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Remedies in The WTO: AN Economic Perspective

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1. Introduction

The WTO dispute settlement system represents a major achievement of the Uruguay Round. By most accounts, this system has worked very well. In the ongoing dispute settlement understanding (DSU) review, WTO Members are considering proposals that might lead to further improvements in the functioning of the dispute settlement system. Many of these proposals concern different kinds of remedies that might be used in response to a violation.

An evaluation of proposals for remedy reform requires a perspective as to the purpose of the WTO. In this essay, I describe and then apply the terms-of-trade theory of trade agreements. I argue that this theory offers a coherent interpretation of the purpose and design of the WTO. The theory also offers novel insights with respect to proposed reforms of the WTO remedy system.

In Section 2, I argue that the terms-of-trade theory provides a rationale for trade agreements and an interpretation of key GATT/WTO design features. Next, in Section 3, I apply this theory and consider the extent to which WTO remedies facilitate efficient breach. I conclude that a theoretical argument can be made in favor of a modified dispute settlement system that allows for disproportionate retaliation, particularly in response to serious violations. At a practical level, however, I argue that important measurement problems would significantly limit the feasibility of such an approach. The current system, which is based on commensurate retaliation (i.e., the suspension of equivalent concessions), may sometimes allow for inefficient breach but arguably works well in an overall sense. I suggest as well that rule changes that encourage greater use of monetary compensation may be attractive.

In Section 4, I consider Mexico's proposal that retaliation rights be made tradable. I develop here a theoretical perspective that identifies some potential benefits that such a system might offer. Among these, I highlight in particular the possibility that a system with tradable retaliation rights might facilitate the payment of monetary compensation to a small-country complainant by a large country which resists bringing its offending measures into compliance. I also stress that such a system could introduce a number of additional effects that are at present not well understood. At this stage, I thus caution against any explicit change in the DSU to accommodate tradable retaliation rights. I suggest instead that this proposal receive further serious study.

The topic of Section 5 is the *Agreement on Subsidies and Countervailing Measures* (the *SCM Agreement*) and the remedies described therein. I argue that the terms-of-trade approach to trade agreements indicates that the restrictions on domestic and export subsidies found in the *SCM Agreement* are too severe. Likewise, this theory does not support the rulings in recent disputes, which recommend disproportionate countermeasures in response to export subsidies.

2. *The purpose and design of trade agreements*

WTO remedies can be meaningfully interpreted and evaluated only in the context of an understanding as to the purpose of the WTO. I thus begin my discussion by addressing the following question: What is the problem that a trade agreement might solve? After proposing an answer to this question, I relate this answer to a few key design features of GATT and the WTO.

2a. *The purpose of trade agreements*

Motivated by GATT and the WTO, I treat a trade agreement as an agreement between governments. This perspective implies that a trade agreement is designed to offer greater welfare to governments than they would obtain in the absence of the agreement. In turn, a trade agreement can offer greater government welfare only if some inefficiency arises relative to the preferences of governments when trade policies are set in a unilateral fashion. At a broad level, the purpose of a trade agreement is then to eliminate this inefficiency and thereby facilitate mutual gains for the participating governments.

The key task is to identify the source of the inefficiency. To this end, it is instructive to imagine a simple setting with two countries, where each country imports a single good from its trading partner. Each government can use an import tariff to restrict imports, and for simplicity I assume that no other trade-policy instruments are available. Even in this simple setting, a government confronts subtle tradeoffs when determining its optimal unilateral tariff. A higher tariff raises the price of the import good in the domestic economy, and the higher "local price" is beneficial to import-competing firms but harmful to domestic consumers. Also, a higher tariff increases tariff revenue, if the initial tariff is below the level that maximizes tariff revenue. Thus, when contemplating a higher tariff, a government must balance the benefits of greater profit in the import-competing industry and perhaps greater tariff revenue against the costs of lower consumer welfare. The optimal unilateral tariff then reflects the respective importance of these benefits and costs in the government's welfare function.

The domestic government's calculus, however, neglects one important group: foreign exporters. When a government raises its unilateral tariff, the "world price" of the import good may fall. In this case, the profits of foreign exporters decline as a consequence of the increased tariff. An increase in the import tariff then imposes a negative externality on foreign exporters. Naturally, the welfare of the foreign government is reduced when its exporters receive lower profits.[1] Thus, when a government selects a higher tariff, it imposes a negative international externality on foreign government welfare.[2] In the absence of a trade agreement, governments do not internalize this international

[1] An increase in the domestic tariff also causes a decline in the local price of the good in the foreign country and thus generates a benefit to foreign consumers in the form of a lower price on units traded within the foreign country. This benefit, however, amounts to a transfer from foreign producers to foreign consumers.

[2] Formally, this statement is sure to hold when the foreign government is choosing its optimal unilateral tariff, as the discussion here presumes. See Bagwell and Staiger (2002, Appendix, p. 192, equation (A6)).

externality, and so import tariffs are higher - and trade volumes are lower - than would be efficient, where efficiency is measured relative to the objectives of both governments.

According to this line of reasoning, the problem that motivates the formation of a trade agreement is that a *negative international externality* flows from a government's chosen trade policy through world prices to another government's welfare.[3] In the absence of a trade agreement, this problem results in an inefficient outcome. The purpose of a trade agreement is then to enable governments to lower tariffs and raise trade volumes so that they may achieve a more efficient outcome.

The rationale for trade agreements provided here is sometimes called the *terms-of-trade theory of trade agreements*. In a simple two-good setting, a country's terms of trade is the price of its export good divided by price of its import good, with all prices evaluated on world markets. All else equal, a country generally enjoys greater national welfare when its terms of trade are higher. Intuitively, a country can make a better trade (get more imports in exchange for its exports) on world markets when its terms of trade improve. In the context of the discussion above, when a government imposes a higher import tariff, it depresses the world price of its import good and thereby engineers a terms-of-trade gain. At the same time, the higher tariff results in a terms-of-trade loss for the trading partner, since the world price of the trading partner's export good is correspondingly reduced. The international externality described above is thus a terms-of-trade externality.

The terms-of-trade theory of trade agreements is hardly new. Mill (1814) and Torrens (1844) offer early discussions, and Johnson (1953-54) provides an elegant formalization. Some economists, however, have objected to this theory as a foundation from which to interpret and evaluate actual trade agreements. Two objections are noted here. First, the traditional version of the theory assumes that each government seeks to maximize national income. This specification for government preferences is unrealistic, as it leaves out the manifest political constraints under which real governments operate. Second, in actual trade-policy debates and negotiations, the "terms of trade" are rarely mentioned.

Bagwell and Staiger (1999, 2002 (Chapters 2, 11), 2005a) enrich the traditional terms-of trade theory and argue that these objections are misguided. Consider first the preferences of governments. Notice that nowhere in the rationale for trade agreements presented above is the assumption made that governments maximize national income. This reflects a general point: the terms-of-trade theory of trade agreements is robust to a wide range of government preference specifications, including specifications that allow for political motivations and constraints. The preferences of a government can be specified as a general function of local prices and world prices, and political considerations can be captured by the manner in which local prices affect government welfare. For example, if

[3] A second problem that may motivate the formation of a trade agreement is present when governments have difficulties in making credible commitments with regard to their trade policies. Governments may then look to a trade agreement as a means through which they may make such commitments. See Bagwell and Staiger (2002, Chapter 2) for further discussion of the commitment approach. I simply note here that this approach is in some ways difficult to reconcile with the substantial opportunities for "rebalancing" that the GATT/WTO system affords (as discussed in more detail below). On this point, see also Kohler (2004).

an import-competing industry is politically powerful, then the government may be more attracted to a higher local price for the corresponding import good. The theory does not require any restrictions on government preferences with regard to local prices, however, and thus accommodates a range of possible political motivations.

The second objection can also be addressed. It is true that the "terms of trade" are not often featured in actual trade-policy debates and negotiations. Instead, such discussions often highlight the market access implications of trade policy. The loss in market access that foreign exporters experience when the domestic country raises its tariff, however, is simply the "quantity effect" that accompanies the "price effect" of a deterioration in the foreign country's terms of trade. From this point of view, whether an increase in the domestic country's tariff is said to cause a "terms of trade loss for the foreign country" or a "loss of market access for foreign exporters" is purely a matter of semantics.[4]

In fact, the terms-of-trade theory of trade agreements rests on only two key assumptions. The first assumption is that government preferences are such that, all else equal, a government suffers a welfare loss when its country's terms of trade deteriorate. This assumption seems quite reasonable and holds when governments maximize national income as well as in the leading political-economy models of trade policy. The second key assumption is that an increase in an import tariff results in a terms-of-trade gain for the importing country and thus a terms-of-trade loss for the exporting country. As I discuss below, this assumption holds if the importing country is "large." Together, the two key assumptions ensure that a negative international externality flows from one government's import tariff to the government welfare function of its trading partner.

The assumption of "large" countries merits additional discussion. When the government of a large country raises its import tariff, the import good becomes more plentiful on the world market, forcing a reduction in the world price of the good. The government of a large country can thus improve its terms of trade – and diminish the terms of trade of its trading partner – by raising its import tariff. By contrast, a small country has no "market power" in this sense. When the government of a small country raises its import tariff, the price of the good on the world market is unchanged, and the full tariff increase is thus "passed through" as an increase in the local price. Since the government of a small country cannot alter world prices, no international externality flows to other governments from its tariff policies. This discussion leads to a simple but powerful implication: according to the terms-of-trade theory of trade agreements, the government of a small country should be free from any obligation on its tariff policy and therefore permitted to choose any tariff policy that it likes. Intuitively, all of the costs and benefits of a tariff change for such a government move through the local prices within the country and thus reside entirely within national boundaries.

[4] Recent empirical work also reports evidence that is consistent with the terms-of-trade theory of trade agreements. See, for example, Bagwell and Staiger (2006a), Broda, Limao and Weinstein (2006) and Subramanian and Wei (forthcoming). Other supportive studies are mentioned below in footnote 22 and also in Bagwell and Staiger (2002, Chapter 11).

