The Politics of WTO Enforcement Mechanism

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Abstract

This paper attempts to develop a formal economic framework to analyze the influences of domestic political considerations by democratic governments in shaping the WTO enforcement outcomes in the wake of a violation ruling against the defendant. Since a different mix of import and export sectors in the defendant and complainant country will benefit from the various potential enforcement outcomes, they become competing forces which steer the strategic interactions between the disputing governments. The results of the paper illustrate the complainant’s strategy in selecting the retaliation list, and the likelihood of the defendant’s compliance or compensation in response to the proposed or foreseeable retaliation, given the political and economic environments on both sides of the disputing parties. This paper also captures the possibility of enforcement failures under the current WTO dispute settlement procedure, where the complainant does not have enough retaliation capacity to induce compliance or some form of compensation from the defendant.

Keywords: trade sanction; enforcement failure; compliance; compensation; political economy

JEL classification: F13; K33; K42

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Consult before you legislate;/ Negotiate before you litigate;/ Compensate before you retaliate;/
And comply—at any rate. — European Commissioner for Trade, Pascal Lamy

1. INTRODUCTION

The World Trade Organization (WTO) dispute settlement procedure (DSP) has seen quite a successful track record of compliance, where a defendant government found in violation of a WTO rule implements the panel/appellate body’s recommendations within a reasonable period of time. Nonetheless, the record is overshadowed by a couple of noncompliance cases, where the defendant government does not correct the violations and the complainant responds by seeking authorization from the WTO to suspend application to the scofflaw government of concessions or other obligations. The cases where the complainant has actually carried out the retaliation are the famous disputes of beef hormones and bananas against the European Communities (EC).\(^1\) Meanwhile, some cases with a “violation” ruling have been resolved through an intermediate enforcement scheme, compensation. In this arrangement, the losing defendant compensates the complainant by conceding at other sectors while maintains the WTO-illegal trade measure. Table 1 provides a breakdown of the WTO disputes in terms of their procedural and enforcement outcomes.

Although compliance is the preferred outcome in the WTO legal framework, and compensation and retaliation are deemed only temporary measures intended to induce compliance, compliance is not always easy and forthcoming. Some trade-related policies proved politically difficult to be dismantled, such as the EC regulation of beef hormones and the United States tax treatment for Foreign Sales Corporations (FSC).\(^2\) This is in spite of the foreseeable retaliation from the complaining party, and its likely impacts on the defendant’s export sectors and the political costs that will be borne by the defendant government. On the other hand, since the complainant government enjoys wide latitude in determining the hit list of retaliation, this is likely to mobilize both the import and export interests at the complainant country and to work in conflicting directions in influencing the making of the retaliation list.\(^3\) This paper attempts to develop a formal economic framework to analyze the political forces that propel or impede the possibility of compliance. In particular, the paper will address the following questions. Given the political environments on both sides of the disputing parties, will we see the desired result of compliance in a particular dispute? If not, how likely relatively are the alternative arrangements of compensation and retaliation? If retaliation is called upon, what are the sectors that will be targeted?

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3. See Charnovitz (2001) for a similar comment.
Domestic political environments in both the complainant and defendant countries play a possibly significant role in shaping the enforcement outcome. Specifically, the various enforcement outcomes – compliance, compensation, retaliation, and the status quo – brings about a different mix of import and export sectors which will benefit or suffer from the resulting changes in the two countries’ trade policies. This paper depicts the disputing parties as democratic governments who face domestic political constraints, as well as the rules of enforcement laid down by the WTO dispute procedure. They are mindful of the impacts of various enforcement outcomes on industry interests as well as on aggregate welfare, and choose strategies that best serve their political interests. The paper also characterizes the specific rules of enforcement stipulated by the WTO and carried out by countries in practice, in an attempt to reflect the realistic incentives and constraints given to countries by the WTO enforcement mechanism. Finally, the paper captures the asymmetric enforcement power problem common in bilateral trading relationships, by constructing a three-country trading system with multiple sectors. Contrary to Maggi (1999), however, this paper recognizes the possibility of enforcement failures under the current WTO DSP, given the reality that the WTO enforcement is carried out bilaterally. The enforcement failures come in two possible ways. First of all, a contentious trade policy used by the defendant against all trading partners may be challenged by the complainant only, and secondly, by acting alone, the complainant may not have enough retaliation capacity to induce compliance or some form of compensation from the defendant.

