocity, non-discrimination and enforcement. We argue that these are the central principles on which post-war multilateral liberalization has been based. But a critical question is whether these same principles can or should be applied to the host of new trade-policy issues increasingly confronted by the WTO. It is therefore important to note that recent research has begun to answer this question from the perspective of the (politically augmented) terms-of-trade approach. We mention here two strands of this research.

We first mention a literature which attempts to evaluate the potential implications of preferential trading agreements for the multilateral trading system.[77] As we observe above in Section 3.2.2, preferential trading agreements, which take

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[75] More broadly, some empirical evidence of GATT's ability to help governments make domestic commitments is provided in Staiger and Tabellini (1999).

[76] For some recent papers which attempt to shed light on the way in which export subsidies are treated in trade agreements, see Bagwell and Staiger (1997c, 2000b) and Collie (forthcoming).

[77] See, for example, Anderson and Blackhurst (1993), Baldwin and Venables (1995), Bond and Syropoulos (1996), Bond, Syropoulos and Winters (1996), Winters (1996), Bhagwati, Greenaway

the form of free-trade areas or customs unions, are permitted under GATT Article XXIV as an important exception to the principle of non-discrimination. In recent years, preferential trading agreements have grown in number and significance. From the perspective of our review here, two questions seem especially relevant. First, do preferential trading agreements compromise the effectiveness with which the principles of reciprocity and non-discrimination can deliver efficient outcomes? Second, when GATT members are involved in preferential trading agreements, does the enforcement of multilateral trading agreements become harder or easier? This literature answers the first question in the affirmative, while it provides an ambiguous answer to the second question. At a general level, the (politically augmented) terms-of-trade approach thus suggests that preferential trading agreements may pose a threat to the existing multilateral trading system.

Second, we mention a literature which raises the issue of labor and environmental standards.[78] Existing GATT rules speak to this issue only to the extent that market access concerns are directly involved, as when one GATT member raises discriminatory tariffs against the exports of a second GATT member in response to the weak labor standards of the second member, or when a GATT member adopts a new environmental standard that has the effect of reducing access to its markets that another GATT member had previously negotiated. The national labor and environmental standards that member governments choose to adopt have never been the subject of direct GATT negotiations, but there is mounting pressure for this to change under the WTO. A number of industrialized countries (with the U.S. taking a leading position) have recently advocated the adoption of a "social clause," in which a set of minimum international standards would be negotiated and then enforced with the threat of trade sanctions. From the perspective of our review, two central questions are suggested. First, is GATT's traditional preoccupation with market access misplaced when the issue of labor and environmental standards is raised? And second, should GATT's limited enforcement ability be utilized to ensure that national labor and environmental standards are set in an appropriate fashion? This literature identifies conditions under which the answer to the first question is "No" and the answer to the second is, with some qualifications, "Yes." The broader suggestion from the (politically augmented) terms-of-trade approach is that GATT principles are potentially well-equipped to

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and Panagariya (1998), Ethier (1998a, 1998b, 2000), Bagwell and Staiger (1998, 1999a, 2000a) and Freund (forthcoming).

[78]See, for example, Srinivasan (1996), Brown, Deardorff and Stern (1996), Anderson (1998), Ederington (2000), Spagnolo (2000), Limao (2000) and Bagwell and Staiger (forthcoming).

handle the issue of labor and environmental standards.

Future Directions We conclude by pointing to three promising directions in which future research might proceed. First, an open question concerns the extent to which GATT rules also serve to help governments correct additional inefficiencies (i.e., beyond the terms-of-trade externality) that are associated with unilateral trade-policy decisions. For example, as we discuss at several points, the unilateral trade-policy decisions of governments may be inefficient if governments face a commitment problem with respect to their private sectors. Alternatively, domestic distortions, such as those associated with monopoly pricing power in the product market or frictions in the labor market, can introduce new avenues through which unilateral trade-policy decisions transmit externalities to trading partners. A related possibility is that Keynesian rigidities may lead to unemployment, in which case tariff choices may serve to shift unemployment levels across trading partners. Whether or not GATT rules serve effectively to deal with these additional sources of inefficiency is an important topic for future research.

Second, it is important to consider further whether GATT's principles constitute an effective approach to the host of new trade-policy issues with which the multilateral trading system must contend. We discuss this topic above in the context of some particular new trade-policy issues, but there are many other new issues that also warrant attention. For example, interesting future work might consider the performance of GATT's principles when applied to the treatment of services, intellectual property rights and trade-related investment measures. Extensions of this nature are of particular importance as the scope of GATT (and now the WTO) extends beyond the traditional arena of tariff liberalization.[79]

Finally, while the government welfare function that we have employed throughout is quite general, it does not capture all of the concerns that governments may wish to address through a trade agreement. We have assumed that government preferences are captured as a general function of local and world prices, but other concerns, such as military security and political stability, are also of obvious importance, and particularly so in the context of regional integration initiatives.[80] The interaction between trade agreements and such broader objectives represents an interesting and challenging direction for future research.

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[79]For further discussion on the appropriate treatment of new trade-policy issues, see Hoekman and Kostecki (1995), Jackson (1997, p. 305-18), Trebilcock and House (1999), and articles in the volumes edited by Stern (1993) and Krueger (1998).

[80]See Fernandez and Portes (1998) for further discussion along these lines.

8. References

Anderson, Kym and Richard Blackhurst, eds. (1993), **Regional Integration and the Global Trading System**, NY: St. Martin's Press.

Anderson, Kym (1998), "Environmental and Labor Standards: What Role for the WTO," in Anne O. Krueger (editor), **The WTO as an International Organization**, The University of Chicago Press: Chicago, Illinois.