The sharp distinction between large and small countries is useful at an abstract level. In reality, however, the distinction is probably one of degree. A country may be large with respect to the importation of one good and small with respect to the importation of other goods. For example, Country A may be only a small player in the world market for good x. If the import tariff for good x in Country A were increased 10%, then the world price of this good would not change and the local price of good x within Country A would rise the full 10%. At the same time, Country A may import good y from the neighboring Country B. Due to high transport costs or the highly perishable nature of good y, Country B may only export good y to Country A and other neighboring countries. As a consequence, Country A may be large with respect to the relevant world price of good y. Thus, rather than categorizing countries as "large" or "small," it may be more reasonable to think of some countries as being larger (i.e, large in more markets) than others.

2b. The Design of GATT/WTO

The theoretical perspective described above offers an interpretation of key features of GATT/WTO design. In particular, it provides an interpretation of the principle of reciprocity, the nondiscrimination rule reflected in the most-favored nation principle (MFN) and the roles of retaliation.

Consider first the interpretation of reciprocity in the GATT/WTO. In broad terms, the principle of reciprocity refers to the ideal of mutual changes in trade policy that 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 is pervasive in the GATT/WTO. Reciprocity arises as a norm in GATT/WTO negotiations, where governments often seek a "balance of concessions." Reciprocity also appears in many GATT/WTO rules. For example, GATT Article XXVIII provides circumstances under which a concession withdrawal by one government can entitle another to withdraw a "substantially equivalent concession." Likewise, reciprocity is a fundamental feature of the treatment of remedies in the GATT/WTO. As I discuss in more detail below, under the DSU of the WTO, a Member country that violates an obligation and refuses to comply may suffer an equivalent withdrawal of concessions from its trading partner.

The principle of reciprocity is often maligned as a mercantilist concept that is devoid of economic content. Advocates of this point of view stress that unilateral liberalization to free trade is the only sensible policy from an economic perspective, and they often lament that the selection of a positive tariff amounts to "shooting oneself in the foot." As a foundation from which to interpret the GATT/WTO, however, this view suffers from two fatal flaws. First, given its recommendation of unilateral liberalization, this view cannot provide an interpretation of the purpose and design of the GATT/WTO, wherein the principle of reciprocity is foundational. Second, as a matter of theory, a policy of unilateral free trade is optimal for a government under rather special conditions; in particular, the government must maximize national income and preside over a small country. As discussed above, however, real governments often have political-economic objectives and preside over countries that are large, at least in some markets.

By contrast, the terms-of-trade theory of trade agreements provides an economic interpretation of reciprocity. In the absence of a trade agreement, a government would set its optimal unilateral tariff. By definition, it would then not gain by offering a unilateral tariff reduction or increase. The underlying reason that a unilateral tariff reduction is unattractive is that it would diminish the country's terms of trade. Suppose, though, that the governments negotiate a reciprocal reduction in tariffs. If the negotiated tariff concessions satisfy the principle of reciprocity, then the terms of trade would not change. At an intuitive level, this is because a reduction in the import tariff selected by the domestic government raises the price of the domestic import good on the world market, and likewise a reduction in the import tariff selected by the foreign government raises the price of the domestic export good on the world market. When governments liberalize according to the principle of reciprocity, they are thus able to achieve lower tariffs and higher trade volumes without requiring that any country experience a terms-of-trade loss. Terms-of-trade preservation is the key advantage that reciprocal liberalization offers over unilateral liberalization. Building from this line of reasoning, it can then be shown that both governments must gain when they form a trade agreement in which they negotiate a (modest) reciprocal liberalization in tariffs.[5]

The discussion to this point has been conducted in the context of a two-country setting. The analytic framework can be extended to include multiple countries, however, and this extension leads to an economic interpretation of another key GATT/WTO design feature: the MFN principle of nondiscrimination. To fix ideas, consider an extended three-country framework in which the home country imports good x from foreign country 1 and foreign country 2. Each foreign country also imports good y from the home country. For simplicity, suppose further that the foreign countries do not trade with one another. Imagine now that the governments of the home country and foreign country 1 negotiate a trade agreement. As described above, the two governments achieve higher welfare under the agreement by exchanging reciprocal tariff reductions that preserve the terms of trade between them. The negotiated agreement thereby ensures that the exporters in each country gain additional access to the trading partner's market. I now add a wrinkle and suppose that the home government has a subsequent opportunity to negotiate reciprocal tariff concessions with foreign country 2. In the absence of a nondiscrimination rule, the home government might offer foreign country 2 a lower tariff for imports of good x than it offered earlier to foreign country 1. This would have the effect of reducing home demand for exports from foreign country 1. In this general way, when discriminatory tariffs are permitted, a subsequent agreement can lead to a terms-of-trade loss for the early negotiating partner. Equivalently, a subsequent agreement can erode the negotiated

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[5] When contemplating a unilateral tariff increase, a government balances the benefit of improved terms of trade against the welfare implications of a higher local price for the import good. At the optimal unilateral tariff, the government resists pushing the tariff higher yet (and enjoying the consequent improvement in its terms of trade), because the local price has already been pushed above the preferred level in the pursuit of terms-of-trade gains. Thus, at the optimal unilateral tariff, the government would be happy to lower its tariff and enjoy the lower local price, if there were a way to do this without suffering a terms-of-trade loss. A reciprocal reduction in tariffs accomplishes this objective. It is important that the reciprocal liberalization is not too large, however, lest the governments drive their local prices for import goods to levels that are lower than they prefer (given the terms of trade). See Bagwell and Staiger (1999, 2002 (Chapter 4)) for further details and proofs of the results on reciprocity described in this paragraph.

market access of the early negotiation partner. If the early negotiating partner foresees this possibility, it might hesitate to offer access to its market as part of an initial negotiation. An important role for a nondiscrimination rule is thus suggested: such a rule can help protect the interests of early negotiation partners and thereby facilitate trade liberalization across partners over time.[6]

The nondiscrimination rule alone, however, is not sufficient to fully protect the welfare of the early negotiation partner. In particular, it could be the case that the subsequent negotiation does not satisfy the principle of reciprocity, in the sense that foreign country 2 offers a greater concession than does the home country. Under the nondiscrimination rule, the exporters in foreign country 1 would receive the home country's concession as well, and in this regard the exporters in foreign country 1 would enjoy a modest gain. Note, though, that the large concession offered by foreign country 2 raises the price of the home-country export (good y) on the world market. The subsequent negotiation thus raises the world price of the import good for foreign country 1 and thereby results in a large loss for consumers in foreign country 1. In this situation, the subsequent negotiation thus leads to a terms-of-trade loss for foreign country 1. Building on this line of argument, it can be shown that foreign country 1's terms of trade - and thus the welfare of the government of foreign country 1 - is fully preserved when the subsequent negotiation satisfies the nondiscrimination rule *and* the principle of reciprocity.[7] I return to the roles of nondiscrimination and reciprocity below, in my discussion of the WTO remedy system and some reform proposals.

The terms-of-trade theory of trade agreements also suggests two important roles for retaliation. The first role emerges directly from the discussion above. I emphasize above that governments achieve welfare gains by negotiating reciprocal tariff reductions. Starting at the optimal unilateral tariffs, no government is attracted to a unilateral tariff cut. The reverse argument can be applied once governments have reciprocally lowered their tariffs to efficient levels. Starting at the efficient tariffs, each government would gain if it alone raised its tariff toward the optimal unilateral level. Each government would lose, however, if they both raised their tariffs in this fashion and thereby "undid" the reciprocal liberalization. In short, the terms-of-trade theory of trade agreements indicates that governments face a Prisoners' Dilemma problem: gains from cooperation exist, but each party has an incentive to cheat. As is well known, when parties interact repeatedly in a Prisoners' Dilemma setting, they may utilize the threat of retaliation to achieve a self-enforcing cooperative arrangement. In their negotiations over trade policies, governments certainly interact repeatedly over time. It is thus possible that they may utilize the threat of retaliation to construct a self-enforcing agreement in which they cooperate (set low tariffs). For cooperation to emerge as part of a self-enforcing

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[6] My discussion in this paragraph draws on Schwartz and Sykes (1997).

[7] The subsequent negotiation can affect government welfare in foreign country 1 only by altering foreign country 1's terms of trade, since the import tariff in foreign country 1 does not change during the subsequent negotiation and thus does not induce any separate change in the local price in foreign country 1. See Bagwell and Staiger (2002 (Chapter 5), 2005a) for further discussion and a proof that the early negotiating partner's terms of trade are maintained when the subsequent negotiation satisfies the nondiscrimination rule and the principle of reciprocity.

agreement, the key point is that the short-term benefit that any government might enjoy by cheating must be small in comparison to the long-term cost that the government would face if such cheating led to a retaliatory tariff increase by its trading partner and thus an undoing of the original reciprocal liberalization.

According to this perspective, the role of retaliation is to *induce compliance*. This perspective has a certain appeal. There are no WTO police, and governments can be expected to honor agreements only in so far as it is in their interest to do so. The long-term costs of retaliation must therefore outweigh the short-term gains from cheating. It is reasonable to assume that governments respond to this comparison at some basic level. Some anecdotal support for this assumption, for example, is provided in Croome's (1995) discussion of the challenges facing governments as they sought to enhance GATT's dispute settlement procedures as part of the Uruguay Round. Croome (1995, pp. 11-12) quotes then-Director General Arthur Dunkel as follows:

"Dunkel summed up his view from the GATT Secretariat in a speech in London in March 1991. 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."

As this quote suggests, governments may comply with GATT/WTO rules in part because to do otherwise would increase the probability of retaliatory tariffs and perhaps even imperil the credibility of the trading system.

Of course, compliance may be induced even when less severe expressions of retaliation are entertained. In its most pure form, however, the compliance-inducement view of retaliation indicates that it is only the threat of retaliation that matters. If this threat is sufficiently severe, governments will not cheat and actual retaliation will not occur. If the view is taken that the only role for retaliation is to induce compliance, then the apparent normative implication is that retaliation should be severe and used as a punitive instrument with which to decrease the welfare of the cheating government. By increasing the long-term cost of cheating in this way, governments would be able to enforce more efficient (lower) tariffs, even though such tariffs may be associated with a greater incentive to cheat.

While the "balance of terror" surely encourages governments to treat their WTO obligations with greater respect, it seems clear that the role of retaliation in WTO practice extends beyond the inducement of compliance. As noted, if compliance-inducement were the only purpose for retaliation in the WTO, then severe punishments would follow non-compliance. This simple prediction is hard to square with WTO remedy rules. According to Article 22 of the DSU, if a WTO member is found to have a measure that is in violation of its WTO obligations and fails to bring that measure into compliance within a reasonable period of time, and if the infringing Member and the complaining Member are unable to agree upon mutually acceptable compensation, then the complaining Member may request authorization to suspend concessions to the infringing Member. Article 22.4

of the DSU then indicates that the "level of the suspension of concessions or other obligations authorized by the DSB shall be *equivalent* to the level of the nullification or impairment" (italics added). WTO remedy rules thus evoke the principle of reciprocity and place *limits* on the extent of authorized retaliation.[8]

A second role for retaliation is that it may promote efficiency-enhancing *rebalancing* and thereby facilitate *efficient breach*.[9] This perspective emphasizes that trade agreements can be understood as incomplete contracts that are negotiated between governments with political-economic objectives in the presence of considerable uncertainty as to future political and market conditions. At the time of the original negotiation, for example, governments may agree to select efficient tariffs. Later on, however, market conditions or the political landscape may change and alter governments' welfare functions. The tariffs that governments regard as being efficient thus may change over time. In recognition of this possibility, governments may seek to design a trade agreement that is sufficiently flexible as to enable them to renegotiate the bargain over time. Under this perspective, retaliation may be useful as a means to increase the probability that renegotiation is efficiency enhancing for governments and not an opportunistic maneuver that benefits one government at the expense of another.

The economic theory of contract remedies suggests that contracts should be designed to encourage efficient breach and to discourage inefficient breach. An efficient breach occurs when the promisor is able to gain from the breach even after placing the promisee(s) in as good a position as the promisee(s) would have enjoyed had performance been rendered. Schwartz and Sykes (2002) and Sykes (2000) make a provocative case that GATT/WTO rules are designed to facilitate efficient breach. In this context, retaliation (i.e., the withdrawal of substantially equivalent concessions) could play an important role, if it serves as the means through which a government maintains its welfare in the event that another government "breaches" and withdraws a concession.

The key ideas can be more deeply explored in the context of the two-country setting described previously. Following an initial negotiation, suppose that a change in the political landscape leads the domestic government to value more heavily the well-being of its import-competing industry. After the change in political circumstances, the domestic government becomes more attracted to a higher local price for its import good, and the tariffs originally negotiated are no longer efficient. One approach would be to allow the domestic government to achieve a higher local price by unilaterally raising its tariff. This act, however, would also lower the world price of its import good and thereby impose a negative terms-of-trade externality on its trading partner. An approach that

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[8] As Lawrence (2003, pp. 35-6) observes, further evidence that remedies are not exclusively designed to induce compliance is apparent from the fact that the same remedy procedures (i.e., equivalent withdrawal of concessions if compensation fails) apply for both violation and non-violation complaints, even though under DSU Article 26.1 a WTO Member whose measure nullifies or impairs benefits without being in violation of the agreement is under no obligation to withdraw the measure.

[9] For further discussion of the rebalancing role of retaliation, see Bagwell and Staiger (1999, 2002 (Chapters 4-6)), Howse and Staiger (2005), Kohler (2004), Lawrence (2003), Schwartz and Sykes (2002) and Sykes (1991, 2000).

permits unilateral flexibility would thus encourage opportunistic behavior and lead to inefficient breaches. An alternative approach features commensurate retaliation: the foreign government is allowed to respond to the domestic government's tariff increase by reciprocally raising its own tariff to an equivalent degree. As discussed above, a reciprocal tariff adjustment preserves the terms of trade and thus ensures that the foreign country does not suffer a terms-of-trade loss. A renegotiation approach that features commensurate retaliation thus mitigates the scope for opportunism.

Unfortunately, however, as Lawrence (2003, pp. 36-9) correctly argues, such an approach does not guarantee that the welfare of the foreign government is maintained. Intuitively, commensurate retaliation preserves the terms of trade but requires an increase in the foreign tariff. Under commensurate retaliation, it thus follows that in each country the local price of the import good is higher relative to the local price of the export good than was the case at the originally negotiated tariffs. The resulting change in the local prices is associated with reduced trade volume. It is possible, however, that at the originally negotiated tariffs, the foreign government would prefer local prices that generate (weakly) more trade volume, given the terms of trade. In this case, even though commensurate retaliation preserves the terms of trade, it nevertheless alters local prices and thereby introduces an internal inefficiency that is suffered by the foreign government. Thus, there is no guarantee that the foreign government is "made whole" under a system that allows for commensurate retaliation, and as a consequence it cannot be concluded that all such renegotiations can be understood as efficient breaches.[10]

While a renegotiation process that features commensurate retaliation is therefore not a perfect means of facilitating efficient breach, it may be argued that such a process works well in a rough sense and thus enhances the extent to which a trade agreement can deliver efficient outcomes for its member governments. My discussion above addresses the possibility that such a process may enable governments to achieve more efficient outcomes in an *ex post* sense (i.e., after an unanticipated shock is experienced). It is also true that such a process may generate efficiency benefits at an *ex ante* level. Governments may be more willing to liberalize aggressively, if they know the process is sufficiently flexible to allow for (non-opportunistic) renegotiation when circumstances change.[11]

The rebalancing role for retaliation suggests an interpretation of GATT/WTO rules and remedies. First, GATT/WTO rules allow that governments may undertake a renegotiation in a manner that is consistent with their GATT/WTO obligations. GATT Article XXVIII, in particular, allows a country to withdraw concessions and entitles its trading partner (or partners) to withdraw "substantially equivalent concessions." Second, if a WTO Member is found in violation of its obligations and elects not to comply and

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[10] Note that, conditional on the increase in the domestic tariff, the foreign country does better by retaliating in a commensurate way than by not retaliating. This is because the act of retaliation restores the terms of trade. As discussed in the text, the foreign government may have done better yet if the domestic tariff were not raised to begin with. My discussion here invokes an assumption that the retaliatory tariff is not so high as to rise above the foreign government's "best response" tariff.

[11] For an early statement of this point, see Dam (1970, p. 80). Bagwell and Staiger (1990) and Sykes (1991) develop the point further with reference to the escape clause provided by GATT Article XIX.

any attempts at compensation fail, then as noted previously Article 22.4 of the DSU allows that the complaining Member may be granted authorization to suspend concessions to an "equivalent" degree. Despite the fact that these scenarios differ in terms of the legality of the initial measure, they describe a remarkably similar economic process; in both scenarios, one party may withdraw a concession (raise a tariff, e.g.) and instigate thereby the withdrawal of an equivalent concession from its trading partner.[12] A key point is that in both scenarios the extent of retaliation is limited to be of an equivalent degree. I remarked earlier that the compliance-inducement role for retaliation is difficult to reconcile with the emphasis on commensurate retaliation found in GATT/WTO rules. By contrast, the rebalancing role of retaliation offers a possible interpretation under which commensurate retaliation facilitates (albeit imperfectly) efficient breach.

Having described a political-economic framework within which to contemplate the purpose and design of the WTO, I now turn to consider proposed reforms of the WTO remedy system. Building on the preceding discussion, I begin by considering whether the remedy system might function better were changes made that allowed for disproportionate retaliation and monetary compensation. I then consider the advantages and disadvantages of tradable retaliation rights. Finally, I comment on the economic rationale (or lack thereof) for the *SCM Agreement* and suggest as well modifications to the treatment of remedies in this agreement.

3. *Disproportionate Retaliation and Monetary Compensation*

The DSU of the WTO employs a compliance-compensation-retaliation remedy system. The essential sequence is described in DSU Article 22 and may be briefly summarized as follows. In the event that a WTO Member is determined to have a measure that is inconsistent with its WTO obligations, the preferred solution is that it comply and bring its measure into conformity. The Member concerned, however, may fail to bring its measure into compliance within a reasonable period of time. In the event that compliance is not forthcoming, the infringing Member may enter into negotiations with the complaining Member and explore the possibility of mutually acceptable compensation. Finally, if mutually acceptable compensation is not agreed upon, the complaining Member may request authorization from the Dispute Settlement Body (DSB) to suspend concessions or other obligations as they apply to the infringing Member.

Most commentators agree that the compliance record has been good. With some very important exceptions, parties that are subject to adverse rulings bring their offending measures into compliance with their WTO obligations, or at least do so to a sufficient extent that the complaining party accepts the implementation.[13] The compensation option

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[12] The two scenarios are different in other respects. The suspension of concessions under Article 22.4 of the DSU provides that the complaining party can use discriminatory tariffs on a temporary basis, whereas renegotiation under GATT Article XXVIII seems to refer to a permanent rescheduling of nondiscriminatory tariffs. I return to this distinction in the next section. For further discussion of GATT Article XXVIII, see Mavroidis (2005, pp. 87-102).

[13] Davey (2005) considers the 181 disputes started with a consultation request prior to July 1, 2002. Of the 63 disputes for which panel reports were adopted as of September 2005 and the dispute was won by the

has been used very rarely, although it is possible that parties agree upon compensation without formally notifying the WTO.[14] Finally, retaliation is not often used, but it has been authorized and used in a few high-profile cases. To this point, it thus appears that rebalancing in the WTO dispute settlement system has occurred more often through the suspension of concessions (i.e., the use of countermeasures) than through compensation.