Bagwell, Kyle and Robert W. Staiger (1990), "A Theory of Managed Trade," *American Economic Review*, 80, September 1990, 779-95.

Bagwell, Kyle and Robert W. Staiger (1995), "Protection and the Business Cycle," NBER Discussion Paper No. 5168, July.

Bagwell, Kyle and Robert W. Staiger (1997a), "Reciprocity, Non-Discrimination and Preferential Agreements in the Multilateral Trading System," NBER Discussion Paper No.5932, February.

Bagwell, Kyle and Robert W. Staiger (1997b), "Multilateral Tariff Cooperation During the Formation of Customs Unions," *Journal of International Economics*, 42, 91-123.

Bagwell, Kyle and Robert W. Staiger (1997c), "Strategic Export Subsidies and Reciprocal Trade Agreements," *Japan and the World Economy*, 9, 491-510.

Bagwell, Kyle and Robert W. Staiger (1998), "Will Preferential Agreements Undermine the Multilateral Trading System?," *Economic Journal*, July, 108, 1162-82.

Bagwell, Kyle and Robert W. Staiger (1999a), "An Economic Theory of GATT," *American Economic Review*, March, Vol. 89 No. 1, 215-248.

Bagwell, Kyle and Robert W. Staiger (1999b), "Regionalism and Multilateral Tariff Cooperation," in John Piggott and Alan Woodland, eds., **International Trade Policy and the Pacific Rim**, Macmillan: London, 157-185.

Bagwell, Kyle and Robert W. Staiger (2000a), "Multilateral Trade Negotiations, Bilateral Opportunism and the Rules of GATT," mimeo.

Bagwell, Kyle and Robert W. Staiger (2000b), "Strategic Trade, Competitive Industries and Agricultural Trade Disputes," NBER D.P. 7822.

Bagwell, Kyle and Robert W. Staiger (2000c), "Shifting Comparative Advantage and Accession in the WTO," mimeo.

Bagwell, Kyle and Robert W. Staiger (forthcoming), "Domestic Policies, National Sovereignty and International Economic Institutions," *The Quarterly*

Journal of Economics.

Baldwin, Richard (1987), "Politically Realistic Objective Functions and Trade Policy," *Economic Letters*, 24, 287-90.

Baldwin, Richard and Anthony Venables (1995), "Regional Economic Integration," in **Handbook of International Economics, Vol. III**, Gene Grossman and Ken Rogoff, eds., North Holland: Amsterdam, 1597-644.

Baldwin, Robert (1985), **The Political Economy of U.S. Import Policy**, The MIT Press: Cambridge.

Berry, Stephen, Levinsohn, James, and Ariel Pakes (1999) "Voluntary Export Restraints on Automobiles: Evaluating a Trade Policy," *American Economic Review,* June, 89.3, 400-30.

Bhagwati, Jagdish (1988), **Protectionism**, The MIT Press: Cambridge.

Bhagwati, Jagdish (1990), "Aggressive Unilateralism: An Overview," in **Aggressive Unilateralism: America's 301 Trade Policy and the World Trading System**, eds. Jagdish Bhagwati and Hugh T. Patrick, The University of Michigan Press: Ann Arbor, MI.

Bhagwati, Jagdish (1991), **The World Trading System at Risk**, Princeton University Press: Princeton.

Bhagwati, Jagdish, David Greenaway, and Arvind Panagariya (1998), "Trading Preferentially: Theory and Policy," *Economic Journal*, 108.449, 1128-48.

Bond, Eric W. and Jee-Hyeong Park (1998), "Gradualism in Trade Agreements with Asymmetric Countries," mimeo.

Bond, Eric W. and Costas Syropoulos (1996), "Trading Blocs and the Sustainability of Inter Regional Cooperation," in Canzoneri, M., Ethier, W., and Grilli, V., eds., **The New Transatlantic Economy**, Cambridge University Press: Cambridge.

Bond, Eric W., Syropoulos, Costas and Alan A. Winters (1996), "Deepening of Regional Integration and External Trade Relations," CEPR Discussion Paper No. 1317.

Brainard, Lael (1994), "Last One Out Wins: Trade Policy in an International Exit Game," *International Economic Review*, 35, 151-72.

Brock, William A. and Stephen P. Magee (1978), "The Economics of Special Interest Politics," *American Economic Review*, 68, May, 246-50.

Brown, Drusilla, Alan V. Deardorff, and Robert M. Stern (1996), "International Labor Standards and Trade: A Theoretical Analysis," in Bhagwati and Hudec (Editors), **Fair Trade and Harmonization: Prerequisites for Free Trade?**, Volume 1 (Economic Analysis), Cambridge: The

MIT Press.

Caplin, Andrew and Kala Krishna (1988), "Tariffs and the Most-Favored-Nation Clause: A Game-Theoretic Approach," *Seoul Journal of Economics*, 1, 267-89.

Carmichael, C. (1987), "The Control of Export Credit Subsidies and its Welfare Consequences," *Journal of International Economics*, 23, 1-19.

Caves, Richard A. (1976), "Economic Models of Political Choice: Canada's Tariff Structure," *Canadian Journal of Economics*, 9, May, 278-300.

Chisik, Richard (1999), "Gradualism in Free Trade Agreements: A Theoretical Justification," mimeo.

Choi, Jay Pil (1995), "Optimal Tariffs and the Choice of Technology: Discriminatory Tariffs vs. the 'Most Favored Nation' Clause," *Journal of International Economics*, January, 143-60.

Collie, David R. (forthcoming), "Bilateralism is Good: Trade Blocs and Strategic Export Subsidies," *Oxford Economic Papers*.