According to DSU Article 22.1, compensation "is voluntary and, if granted, shall be consistent with the covered agreements." Compensation is normally envisioned as trade compensation, whereby the infringing Member compensates the complaining Member by reducing tariffs on other goods. In light of the MFN provisions contained in GATT Article I:1, it is broadly accepted that trade compensation must be offered on a nondiscriminatory (MFN) basis.[15] Other forms of compensation are not precluded, however, and parties are free to pursue monetary compensation as well. In fact, monetary compensation was agreed upon in the *US-Copyright* case as part of the DSU Article 25 Arbitration proceedings. This case seems to indicate that monetary compensation need not be granted on an MFN basis.[16] The suspension of concessions is permitted only on a discriminatory basis.

Many commentators express disappointment that compensation is rarely used as a WTO remedy. Observed behavior suggests that the infringing Member may prefer to suffer the possibility of authorized retaliation than to offer acceptable compensation. This has led to proposals that retaliation be made more severe and that compensation be made more appealing. In this section, I consider two aspects of this debate. I first explore the case for more severe countermeasures. I then consider whether the use of monetary compensation should be further encouraged.

3a. Disproportionate Retaliation

In the preceding section, I discuss the extent to which commensurate retaliation facilitates efficient breach. As noted there, in a simple setting with two goods, two countries and import tariffs as the only trade-policy instrument, if the domestic government experiences a change in political circumstances and raises it tariff, then the foreign government can maintain the terms of trade by withdrawing an equivalent concession of its own. The

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complainant, in only 16% of the disputes (a total of 10 disputes) was there no implementation or a disagreement between the parties with regard to the implementation. Bagwell, Mavroidis and Staiger (2006a) consider bilateral disputes through June 30, 2003 and focus on those in which implementation did not occur and the complainant had the option to request and impose countermeasures. Their analysis highlights that countermeasures had not been applied by developing countries, even when faced with non-implementation.

[14] As discussed below, compensation was agreed upon in the *US-Copyright* case. For additional discussion of the *US-Copyright* case, see also Grossman and Mavroidis (2003) and O'Connor and Djordjevic (2005).

[15] It is conceivable, though, that compensation could occur on a discriminatory basis, if the infringing Member were to offer a reduction in a legal but discriminatory measure (e.g., a legitimate anti-dumping duty) as compensation.

[16] Bronckers and van den Broek (2005) and Davies (2006) offer arguments in support of the view that the DSU allows for monetary compensation that is not granted on an MFN basis. O'Connor and Djordjevic (2005) express some reservations about this interpretation, however.

welfare of the foreign government is not preserved, however, since the local prices in the foreign country are changed as a consequence of the increase in the foreign tariff. In other words, commensurate retaliation preserves the terms of trade but results in a reduced trade volume. Hence, if at the originally negotiated tariffs the foreign government would have preferred (weakly) more trade, given the terms of trade, then commensurate retaliation leaves the foreign government with less welfare than it would have enjoyed at the initially negotiated tariffs.[17]

In this situation, a remedy system that allows for disproportionate retaliation has some theoretical appeal. If the foreign government were to withdraw a greater-than-equivalent concession, then it would enjoy improved terms of trade at the post-retaliation tariffs relative to the initially negotiated tariffs. This terms-of-trade gain could then compensate the foreign government for the change in local prices and resulting diminished trade volume. In principle, if a disproportionate countermeasure of the right size were selected, then the foreign government's welfare could be preserved. The domestic government would then only breach its commitments, thus initiating the retaliatory sequence, if it achieved higher welfare after retaliation than at the initially negotiated tariffs. Thus, when disproportionate retaliation is allowed, it is possible that any breach would be efficient.[18]

A novel conclusion suggested by this line of reasoning is that the optimal degree of disproportion should vary with the level of the initial violation. All else equal, if the breach of the domestic government involves the withdrawal of a larger concession, then after withdrawing a substantially equivalent concession and preserving the terms of trade the foreign government would suffer a larger trade volume reduction. A bigger terms-of-trade gain would then be required to maintain the foreign government's welfare, and all else equal a more disproportionate countermeasure would thus be required.[19]

At a practical level, however, the potential appeal of a dispute settlement system that facilitates efficient breach in this way is subject to two important qualifications. The first qualification concerns the application of such an approach to a more realistic setting in which trading patterns involve multiple countries. As previously discussed, the non-

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[17] The remaining case – where the foreign government prefers less trade given the terms of trade – is of course also possible. Arguably, this case represents a less likely starting point, however. At such tariffs, the foreign government would have incentive to withdraw a concession and induce a substantially equivalent withdrawal from the domestic government, as it then obtains less trade without altering the terms of trade. The foreign government could accomplish this, for example, through a renegotiation under GATT Article XXVIII or by undertaking its own violation and causing an equivalent suspension of concessions under WTO dispute settlement procedures.

[18] Retaliation in the WTO is prospective and is authorized only after a sometimes lengthy judicial process; thus, in principle, a remedy system with disproportionate retaliation might also facilitate efficient breach by generating a post-retaliation terms-of-trade gain for the complaining Member that could offset the terms-of-trade loss experienced by this Member over the time following the initial imposition of the offending measure and preceding the authorization of retaliation.

[19] By the same logic, for smaller violations, commensurate retaliation becomes more attractive. Under the assumption that governments negotiate to their "politically optimal" tariffs (as defined in Bagwell and Staiger (1999, 2002 (Chapter 5), 2005a)), Howse and Staiger (2005) argue that commensurate retaliation facilitates efficient breach in an approximate sense when the initial violation is sufficiently small.

discrimination rule (MFN) and the principle of reciprocity work well together, in the sense that under plausible trading patterns bilateral trade-policy adjustments that satisfy MFN and reciprocity leave unaltered other countries' terms of trade and thus impose no "third-party" externalities on the governments of these countries.[20] Renegotiation as allowed under GATT Article XXVIII can be reasonably expected to occur on an MFN basis and satisfy the principle of reciprocity; thus, it has the attractive feature of preserving the welfare of governments not participating in the renegotiation.[21] By contrast, the WTO dispute settlement system authorizes retaliation that takes a discriminatory form. If retaliation were also disproportionate, then the principle of reciprocity would fail as well. Third-party externalities are thus expected under the existing rules for authorized (discriminatory) retaliation, and the possibility is raised that a modified system with disproportionate retaliation might increase the extent to which such third-party externalities occur. At the same time, it is also possible that a modified system with discriminatory and disproportionate retaliation could generate *positive* third-party externalities.[22] At this stage, it thus seems fair to conclude that the potential third-party externalities that might be encouraged by a system with disproportionate retaliation are poorly understood and require further research.

As Howse and Staiger (2005) also emphasize, the second and perhaps more fundamental qualification concerns the measurement of the welfare-preserving disproportionate countermeasure. The welfare function of the foreign government is influenced by political and economic considerations, and it would seem virtually impossible to determine the precise terms-of-trade improvement that is required to offset the subtle political-economic welfare effects of altered local prices. To make such a determination, the arbitrator as usual would need to assess the trade effects of the original measure and the induced (and now disproportionate) suspension of concessions; in addition, the arbitrator would now need to understand how changes in trade volumes interact with political pressures and economic adjustment costs in the foreign country and thereby translate into changes in the foreign government's welfare.[23]

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[20] For a proof of this result, see Bagwell and Staiger (2002 (Chapter 5), 2005a).

[21] For further discussion of GATT Article XXVIII, see Mavroidis (2005, pp. 87-102).

[22] In the three-country model described previously, for example, foreign country 1 would enjoy a terms-of-trade gain if the home government raised its MFN tariff and the government of foreign country 2 retaliated in a disproportionate way, as the world price of foreign country 1's import good would then fall more than that of its export good. For empirical evidence consistent with the existence of substantial third-party terms-of-trade externalities, see Bown and Crowley (2006, forthcoming) and Chang and Winters (2001).

[23] As Spamann (2006) argues, arbitrators seem already to face significant difficulties in determining commensurate retaliation, and especially so in cases that do not involve tariff measures. Under DSU Article 22.4, the level of retaliation should be equivalent to the level of nullification or impairment. Spamann (2006, p. 34) explains that WTO arbitration proceedings and decisions endorse the use of "trade effects" in determining equivalence. This use is consistent with the definition of reciprocity employed in Bagwell and Staiger (1999, 2002 (Chapter 4), 2005a) and in my discussion above. See also Howse and Staiger (2005) for further discussion of the relationship between the measurement of trade effects at original exporter prices and the principle of reciprocity. Spamann argues, however, that arbitrators often use different methods of calculating trade effects when considering impairment and suspension, respectively, and in practice significantly miscalculate the level of impairment.

In sum, a modified dispute settlement system that allows for disproportionate retaliation has potential theoretical appeal as a means of facilitating efficient breach in bilateral disputes. At a practical level, however, the implications of such a system for third-party government welfare require further consideration, and the effectiveness of such a system in even a purely bilateral context is uncertain due to the high information and measurement demands that would be placed upon arbitrators.

3b. Monetary Compensation

I consider now whether the compensation option might be more attractive if monetary rather than trade compensation were used. Recent events suggest a growing perception that monetary compensation might play a valuable role. As Davies (2006, pp. 40-1) reports, as part of the proposals submitted in connection with the DSU review, a number of developing countries have encouraged greater use of monetary compensation. Monetary compensation was also recently used in the *US-Copyright* case, as noted above. Additionally, the US has entered into free trade agreements that grant monetary compensation under certain conditions.[24]

One potential advantage of monetary over trade compensation is that monetary compensation may be a more efficient instrument with which to achieve welfare transfers across governments. The domestic government can transfer welfare to the foreign government by cutting a domestic tariff (trade compensation) or permitting a higher foreign tariff (retaliation). In each case, the transfer occurs through the induced change in the terms of trade. The tariff changes may also alter local prices, however, and thereby introduce internal inefficiencies. In principle, a monetary transfer may then be preferred. As Sykes (2005a) correctly argues, however, governments face budget constraints and taxes may be required to finance such a monetary compensation. The use of taxes, in turn, may introduce distortions into the economy. Thus, while welfare transfers across governments may be most efficiently achieved using monetary compensation, this advantage may be smaller than is often presumed.