Coneybeare, John A.C. (1987), **Trade Wars: The Theory and Practice of International Commercial Rivalry** , Columbia University Press: New York.

Croome, John (1995), **Reshaping the World Trading System: A History of the Uruguay Round**, World Trade Organization: Geneva.

Culbert, Jay (1987), "War-time Anglo-American Talks and the Making of GATT," **World Economy**, 10.4, December, 381-407.

Dam, Kenneth W. (1970), **The GATT: Law and International Economic Organization**, University of Chicago Press: Chicago.

Devereux, Michael B. (1993), "Sustaining Free Trade in Repeated Games without Government Commitment," mimeo, Queens University.

Devereux, Michael. B. (1997), "Growth, Specialization and Trade Liberalization," *International Economic Review*, 38.3, 565-85.

Dixit, Avinash (1987), "Strategic Aspects of Trade Policy," in Truman F. Bewley, ed., **Advances in Economic Theory: Fifth World Congress**, Cambridge University Press: New York.

Dixit, Avinash (1996), **The Making of Economic Policy: A Transaction-Cost Politics Perspective**, MIT Press: Cambridge.

Ederington, Josh (2000), "International Coordination of Trade and Domestic Policies," mimeo, University of Miami, July.

Enders, Alice (1997), "The Origin, Nature and Limitations of Reciprocity in GATT 1947," mimeo, October.

Ethier, Wilfred (1998a), "Regionalism in a Multilateral World," *Journal of Political Economy*, December, 106.6, 1214-1245.

Ethier, Wilfred (1998b), "The New Regionalism," *Economic Journal*, 108, 1149-1161.

Ethier, Wilfred (2000), "Reciprocity, Nondiscrimination and a Multilateral World," mimeo.

Feenstra, Robert and Jagdish Bhagwati (1982), "Tariff Seeking and the Efficient Tariff," in Jagdish Bhagwati, ed., **Import Competition and Response**, University of Chicago Press: Chicago.

Feenstra, Robert (1995), "Estimating the Effects of Trade Policy," in Gene M. Grossman and Kenneth Rogoff, eds., **The Handbook of International Economics, Vol. 3**, North Holland.

Fernandez, Raquel and Dani Rodrik (1991), "Resistance to Reform: Status-Quo Bias in the Presence of Individual-Specific Uncertainty," *American Economic Review*, 81, 1146-55.

Fernandez, Raquel and Jonathan Portes (1998), "Returns to Regionalism: An Analysis of Non-Traditional Gains from Regional Trade Agreements," *World Bank Economic Review*, 12.2, 197-220.

Findlay, Ronald and Stanislaw Wellisz (1982), "Endogenous Tariffs, the Political Economy of Trade Restrictions and Welfare," in Jagdish Bhagwati, ed., **Import Competition and Response**, University of Chicago Press: Chicago.

Flam, Harry and Elhanan Helpman (1987), "Industrial Policy under Monopolistic Competition," *Journal of International Economics*, 22, 79-102.

Freund, Caroline (forthcoming), "Multilateralism and the Endogenous Formation of Preferential Trade Agreements," *Journal of International Economics*.

Furusawa, Taiji and Edwin Lai (1999), "Adjustment Costs and Gradual Trade Liberalization," *Journal of International Economics*, December, 333-61.

Gilligan, Michael (1997), **Empowering Exporters: Reciprocity, Delegation and Collective Action in American Trade Policy**, University of Michigan Press: Ann Arbor.

Goldberg, Penny Koujianou (1995), "Product Differentiation and Oligopoly in International Markets: The Case of the U.S. Automobile Industry," *Econometrica*, 63, July, 891-951.

Grimwade, Nigel (1996), **International Trade Policy: A Contemporary Analysis**, Routledge: London.

Gros, Daniel (1987), "A Note on the Optimal Tariff, Retaliation and the Wel-

fare Loss from Tariff Wars in a Framework with Intra-Industry Trade," *Journal of International Economics*, 23, 357-67.

Grossman, Gene M. and Elhanan Helpman (1994), "Protection for Sale," *American Economic Review*, 84, September, 833-50.

Grossman, Gene M. and Elhanan Helpman (1995), "Trade Wars and Trade Talks," *Journal of Political Economy* , 103, August, 675-708.

Grossman, Gene M. and Giovanni Maggi (1998),"Free Trade vs. Strategic Trade: A Peek into Pandora's Box," in R. Sato, R. Ramachandran, and K. Mino, eds., **Global Competition and Integration**, Kluwer Academic Publishers: Boston/Dorrecht/London.

Gruenspecht, Howard K. (1988), "Dumping and Dynamic Competition," *Journal of International Economics*, 25, 225-248.

Hillman, Arye L. (1982), "Declining Industries and Political-Support Protectionist Motives," *American Economic Review*, 72, 1180-87.

Helpman, Elhanan and Paul R. Krugman (1989), **Trade Policy and Market Structure**, The MIT Press: Cambridge.

Hoekman, Bernard and Michel Kostecki (1995), **The Political Economy of the World Trading System: From GATT to WTO**, Oxford University Press: Oxford.

Horn, Henrik and Petros C. Mavroidis (2000), "Economic Aspects of the Most-Favored Nation Clause," mimeo.

Hudec, Robert E. (1990), **The GATT Legal System and World Trade Diplomacy**, Second Edition, Praeger Publisher: New York.

Hull, Cordell (1948), **The Memoirs of Cordell Hull**, Hodder and Stoughton: London.

Jackson, John (1969), **World Trade and the Law of GATT**, The Bobbs-Merrill Company: New York.

Jackson, John (1997), **The World Trading System,** 2nd edition, The MIT Press: Cambridge.

Johnson, Harry G. (1953-54), "Optimum Tariffs and Retaliation," *Review of Economic Studies*, 1. 2, 142-53.

Kennan, John and Raymond Reizman (1988), "Do Big Countries Win Tariff Wars?," *International Economic Review*, 29, 81-85.

Kovenock, Dan and Marie Thursby (1992), "GATT, Dispute Settlement and Co-operation," *Economics and Politics*, 4, 151-70.

Kreinin, Mordechai (1961), "Effect of Tariff Changes on the Prices and Volume of Imports," *American Economic Review*, Vol. 51.3, 310-324.

Krishna, Pravin and Mitra, Devashish (1999), "Reciprocated Unilateralism: A Political Economy Perspective," mimeo.

Krueger, Anne O. (1998), editor of **The WTO as an International Organization**, The University of Chicago Press: Chicago, Illinois.

Krugman, Paul R. (1991), "The Move Toward Free Trade Zones," in **Policy Implications of Trade and Currency Zones, A Symposium Sponsored by The Federal Reserve Bank of Kansas City**, Jackson Hole, Wyoming, August 22-24.

Krugman, Paul R. (1997), "What Should Trade Negotiators Negotiate About?," *Journal of Economic Literature*, 35, March, 113-20.

Lapan, H.E. (1988), "The Optimal Tariff, Production Lags, and Time Consistency," *American Economic Review*, 78, 395-401.

League of Nations (1942), **Commercial Policy in the Interwar Period: International Proposals and National Policies**, League of Nations: Geneva.

Limao, Nuno (2000), "Trade Policy, Cross-Border Externalities and Lobbies: Do Linked Agreements Enforce More Cooperative Outcomes?", Columbia University mimeo, April.

Low, Patrick (1993), **Trading Free: The GATT and U.S. Trade Policy**, A Twentieth Century Fund Press: New York.

Ludema, Rodney (1991), "International Trade Bargaining and the Most-Favored Nation Clause," Economics and Politics, 3, 1-20.

Maggi, Giovanni (1999), "The Role of Multilateral Institutions in International Trade Cooperation," *American Economic Review*, March, 89.1, 190-214.

Maggi, Giovanni and Andres Rodriguez-Clare (1998), "The Value of Trade Agreements in the Presence of Political Pressures," *Journal of Political Economy*, 106.3, 574-601.

Maskin, Eric and David Newberry (1990), "Disadvantageous Oil Tariffs and Dynamic Consistency," *American Economic Review*, 80, 143-56.

Matsuyama, Kiminori (1990), "Perfect Equilibria in a Trade Liberalization Game," *American Economic Review*, June, 480-92.

Mayer, Wolfgang (1981), "Theoretical Considerations on Negotiated Tariff Adjustments," *Oxford Economic Papers*, 33, 135-53.

Mayer, Wolfgang (1984), "Endogenous Tariff Formation," *American Economic Review*, 74, 970-85.

Mayer, Wolfgang (1994), "Optimal Pursuit of Safeguard Actions Over Time," in Alan Deardorff and Robert Stern, eds., **Analytical and Negotiating**

Issues in the Global Trading System, University of Michigan Press: Ann Arbor.

McCalman, Phillip (1997), "Multilateral Trade Negotiations and the Most-Favored Nation Clause," mimeo, November, The University of Wisconsin.

McLaren, John (1997), "Size, Sunk Costs, and Judge Bowker's Objection to Free Trade," *American Economic Review*, 87, 400-20.

McLaren, John (1999), "A Theory of Insidious Regionalism," mimeo.

McMillan, John (1986), **Game Theory in International Economics**, Harwood: New York.

McMillan, John (1989), "A Game-Theoretic View of International Trade Negotiations: Implications for Developing Countries," in John Whalley, ed., **Developing Countries and the Global Trading System: Volume 1**.

Mill, John Stuart (1844), **Essays on Some Unsettled Questions of Political Economy**, Parker: London.

Mitra, Devashish (1999), "Endogenous Lobby Formation and Endogenous Protection: A Long-Run Model of Trade Policy Determination," *American Economic Review*, December, 89.5, 1116-34.

Olson, Mancur (1965), **The Logic of Collective Action**, Harvard University Press: Cambridge.

Ostry, Sylvia (1997), **The Post-Cold War Trading System: Who's on First?**, A Twentieth Century Fund Book, The University of Chicago Press: Chicago.

Petersmann, Ernst-Ulrich (1997), **The GATT/WTO Dispute Settlement System: International Law, International Organizations and Dispute Settlement**, London: Kluwer Law International Ltd.

Preeg, Ernest H. (1970), **Traders and Diplomats**, Brookings Institute: Washington, D.C.

Rhodes, Carolyn (1993), **Reciprocity, U.S. Trade Policy, and the GATT Regime**, Cornell University Press, Ithaca, New York.

Ruggiero, Renato (1995), speech at Harvard University, October 16, 1995; available at WTO web site: http://www.wto.org/wto/pressrel/press25.html

Schwartz, W.F. and Alan O. Sykes (1997), "The Economics of the Most Favored Nation Clause," in **Economic Dimensions in International Law: Comparative and Empirical Perspectives**, eds. Jagdeep S. Bhandani and Alan O. Sykes, Cambridge University Press, 43-79.

Spagnolo, Giancarlo (2000), "Issue Linkage, Delegation, and International Policy

Cooperation," Stockholm School of Economics mimeo.

Srinivasan, T.N. (1996), "International Trade and Labour Standards from an Economic Perspective," in van Dijck and Faber (eds.), **Challenges to the New World Trade Organization**, Kluwer Law International, The Hague.

Staiger, Robert W. (1995a), "International Rules and Institutions for Trade Policy," in Gene M. Grossman and Kenneth Rogoff, eds., **The Handbook of International Economics, Vol. 3**, North Holland.