A second potential advantage of monetary compensation is that this form of compensation may limit the scope for third-party externalities. In particular, Davies (2006) argues that a potential limitation of trade compensation is that it must be extended on a non-discriminatory basis. It is thus possible that trade compensation is rarely used, since compensation of this kind would typically require that an infringing government reduce an MFN tariff and thereby extend benefits to the complaining government as well as all other third-party governments whose countries export the relevant product. By contrast, monetary compensation can be offered on a purely bilateral basis. By ensuring that the benefits associated with the compensatory action are exclusively received by the complaining government, a dispute system that features monetary compensation may

[24] The texts of these agreements are available on the web pages of the USTR at http://www.ustr.gov/Trade_Agreements/Bilateral/Section_Index.html

better enable the infringing and complaining governments to negotiate mutually acceptable compensation.[25]

Some argue that a disadvantage of monetary compensation is that it is infeasible, since damages are difficult to calculate.[26] This problem does not seem insurmountable, however. In current practice, an assessment must be made as to the level of nullification or impairment that is caused by a WTO-inconsistent measure. This calculation is usually made on the basis of the trade effects of the measure (i.e., the value of lost trade). The calculation in turn informs the level of permitted retaliation, which should entail an "equivalent" withdrawal of concessions. In principle, the same nullification-or-impairment calculation could be used in determining the level of monetary compensation, and indeed the arbitrators in the *US-Copyright* case proceeded in this way. If anything, the necessary calculations might be easier when monetary compensation is agreed upon than when a level of authorized retaliation is determined. In the latter case, an assessment also must be made as to whether the concession withdrawal under consideration would induce trade effects that were equal to the level of nullification or impairment.

It is also sometimes argued that monetary compensation is not enforceable. The concern here is that a government that refuses to comply and bring its measure into conformity with its WTO obligations may also refuse to offer monetary compensation. This concern is real and suggests that it would be unwise to make any change in the dispute settlement system under which monetary compensation would become mandatory. A more sensible approach would be to follow the existing dispute settlement system and provide that the offending government would face the possibility of authorized retaliation if it did not provide acceptable (monetary or trade) compensation.[27] If monetary compensation is more attractive to the disputants than trade compensation, it is possible that the infringing government might sometimes prefer monetary compensation to retaliation even if it would prefer retaliation to trade compensation. To the extent that monetary compensation facilitates rebalancing in a more efficient manner than does retaliation, it is thus possible that greater use of monetary compensation would improve the functioning of the dispute settlement system.

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[25] Consider the three-country model examined previously. Suppose that the government of foreign country 2 raises its tariff and thereby violates its WTO obligations, and that the government of the home country is authorized to undertake an equivalent and discriminatory tariff increase. The government of foreign country 1 would then enjoy a welfare gain: its country experiences a terms-of-trade gain, since the initial tariff hike lowers the world price of its import good and the retaliatory tariff hike raises the world price of its export good. Suppose now that the government of foreign country 2 provides monetary compensation to the home-country government and avoids thereby the imposition of a retaliatory tariff hike. The government of foreign country 1 would still gain, due to the initial tariff hike; however, its gain would now be reduced, due to the elimination of the retaliatory tariff hike. Thus, in this case, a system that utilizes monetary compensation limits the scope for *positive* third-party externalities. Monetary compensation may thus facilitate efficient breach. Bagwell and Staiger (2006b) explore related themes and suggest that monetary compensation that is offered in exchange for tariff *liberalization* can impose negative third-party externalities and lead to inefficiencies.

[26] I won't attempt to list and evaluate all of the suggested advantages and disadvantages of monetary compensation. For a more extensive discussion, see Bronkers and van den Broek (2005) and Davies (2006).

[27] For further discussion of the enforcement of monetary compensation, see Bagwell and Staiger (2005b), Limao and Saggi (2005), Matsushita (2005) and Sykes (2005a).

While the retaliation backstop may facilitate the enforcement of monetary compensation among large countries, the threat of retaliation may be much less persuasive when a smaller country wins a dispute against a larger country. A small-country complainant thus may not have sufficient power to induce monetary compensation from a trading partner whose measure is found to be in violation of its WTO obligations. Thus, a system that features monetary compensation could introduce a fairness concern, to the extent that such a system would bring benefits that would be enjoyed mainly by large-country complainants. This concern motivates the consideration of tradable retaliation rights, to which I turn in the next section.

In sum, the increased attention that is being given to monetary compensation is probably a positive development. In the main, monetary compensation represents an additional and perhaps more efficient instrument that governments may use to achieve efficiency-enhancing rebalancing. Dispute settlement reforms that promote the use of monetary compensation may thus be attractive.[28]

4. Tradable Retaliation

As a last resort, the WTO dispute settlement procedures authorize a complainant country to retaliate against a trading partner who is in violation of its WTO obligations. If the trading partner brings its measure into compliance, or offers acceptable compensation, then the retaliation option is not activated. But the threat of retaliation cast a shadow even when it does not occur. The violating trading partner is more inclined to comply or offer suitable compensation if the threat of retaliation is significant. In turn, the threat of retaliation may have little significance to the violating trading partner if the complainant country is relatively small. This conclusion emerges directly from the analytic framework presented in Section 2. In the extreme case where the complainant country is truly small, any retaliatory tariff that might be imposed by this country would have no effect on world prices and would thus leave the terms of trade – and hence the welfare of the government of the violating trading partner – unaffected. A complainant country in this situation is unable to effectively retaliate, should retaliation be authorized, and is therefore also in a poor position to use the threat of retaliation as a means to induce compliance or achieve an acceptable offer of compensation.[29]

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[28] For example, as Fukunaga (2006, pp. 413-4) suggests, compensation might be more feasible if arbitral procedures similar to those in Article 22.6 were introduced so as to determine the level of nullification and impairment and thereby provide guidance for parties at an earlier stage when they may be seeking to determine an acceptable level of compensation. Fukunaga (2006, p. 414) notes that some countries have made proposals for an amendment that would explicitly allow the complaining member to request an arbitrator to determine the level of nullification or impairment.

[29] Bown (2004a,b) reports empirical findings that are consistent with the idea that retaliation is less effective for smaller countries. Bagwell, Mavroidis and Staiger (2006a) examine all disputes brought before the WTO from its inception on January 1, 1995 through June 30, 2003 and also report consistent evidence. They do not find any dispute in which a developing country (defined as a non-OECD member) imposed countermeasures to induce compliance even when faced with non-implementation.

As a consequence of such considerations, many small and developing countries have expressed frustration with their ability to utilize the WTO dispute settlement procedures in an effective fashion. Some of the key concerns are expressed with particular force in a DSU reform proposal submitted by Mexico (WTO, 2002). Mexico proposes several changes, but perhaps the most provocative proposal is that the right of retaliation be made tradable. To see what this might entail, suppose that the government of some country wins a ruling against a trading partner and is thus authorized to suspend concessions to this partner up to a level that is equivalent to the level of nullification or impairment. Suppose further that the government of this country is unwilling to retaliate itself. This supposition is especially plausible for the government of a small country, since the full effect of the retaliatory tariff would then be passed through to the local price of the import good. If retaliation rights were tradable, such a country could trade the right of retaliation to another country that might value and utilize this right. As Mexico explains, "…this concept might help address the specific problem facing Members that are unable to suspend concessions effectively." (WTO, 2002, p. 6)

As Bagwell, Mavroidis and Staiger (2006b) argue, the problem of ineffective retaliation that confronts small and developing countries may be interpreted in two very different ways. The first interpretation is dismissive. According to this interpretation, in a reciprocal trade negotiation, the government of a country receives the benefit of a reduced tariff from its trading partner and likewise offers to its trading partner the benefit of a reduction in its own tariff. Of course, if the government has the ability to offer such a benefit, then it similarly is able to achieve effective retaliation by withdrawing this benefit. Thus, the problem of ineffective retaliation can arise only for governments that anyway have not offered any real benefits in prior negotiations. The second interpretation is accommodative and stresses that the world community may have a special interest in the welfare of small and developing countries. Advocates of this interpretation might also stress that small and developing countries often value heavily the growth of their export industries; as a consequence, if a developed country violates its WTO obligations and restricts access to its market, the government of a small and developing country may suffer a significant welfare loss even after the application of commensurate retaliation.

The Mexican proposal highlights two potential benefits that tradable retaliation rights might provide. First, such a system might facilitate the rebalancing of concessions, by ensuring that the harmed country receives some compensation in exchange for its right to retaliate. Second, such a system might also improve the incentive for compliance, since the government of an infringing country is more likely to bring its policies into conformity with its WTO obligations when a greater prospect of effective retaliation exists. Bagwell, Mavroidis and Staiger (2006b) suggest a third potential benefit: a system with tradable retaliation rights may ensure that an existing right of retaliation is more efficiently allocated, by increasing the likelihood that the WTO Member who exercises this right is also the Member who values the right most highly.

It is possible to imagine several ways in which trade in retaliation rights might be structured. The Mexican proposal does not offer any specific recommendations with regard to the structure of trade in retaliation rights. Bagwell, Mavroidis and Staiger

(2006b) explore the case of auctioning countermeasures in the WTO.[30] Their main points can be understood with reference to the three-country model discussed previously. Imagine that the government of the home country violates its WTO obligations and thereby nullifies or impairs the benefits of some small and developing country. The small and developing country brings the case before the WTO and ultimately wins the right to retaliate. It thus has the right to suspend concessions against the home country up to the level of the nullification or impairment. Suppose, though, that it puts this right up for sale and conducts an auction. The governments of foreign countries 1 and 2 are two of the potential bidders in this auction. Each of these countries imports the home country's export good and is able to retaliate effectively and impose a terms-of-trade loss on the home country. The government of the home country is another potential bidder. Rather than face retaliation from foreign country 1 or 2, the government of this country may prefer to win the auction and retire the right of retaliation against it.