Staiger, Robert W. (1995b), "A Theory of Gradual Trade Liberalization," in Deardorff, Alan, Levinsohn, James, and Stern, Robert, eds., **New Directions in Trade Theory**, The University of Michigan Press: Ann Arbor.

Staiger, Robert W. and Guido Tabellini (1987), "Discretionary Trade Policy and Excessive Protection," *American Economic Review*, 77, December, 823-37.

Staiger, Robert W. and Guido Tabellini (1989), "Rules and Discretion in Trade Policy," *European Economic Review*, 33, 1265-77.

Staiger, Robert W. and Guido Tabellini (1999), "Do GATT Rules Help Governments Make Domestic Commitments?," *Economics and Politics*, July, XI.2, 109-44.

Stern, Robert M. (1993), editor of **The Multilateral Trading System: Analysis and Options for Change**, The University of Michigan Press: Ann Arbor, MI.

Tornell, Aaron (1991), "On the Ineffectiveness of Made-to-Measure Protectionist Programs," in Elhanan Helpman and Assaf Razin, eds., **International Trade and Trade Policy** , MIT Press: Cambridge.

Torrens, Robert (1844), **The Budget: On Commercial Policy and Colonial Policy**, Smith, Elder: London.

Trebilcock, Michael J. and Robert Howse (1999), **The Regulation of International Trade**, 2nd edition, Routledge: London.

Tuckman, Johanna (1997), "Central Americans Start to Act Together," *Financial Times,* July 9, 4.

Viner, Jacob (1924), "The Most-Favored-Nation Clause in American Commercial Treaties," *Journal of Political Economy.* [Reprinted as Chapter 1 of **International Economics**, The Free Press: Glencoe, Ill, 1951.]

Viner, Jacob (1931),"The Most-Favored-Nation Clause, Index," Sevenka Handelsbanken: Stockholm. [Reprinted as Chapter 5 of **International Eco-**

nomics, The Free Press: Glencoe, Ill, 1951.]

Viner, Jacob (1936), "Comments on the Improvement of Commercial Relations between Nations," in **The Improvement of Commercial Relations between Nations and the Problem of Monetary Stabilization**, Carnegie Endowment-International Chamber of Commerce Joint Committee: Paris.

Whalley, John (1985), **Trade Liberalization Among Major World Trading Areas**, MIT Press: Cambridge.

Winters, L. Alan (1996), "Regionalism versus Multilateralism," Policy Research Working Paper 1687, World Bank: Washington, D.C.

Winters, L. Alan and Won Chang (1997), "Regional Integration and the Prices of Imports: An Empirical Investigation," World Bank Policy Research Working Paper No. 1782.

WTO (1995), **Analytical Index: Guide to GATT Law and Practice**, Vol. 2, Geneva.