In this context, Bagwell, Mavroidis and Staiger (2006b) consider two auction formats. In the *basic auction*, the governments of foreign countries 1 and 2 are the only bidders. The high bidder wins and exercises the right of retaliation. If neither foreign government is willing to place a bid, then the right of retaliation is not sold and no retaliation occurs. In the *extended auction*, by contrast, the government of the home country is also allowed to bid. The high bidder again wins, with retaliation occurring if the government of a foreign country wins and no retaliation occurring if the government of the home country wins.

The potential benefits of tradable retaliation rights can be assessed in this modeling framework. In broad terms, greater expected revenue for the small and developing country may be associated with an improvement in the extent to which concessions are rebalanced. Likewise, the incentive for compliance may be measured in terms of the welfare cost inflicted on the government of the home country. Finally, efficiency can be assessed by examining the impact of the different auction formats on the combined welfare of the affected governments.

The analysis assumes that the government of each foreign country has some private information as to the extent to which it would value the right to impose a higher tariff. In particular, each foreign government is privately informed about the weight that it attaches to the profits of import-competing firms in its welfare function. A government with a higher political-economy shock weighs the profits of import-competing firms more heavily in comparison to consumer welfare than does a government with a lower political-economy shock.[31] Bagwell, Mavroidis and Staiger (2006b) show that the government of each foreign country would prefer that the other foreign government win the auction and retaliate over the alternative that no retaliation is imposed. The simple intuition is that both foreign countries enjoy a terms-of-trade gain when retaliation by

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[30] For a non-technical summary, see also Bagwell, Mavroidis and Staiger (2006a).

[31] In the formal model, the political-economic shock corresponds to a parameter that is continuously distributed over an interval. Each foreign government privately observes its realized shock. Below, I sometimes refer to the realized shock as being "high". This means that the parameter belongs to a sub-interval containing the highest possible realizations. Similar remarks apply when the words "low" and "intermediate" are used.

either foreign government is imposed, since retaliation lowers the world price of their common import good. Whether a foreign government would prefer to win the right of retaliation over the alternative that the other foreign government wins this right then depends on the former government's political-economic shock. Intuitively, a foreign government with a higher shock expects a greater gain from winning the auction and exercising the right of retaliation, since such a government gains more by retaliating and raising the local price of its import good.

In the basic auction, as Bagwell, Mavroidis and Staiger (2006b) show, these features can lead to novel bidding behavior. At one extreme, a foreign government bids aggressively and hopes to win the right of retaliation when it has a high political-economic shock. At the other extreme, when a foreign government has a low political-economic shock, it is particularly attentive to the interests of its consumers and elects not to bid for the right to retaliate. A foreign government with a low shock thus free rides, as it gambles that the other foreign government will make a bid, win the right to retaliate and thereby generate a terms-of-trade gain for both foreign countries. Finally, when a foreign government has a political-economy shock that falls in an intermediate interval, it bids at the minimal level (i.e., at the reserve price) in order to ensure that some government bids and thus that retaliation actually occurs. Such a government, though, hopes that the other foreign government has a high political-economic shock and thus bids aggressively and exercises the right to retaliate.

The basic auction allocates the right of retaliation among foreign governments in an efficient manner (i.e., to the foreign government with the highest political-economic shock) when at least one foreign government has a high political-economic shock. Otherwise, it may fail to allocate the right of retaliation efficiently. For example, if both foreign governments have political-economic shocks that fall in the intermediate interval, then they both bid at the reserve price. The right of retaliation is then allocated at random, even though one foreign government may have a moderately higher political-economic shock than the other. Further, if both governments have a low political-economic shock, then neither bids, and "auction failure" occurs. This occurs because each foreign government then elects to free ride on the bidding of the other, with the result being that the public good of an improved terms of trade is not provided.

It is sometimes argued that a system with tradable retaliation rights would not work, because governments would not pay for the right to retaliate. This conclusion follows directly if retaliation amounts to "shooting oneself in the foot." In the analytic framework discussed in this paper, however, once governments have reciprocally lowered their tariffs to efficient levels, each government would value an opportunity to raise its tariffs somewhat, if it could do so unilaterally (i.e., without inducing retaliation). Thus, the terms-of-trade theory of trade agreements suggests that governments of large countries would be tempted by the prospect of purchasing the right to retaliate. In the basic auction just described, governments nevertheless sometimes fail to bid for this right. The reason that auction failure happens is not that each government fails to value the right of retaliation. Instead, auction failure happens when the foreign governments both have low

political-economic shocks, because they each then prefer most an outcome in which the other foreign government retaliates.

In the extended auction, the home government is allowed to bid to retire the right of retaliation against it. Bagwell, Mavroidis and Staiger (2006b) argue that the home government can be expected to win this auction, since it suffers the full cost of diminished terms of trade when retaliation occurs. By contrast, each foreign government shares in the benefit of improved terms of trade when one foreign government retaliates. The foreign governments thus have a public good problem and tend to bid less aggressively than the home government. Hence, in the extended auction, the home government outbids the foreign governments and retires the right of retaliation against it. In the extended auction, then, retaliation does not occur, and the home country gives monetary compensation to the small and developing country.

It is interesting to relate this prediction to the discussion at the end of the previous section concerning the enforceability of monetary compensation. That discussion raised the concern that monetary compensation from an infringing large country to a small complainant country could be difficult to enforce, since the small complainant country could not effectively use the threat of authorized retaliation. The extended auction provides a way past this concern. Intuitively, the infringing large country may pay monetary compensation to a small complainant country, if the alternative is that another large country might win the right of retaliation against the large infringing country. Thus, the extended auction offers a potential means of enforcing credible monetary compensation from powerful to less powerful countries.

The two auction structures may be evaluated with respect to the three potential benefits mentioned above. Bagwell, Mavroidis and Staiger (2006b) show that the extended auction generates more expected revenue for the complainant country. In this sense, rebalancing of concessions is facilitated to a greater extent when the government of the infringing country is allowed to bid to retire the right of retaliation against it. On the other hand, they show that the compliance and efficiency criteria favor the basic auction under some circumstances. Thus, the analysis suggests that the ranking of different auction structures depends critically on the kinds of benefits (rebalancing, compliance, efficiency) that are sought.

Bagwell, Mavroidis and Staiger (2006b) highlight the benefits that tradable retaliation rights might provide and consider the extents to which these benefits might be better provided by one auction format than another. This work provides formal input that may be useful when contemplating the larger question of whether tradable retaliation rights should be introduced into the WTO dispute settlement system. They do not claim to answer this question, though, since a system with tradable retaliation rights would generate additional costs and benefits that are not included in their formal analysis. One un-modeled benefit is that the prospect of auction revenue might enable a small and developing country to attract private legal support for WTO legal actions that it would not otherwise be able to afford. Under the heading of un-modeled costs, it is important to list the possibility that the revenue generated by auctions could result in nuisance cases

and excessive use of the WTO dispute settlement system. Another potential cost is that a system of tradable retaliation rights might cause bilateral trade tensions to grow into multilateral tensions. Acrimony across governments could grow, and future negotiations could be undermined.

In sum, Mexico's proposal for tradable retaliation rights is interesting and worthy of serious study. One attractive feature of this general idea is that an extended auction, in which the violating country is allowed to bid to retire the right of retaliation against it, might motivate a large country to offer monetary compensation to a small and developing country. The proposal, however, has potentially far-reaching consequences that are at present not fully understood. The costs of a system with tradable retaliation rights could well exceed the benefits. At this stage, I therefore caution against any explicit change in the DSU to accommodate tradable retaliation rights.

5. Subsidies

International disputes over subsidies are now a prominent feature of the world trading system. In some respects, this is not surprising, since the appropriate treatment of subsidies in an international trade agreement is not obvious. A domestic production subsidy, for example, can be a "first-best" instrument with which to address a market failure that leads to under-production. A domestic subsidy might also be valuable to a government with political-economic objectives, as an instrument that enables the government to redistribute income toward producers in a favored industry. At the same time, some disciplines on domestic subsidies are clearly needed, since otherwise any market access concession that is achieved through tariff negotiations could be eroded by a subsidy to firms in the import-competing industry. Export subsidies are similarly perplexing. An export subsidy lowers the price of the export good on the world market and thus improves the terms of trade of the importing country. By this logic, the government of the importing country should send a "note of thanks." But an export subsidy may also displace exports from firms in other countries, and thereby upset the market access expectations held by other exporting governments.

In this section, I offer a brief review of GATT and WTO rules on subsidies and countermeasures. I then present economic assessments of the treatment of domestic and export subsidies, respectively, under GATT and WTO rules.

5a. GATT and WTO Rules on Subsidies and Countermeasures

Under GATT rules, subsidies were treated in a fairly tolerant manner. GATT rules provided two key mechanisms by which a government could respond to the subsidies of a trading partner: countervailing duty (CVD) measures and non-violation nullification or impairment complaints.[32] In particular, if the subsidy were offered to exporting producers, then a government whose import-competing industry consequently suffered material injury could unilaterally impose a CVD against the subsidized exports, where

[32] For further discussion of the evolution of subsidy rules in GATT and the WTO, see Sykes (2005b).

the magnitude of the CVD response was calibrated to the size of the subsidy. If instead the subsidy were offered to import-competing producers, then a government that had previously negotiated a tariff binding on the product in question with the subsidizing government could make a non-violation complaint. For such a complaint to succeed, the government would have to establish that a new subsidy program was introduced that nullified or impaired the market access expectations associated with prior tariff commitments and that could not have been reasonably expected at the time these commitments were negotiated.[33] The subsidizing government would then be expected to make a policy adjustment that returned market access to its original level; however, the subsidizing government would be under no obligation to remove the subsidy. Under GATT negotiations, several signatories also agreed to reduce the use of export subsidies, particularly for non-primary products.

In the WTO, the *SCM Agreement* represents a considerable strengthening of disciplines on subsidies as compared to those found in GATT. The *SCM Agreement* divides such subsidies into three groups. First, except as otherwise provided for in the *Agreement on Agriculture*, export subsidies and local-content subsidies are completely prohibited. Second, actionable subsidies are "specific" subsidies that cause "adverse effects" to the interests of other Members. Adverse effects can take any of three forms: (1) injury to a domestic industry, (2) nullification or impairment of benefits, and particularly as those benefits arise through negotiated tariff concessions, or (3) "serious prejudice" to the interests of another Member. A third category of non-actionable subsidies has expired.

The first two forms of adverse effects are familiar from GATT law as described above and are associated with the use of CVDs and non-violation complaints. The concept of serious prejudice is more novel. Serious prejudice may arise if the effect of the subsidy is to cause a loss of exports by another Member into either the home market of the subsidizing Member or a third-country market. In contrast to preceding GATT law, the *SCM Agreement* allows that a domestic subsidy may be actionable independently of whether it nullifies or impairs market access expectations associated with a prior tariff commitment. Indeed, a domestic subsidy may now be actionable even if the relevant product is not subject to a tariff binding or the subsidy already existed at the time of any negotiated tariff commitment.

With respect to remedies, the *SCM Agreement* (Article 4.10) indicates that the complaining Member is entitled to take "appropriate countermeasures" if the Member in violation refuses to comply and remove an export subsidy or local-content subsidy. The meaning of this phrase, and it accompanying footnote, is not entirely clear.[34] Given that export subsidies are prohibited outright, arbitrators have suggested that appropriate countermeasures should be different in nature, and more severe, than would be indicated by the principle of equivalence as used in DSU Article 22.4. As Lawrence (2003, pp. 54-

[33] Several early GATT Working Party and Panel reports clarified the conditions under which a subsidy could be determined to upset market access expectations. In effect, these conditions cover the introduction of a new or increased subsidy that was not previously included in a GATT schedule and that diminishes market access. See Petersmann (1997, pp. 151-4) for further discussion.

[34] For further discussion, see Lawrence (2003, pp. 54-60), Mavroidis (2000) and Spamann (2006).

60) details, in the *Brazil-Aircraft* Arbitration and the *United States-FSC* Arbitration, the Arbitrators decided on a level of countermeasure that corresponded to the total amount of the subsidy as opposed to the (smaller) trade effects induced by the subsidy. The Arbitrators went even further in *Canada-Aircraft II*. Following the previous two cases, they used the total amount of the subsidy as the basis for authorizing countermeasures; however, they then added an additional 20%. After reviewing the Arbitrators' reasoning and decisions in these cases, Lawrence (2003, p. 58) concludes

"According to these views, therefore, when it comes to export subsidies, the WTO has implicitly moved away from the paradigm of reciprocity that guides the rest of the agreement. Export subsidies are different because there is no reference to their trade effects in the SCM. Individual members may undertake responses in excess of the value of trade they have lost. When export subsidies are involved, violators should not have a mechanism for legal breach." (footnote omitted)

In short, for export subsidies, violations are regarded more as "crimes" than "breaches," and the role of retaliation appears to be more about inducing compliance than about facilitating efficient breach.

A different approach to remedies is used for actionable subsidies. If the Members involved cannot reach a mutually agreed solution, the *SCM Agreement* (Article 7.8) provides that the subsidizing Member "shall take appropriate steps to remove the adverse effects or shall withdraw the subsidy." In the absence of an agreement on compensation, and if steps to remove the adverse effects or the subsidy itself are not taken, then the *SCM Agreement* (Article 7.9) provides that "the DSB shall grant authorization to the complaining Member to take countermeasures, commensurate with the degree and nature of the adverse effects determined to exist." This language seems to suggest that countermeasures for actionable subsidies should be based on the level of injury rather than the level of subsidy.[35]

This brief summary of the legal environment would seem to suggest that subsidies, and especially export subsidies, are quite harmful to the world trading system. Export subsidies are prohibited outright, and case law suggests that disproportionate retaliation is, in practice, the "appropriate countermeasure." Domestic production subsidies are apparently less bad than export subsidies but still worthy of special condemnation. A government that uses such a production subsidy must withdraw it, or at least remove its adverse effects, even if the subsidy does not erode any market access expectation associated with an earlier tariff negotiation. By contrast, import tariffs are legal, and governments negotiate tariff bindings with the understanding that violations lead to commensurate retaliation that preserves the balance of market access commitments. It therefore may be expected that the economic case for disciplines on the use of subsidies, and especially export subsidies, is stronger than the economic case for disciplines on the use of import tariffs. I will argue, however, that the truth is just the opposite.

[35] The *SCM Agreement* (Article 11.2) also disciplines the unilateral use of CVDs, as it provides that CVDs may be imposed only when an investigation has confirmed the existence of a specific subsidy causing injury to the domestic industry producing the like product.

5b. The Treatment of Domestic Subsidies: An Economic Assessment

Consider first domestic subsidies. As noted above, a domestic subsidy can be a first-best instrument with which to address market imperfections that result in too little production. By contrast, an import tariff is equivalent to a production subsidy combined with a consumption tax; hence, an import tariff affects both consumer and producer margins and is thus a second-best instrument of intervention.[36] Subsidies can also be useful to a government that seeks to redistribute domestic income in a manner that enhances its political-economic welfare. This perspective suggests that governments should be given wide latitude when making their domestic subsidy choices.

The other side of the story, however, is that a government can use a domestic subsidy to erode a market access commitment that it made as part of a reciprocal tariff negotiation. This point emerges directly from the two-country model of trade discussed previously, once that model is modified to allow that the home government has available an import tariff and a domestic production subsidy. After the completion of a tariff negotiation, the domestic government may be tempted to raise the subsidy to its import-competing industry. By doing so, it would restrict market access to foreign exporters; equivalently, it would lower the world price of the foreign export good and thus enjoy a terms-of-trade gain. Taking the argument a step further, if the foreign government were to anticipate that its negotiated market access might be eroded in this way, then it might hesitate to offer the benefit of lowering its own tariff as part of the initial tariff negotiation. This perspective suggests that disciplines on the use of domestic subsidies are necessary in order to make negotiated market access commitments secure and thereby promote mutually advantageous and reciprocal tariff liberalization among governments.

In light of these two perspectives, how should subsidies be treated in trade agreements? Together, the two perspectives actually suggest one approach: allow governments flexibility when choosing their domestic policies in so far as their choices do not erode their negotiated market access commitments. In other words, following a tariff negotiation, a government would be free to alter its domestic policies provided that the adjustments do not impose a negative terms-of-trade externality on its trading partner. As Bagwell and Staiger (2006c) show, if governments have available a rich set of domestic instruments and thus enjoy a degree of policy redundancy, then GATT rules are sufficient to ensure that governments can implement efficient outcomes (relative to their preferences) using tariff negotiations alone.[37] In this analysis, the GATT provision for a non-violation complaint plays an important role, as it ensures that a government does not erode the market access commitment achieved in its tariff negotiations. The *SCM Agreement*, by contrast, places additional restrictions on the use of domestic subsidies

[36] This is an instance of the targeting principle under which the optimal intervention is that which directly affects the targeted margin. See Bhagwati and Ramaswami (1963) and Johnson (1965). The advantage of a subsidy is lessened if the taxes required to finance the subsidy introduce their own distortions.

[37] Sufficient policy redundancy is present in the two-country model described previously if each government has available an import tariff, a domestic production subsidy and a domestic consumption tax. See Bagwell and Staiger (2006c).

and can thus limit policy redundancy and thereby interfere with governments' ability to structure their tariff negotiations so as to achieve efficient outcomes.

In a limited-instrument setting, however, policy redundancy is lost, and GATT rules are no longer sufficient to ensure that governments can achieve efficient outcomes with tariff negotiations. Intuitively, a government may then be unable to adjust its domestic policies efficiently without impacting world prices and thus inviting a (costly) non-violation complaint or a CVD from its trading partner. The possibility is thus raised that the *SCM Agreement* could mark an improvement in a limited-instrument setting. This possibility is indeed realized if governments have no legitimate use for subsidies, in which case subsidies would not be used in an efficient outcome. As noted, though, due to market failures and redistributive objectives, if governments are to achieve an efficient outcome, then it may be necessary for them to use domestic subsidies. In this case, as Bagwell and Staiger (2006c) show, the *SCM Agreement* could have a "chilling" effect on the willingness of governments to undertake tariff negotiations. GATT rules are then preferred.

The potential chilling effect of the *SCM Agreement* can be understood in the following broad terms. Once a government's tariff is bound, it may be able to stimulate production in the import-competing sector only with a domestic subsidy. But such a subsidy could then be challenged and potentially removed under the *SCM Agreement*. By contrast, if the government were to keep the relevant tariff unbound, then it would retain at least one (albeit second-best) instrument with which to assist the domestic import-competing industry. Moreover, if the import tariff were unbound, then a domestic subsidy would be less likely to induce a challenge under the *SCM Agreement*. Intuitively, a trading partner might then recognize that if the subsidy were challenged and removed, the government's best remaining option would be to raise its import tariff. This second-best instrument may impose even greater costs on the trading partner; thus, a challenge under the *SCM Agreement* would be less likely to occur on a product with an unbound tariff. If the domestic government values the use of its subsidy to a sufficient degree, its best choice then may be to leave its tariff unbound. In this extreme case, WTO subsidy rules thus completely undermine the ability of governments to achieve mutual gains through reciprocal tariff liberalization.

This discussion suggests a "Goldilocks" principle for the treatment of domestic subsidies. If disciplines on subsidies are too lax, then subsidies can be used to erode market access concessions and governments will thus hesitate to undertake reciprocal tariff negotiations; however, if subsidies are disciplined too severely, then governments may also hesitate to negotiate tariff bindings, since tariffs then may be the best remaining means of assisting domestic import-competing industries. At a theoretical level, the non-violation complaint rules of GATT represent an attractive middle path that may have struck the balance "just right." In principle, the nullification-or-impairment approach captured in the non-violation complaint rules allows governments to use subsidies to pursue their legitimate domestic goals while at the same time ensuring that negotiated market access concessions are secure. In this general context, the *SCM Agreement* may be criticized as imposing disciplines on subsidies that are too severe. At a more specific

level, the *SCM Agreement* also may be criticized for imposing discipline on subsidies even when the subsidies do not nullify or impair any negotiated market access benefits.