τ

W^N

N
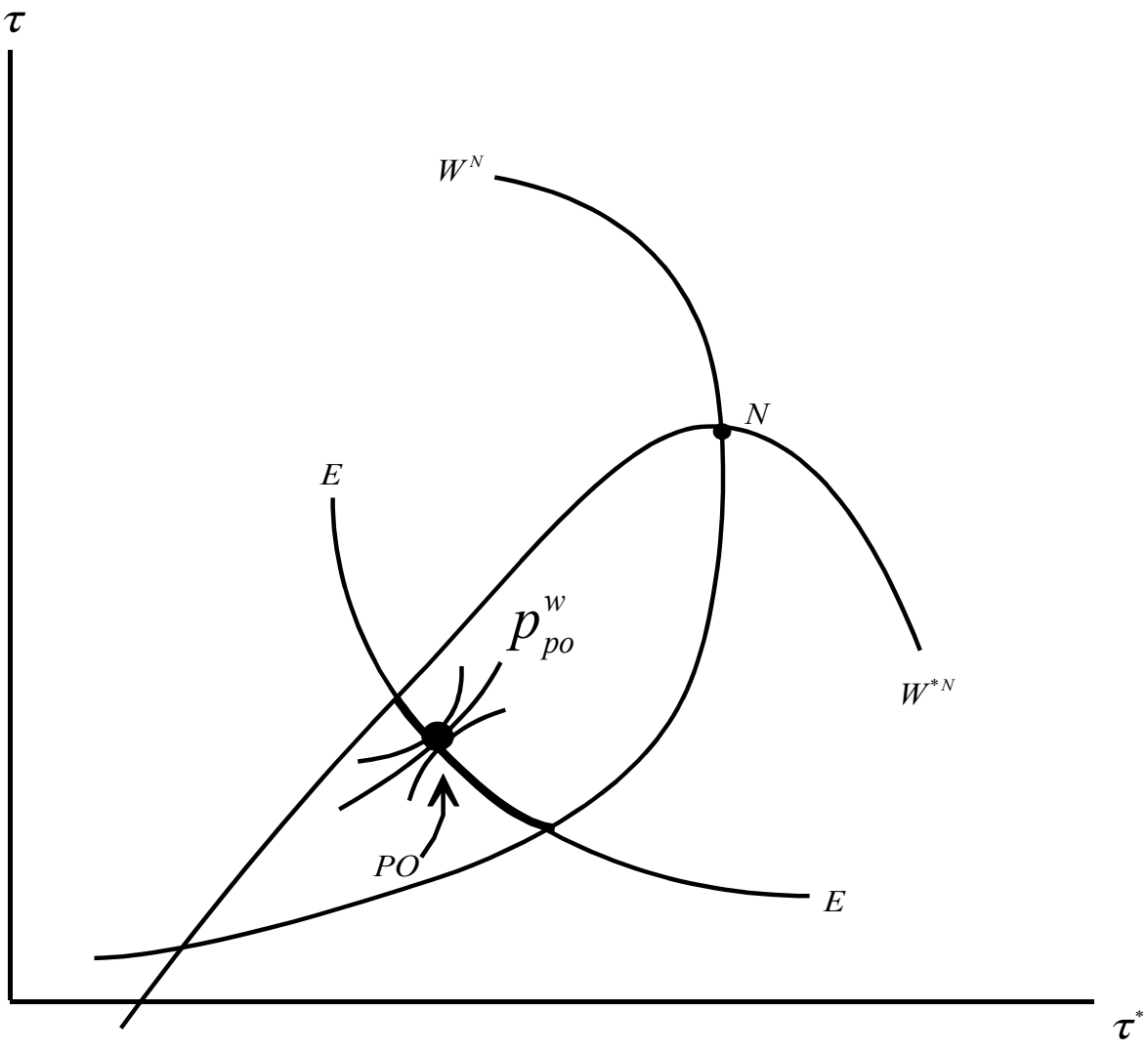
E

W^{*N}

1

E

1

τ^*
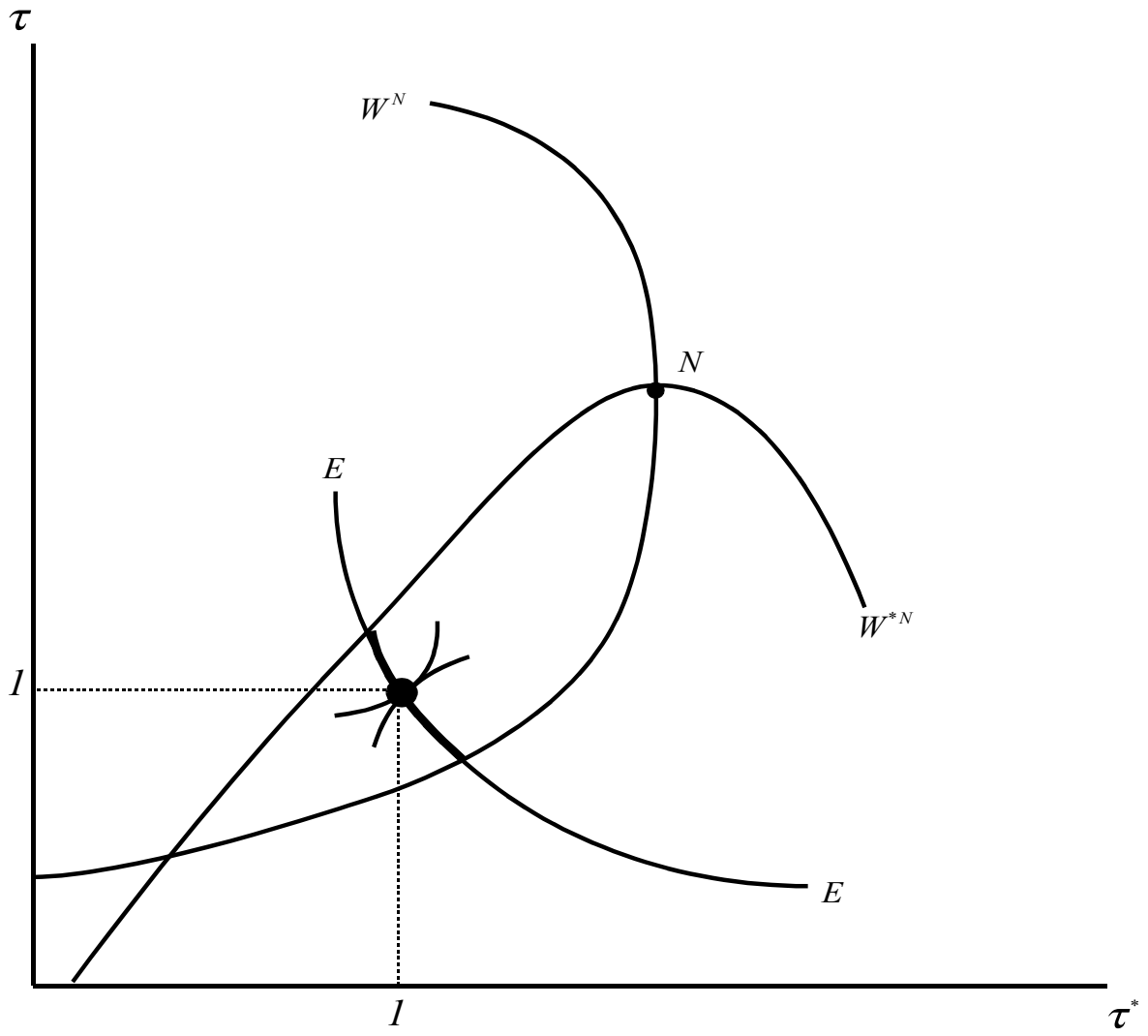
Figure 1

Figure 2

Figure 3

$$\frac{-(W - W^N)}{(W^* - W^{*N})}$$

W

NBS

$dB = 0$

PO

$dB = 0$

W^N

W^{*N}

$\dfrac{W^{PO}_{pW}}{W^{*PO}_{pW}}$

W^*
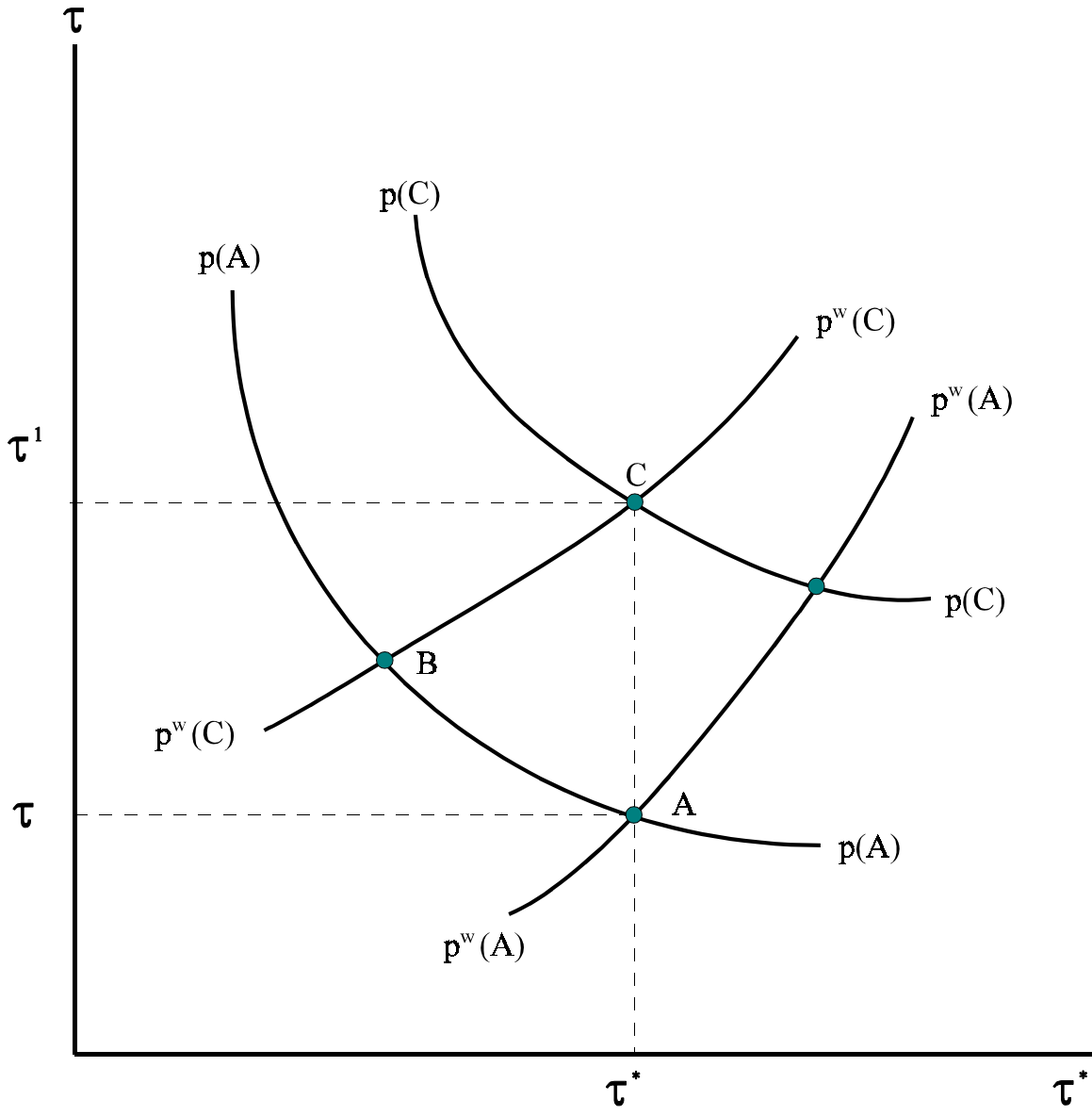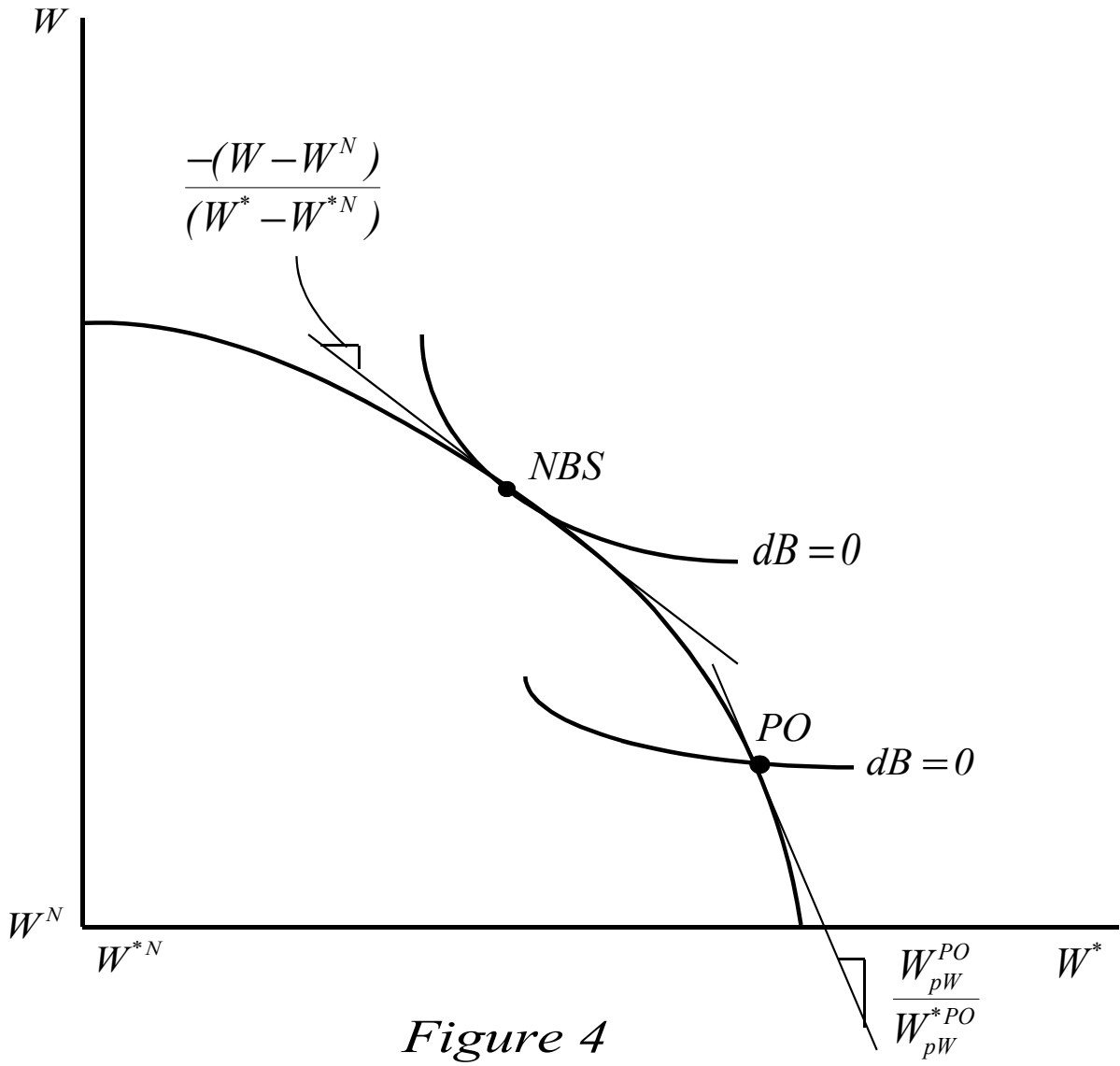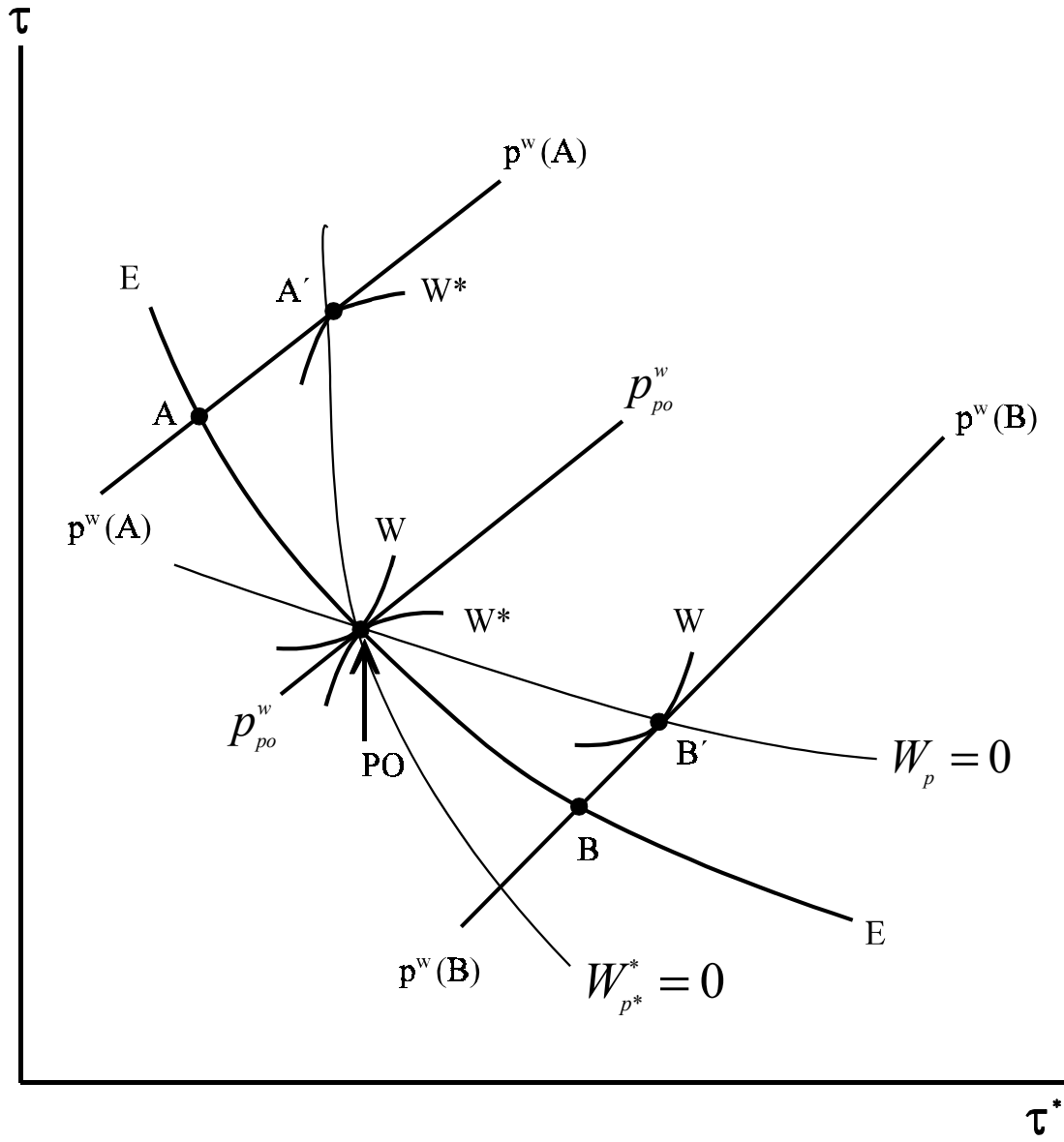
Figure 4

Figure 5

Figure 6

Figure 7