Of course, in practice, the non-violation complaint rules of GATT have limitations as well. At an operational level, what kinds of future policies should be reasonably expected at the time of negotiation? Where should the line be drawn in terms of the kinds of domestic policies that could be subject to non-violation complaints? Should even non-specific subsidies be subject to non-violation complaints? Even in light of these and other concerns, however, it is difficult to regard the treatment of domestic subsidies in the *SCM Agreement* as an improvement.

5c. The Treatment of Export Subsidies: An Economic Assessment

At an abstract level, an increase in a country's export subsidy has the same basic economic effect as does a decrease in its import tariff. Consider the two-country model. As previously discussed, a lower import tariff causes a decline in the terms of trade. It also causes the local price of the import good to fall relative to the local price of the export good. Now suppose that an export subsidy is increased. This depresses the world price of the export good and thus causes a decline in the terms of trade. It also causes the local price of the export good to rise; thus, following an increase in the export subsidy, the local price of the import good falls relative to the local price of the export good. From a trading partner's perspective as well, an increase in a country's export subsidy is like a reduction in that country's import tariff, since in either case the trading partner enjoys an improved terms of trade. An importing country therefore enjoys a positive terms-of-trade externality when the exporting country increases the level of export subsidization.

In fact, in the two-country model, if governments were to select export rather than import policies, then the terms-of-trade approach to trade agreements indicates that governments would achieve mutual gains though a trade agreement that facilitates a reciprocal *increase* in export subsidies.[38] The formal argument is *equivalent* to that given in Section 2, where the rationale for a mutually beneficial and reciprocal reduction in import tariffs is presented. The common theme is that, in the absence of a trade agreement, governments restrict trade more than is efficient, since they don't internalize the effects of their policies on their trading partner's terms of trade.

From this vantage point, rules that restrict – or even prohibit - the use of trade-increasing policies look immediately suspect. How would governments mutually benefit from an agreement that helps them restrict trade? Once the question is put this way, it is hard not to think of anti-trust policy. A related question arises in that context: How do sellers benefit from an agreement to restrict trade? But of course the answer to this latter

[38] If governments maximize national income, then they would select an export tax in the absence of a trade agreement. They would then mutually gain from a trade agreement that pushed the export instrument toward free trade. When governments have political-economic welfare functions, they may weigh export interests more heavily than consumer interests and thus adopt export subsidies even in the absence of a trade agreement. In any case, the general point is that a mutually beneficial trade agreement would facilitate greater trade and thus call for more expansionary export policies.

question is well known: sellers benefit since such an agreement enables them to raise price and earn greater profits. In so doing, however, they lower social welfare, since they don't internalize the costs of their behavior on consumers. The analogy in the trade-policy setting is that the sellers of a given product are the exporting governments and the consumers are the importing governments. The analogy thus suggests that restrictions on the use of export subsidies may represent a victory for exporting governments that comes at the expense of importing government – and world – welfare.

This analogy can be supported at a formal level once the model is expanded to allow for competing exporters. Bagwell and Staiger (2001, 2002 (Chapter 10)) consider a simple three-country model with competing exporters. Suppose that countries A and B both have competitive export sectors that supply a given product to country C. For simplicity, assume that all consumers of the product reside in country C. The governments of countries A and B have political-economic objectives, and the associated government welfare functions thus place a greater weight on export-industry profits than on subsidy expenses. If this weight is sufficiently large, then the optimal unilateral policy for each government entails a positive export subsidy. In this model, the sign of the terms-of-trade externality now varies interestingly across countries. If the government of country A increases its export subsidy, the world price for the export good falls. A negative terms-of-trade externality for the government of country B is then induced, and its exporters earn lower profit. By contrast, the government of country C then enjoys a positive terms-of-trade externality, as its consumers import the good at a lower world price.

Suppose now that the governments of countries A and B were to form an agreement that represents their joint interests. Clearly, they would like to negotiate reductions in export subsidies, as they could then reduce the volume of trade and induce a higher world price. They would then enjoy higher export-industry profits (i.e., an improved terms of trade). Of course, if the governments of countries A and B were successful in this endeavor, then the government of country C would lose, since it would suffer reduced consumer welfare (i.e., diminished terms of trade). In fact, the total welfare of all three governments would likely fall if the exporting governments were successful in reducing export subsidies. Just as the analogy suggests, an agreement to restrict export subsidies would help exporting governments cartelize their export sectors and represent a victory for exporting governments and a loss for importing government and total government welfare.[39]

Brander and Spencer (1985) also provide formal support for this analogy. In their famous strategic-trade model, they utilize the same three-country setting but make the assumption that countries A and B both have one exporting firm. The two exporting firms then engage in (Cournot) oligopoly competition for consumers in country C. Each government maximizes national income in their model; yet, the optimal unilateral policy for each exporting government is again a positive export subsidy. Intuitively, by offering an export subsidy, country A ensures that its exporter will produce a larger output, and this in turn induces the exporter from country B to produce a smaller output. In this way,

[39] As Bagwell and Staiger (2001, 2002 (Chapter 10)) note, their model can be interpreted in terms of the agricultural trade disputes and predicts that net-food importing countries lose under an agreement to restrict the use of agricultural export subsidies.

country A can strategically use its export subsidy to "shift profits" from country B to country A. From here, the conclusions parallel those just developed for the model with competitive exporters and politically motivated governments. An export subsidy by country A hurts exporter profit in country B but helps consumer welfare in country C; thus, if the governments of country A and B were to form an agreement, then they would agree to cartelize the industry by eliminating export subsidies.[40] Consumer and world welfare would fall if such an agreement stood.

At a positive level, the competing-exporter models thus offer a cartel-based interpretation for the existence of a trade agreement that restricts export subsidies. Like the two-country model, however, these models offer the normative implication that an efficiency-enhancing trade agreement should not restrict the use of export subsidies; rather, an efficiency-enhancing trade agreement should emphasize rules that facilitate trade expansion. While it certainly true that important circumstances exist in which the use of export subsidies can decrease welfare,[41] the competing-exporter models support the following basic conclusion: the economic case for rules that facilitate a reduction in export subsidies is much weaker than the economic case for rules that facilitate a reduction in import tariffs.

My discussion to this point utilizes a competing-exporter model in which the importing country has no import-competing firms. If instead the government of country C gives sufficient weight to the profits of import-competing firms, then it is possible that this government might experience a welfare loss as a consequence of the export subsidies of countries A and B. Intuitively, this could happen if the implied reduction in the local price of the import good decreases import-competing firms' profits and thereby induces a welfare cost that exceeds the welfare benefit of an improved terms of trade. The possibility of a welfare loss for the importing government is somewhat special, though, in a couple of respects. First, the importing government can experience a welfare loss when export subsidies are used only if it has bound its tariff at a level that is sufficiently far below that which it would choose in the absence of an agreement.[42] Second, the *SCM Agreement* provides for CVDs in such a scenario, and the importing government *must* gain when it imposes a CVD that offsets the effect of the export subsidy: the CVD then restores the original local price and leaves the importing country with a terms-of-trade gain, which takes the tangible form of greater tariff revenue.[43]

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[40] Indeed, given that governments maximize national income, the agreement would call for export taxes.

[41] In particular, the competing-exporter models do not include all of the welfare costs that may be associated with export subsidies. For example, when export subsidies are used, production may be diverted to less efficient firms, wasteful rent-seeking behavior by firms may be encouraged, and in some cases existing distortions or market imperfections may be exacerbated. Such welfare costs, however, also may be associated with import tariffs.

[42] The fundamental point here is that a government must gain when it selects its optimal unilateral tariff and enjoys a terms-of-trade gain as a consequence of a change in trade policy by another government, where that change may be a reduced import tariff (as discussed in footnote 2) or an increased export subsidy (as discussed above). See Bagwell and Staiger (2002, Appendix, p. 192, equation (A6)).

[43] The rules on CVDs thus discourage efficient breach, since the exporting government can provide an export subsidy only if it desires to do so when the importing government is made "better than whole."

Based on the foregoing, I conclude that the broad prohibition of export subsidies found in the *SCM Agreement* is not well supported by the terms-of-trade approach to trade agreements. This theory also fails to support the use of disproportionate retaliation in response to export subsidies. Indeed, the terms-of-trade theory of trade agreements suggests that export subsidies should be treated with *greater* leniency than import tariffs.

6. *Conclusion*

In this essay, I argue that the terms-of-trade theory to trade agreements offers a coherent interpretation of the purpose and design of the WTO. This theory also suggests a number of insights with respect to possible reforms of the WTO remedy system. In particular, I argue that a modified dispute settlement system that allows for disproportionate retaliation has some theoretical appeal as a means of facilitating efficient breach, and especially so when serious violations occur; however, at a practical level, I argue that important measurement problems would limit the effective use of such a system. I argue as well that rule changes that encourage greater use of monetary compensation may be attractive. I also consider the proposal by Mexico that retaliation rights be made tradable and develop a theoretical perspective under which such a system could offer advantages. A particular advantage is that such a system can encourage a large-country defendant to provide monetary compensation to a small-country complainant. At the same time, such a system would introduce a number of additional considerations that are at present poorly understood. I therefore caution against any explicit change in the DSU to accommodate tradable retaliation rights at this stage and recommend instead that the issue receive further serious study. Finally, I consider the *SCM Agreement*s and the associated remedy system. I argue that the terms-of-trade theory of trade agreements suggests that the restrictions on domestic and export subsidies in the *SCM Agreement* are too severe. In the same spirit, I argue that this theory suggests that the use in recent disputes of disproportionate countermeasures in response to export subsidies is unwarranted.

7. *References*

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