Several implications follow from the analysis in this paper. First and foremost, the likelihood that compliance will emerge as a political equilibrium depends on the relative political power of the defendant’s sectors which have benefited from the existing illegal trade policy, versus that of its export sectors which will be the targets of retaliation. The determination of the hit list of retaliation by the complainant, in turn, depends on the complainant’s retaliation capacity. The complainant will, within his retaliation capacity and the level authorized by the WTO, target the defendant’s export sectors which has the greatest political clout, if compliance is foreseeable with the threat of this list. If not, the retaliation list will instead consist of the complainant’s import sectors that are most powerful politically. When compliance outcome is not likely, but the complainant has some retaliation capacity, it is possible to avoid retaliation by identifying some mutually agreeable compensation scheme which makes both governments better off. The possibility of such settlement depends on the relative political strength of the defendant’s import sectors that will lose from the compensation scheme versus that of its export sectors that will lose from retaliation, and on the relative political strength of the complainant’s export sectors that will benefit from the compensation scheme versus that of its import sectors that will benefit from retaliation.

By focusing on the strategic interaction of politically-motivated governments at the enforcement stage of the WTO dispute procedure, the paper has abstracted from the immediate question of countries’ incentives to
initiate the WTO dispute procedure in the first place and disputants’ strategic interactions during the entire dispute process. These subjects are studied in Bütler and Hauser (2000) and Chang (2002). Another question that attracts a major proportion of research interests in the literature concerns the role of the WTO dispute procedure in strengthening or weakening the pace of multilateral trade liberalization. Contributions to this literature include Hungerford (1991), Kovenoch and Thursby (1993), Ludema (2001), and Maggi (1999). An insightful review of this literature is given in Staiger (1995). This literature regards the international trade agreements as cooperative efforts by the world trading partners to simultaneously reduce unilateral trade restrictions so as to remove externalities that countries’ trade policies may inflict on one another. The Pareto-superior equilibrium of trade policy cooperation is sustained by the threat of future trade wars following any country’s deviation from the agreed-upon tariff and subsidy ceilings. In this literature, the dispute procedure usually plays a minimal role as a mechanism of information dissemination, a forum of communication, or an administrator of retaliation, with no inherent enforcement power.\footnote{Kovenoch and Thursby (1993) is an exception by proposing the notion that countries feel a sense of “international obligation” to conform to the multilateral trade agreements, which implies an extra cost to violate the agreements in addition to the threat of trade wars.} The enforcement power comes ultimately from the threat of countries’ reverting to the state of multilateral trade wars. This view of the previous literature is useful in understanding the post Second World War experience of multilateral trade liberalization, whereby nations strive to cooperate in trade policies in order to avoid the vicious circle of trade wars in the 1920s–30s. However, it is less helpful in explaining the facts that nations still deviate from their tariff and subsidy commitments repeatedly, that retaliation is an infrequent incidence, and that the world trading system still operates quite smoothly without plunging into an overall trade war despite recurring deviations.\footnote{See Ethier (2001) for similar comments.} The present paper considers an alternative view about the WTO dispute settlement procedure. Above and beyond the basic functions suggested by the literature, the WTO dispute settlement procedure performs the role as a re-balancing mechanism of bilateral concessions and commitments between countries during the intervals of periodic multilateral trade negotiations. It provides a speedy bilateral realignment of trade concessions and obligations in response to frequent changes in the political and economic environments of trading nations, before the next round of large-scale multilateral negotiations can take place. To prevent the re-balancing of trade concessions from developing into overall trade wars, withdrawals of concessions are carefully meted out by the WTO dispute procedure, and since the threatened retaliation or re-balancing of trade concession is carried out bilaterally, enforcement failures do occur. However, the order of the overall trading system is maintained with the threat of its complete breakdown, as is highlighted by the previous literature. This alternative view about the WTO dispute settlement procedure serves as the background of the current analysis in this paper.
I consider a world with three countries: the defendant, the complainant, and the rest of the world. The economies of the defendant and the complainant are potentially large such that trade policies of one country may affect the welfare of another country.\(^6\) The countries in the world are assumed to share similar economic and political structures à la Grossman and Helpman (1994, 1995a,b), whose basic framework is summarized in the appendix.

Let \((\tau_d, \tau_c, \tau_w)\) denote the trade policies that the defendant, the complainant, and the rest of the world use respectively. In particular, the trade policy vector \(\tau_j\) of country \(j\) contains the trade taxes or subsidies in all sectors \((\tau_{1j}, \ldots, \tau_{nj})\) for \(j = \{d, c, w\}\). If sector \(i\) in country \(j\) is an import sector, \(\tau_{ij}\) corresponds to one plus the ad valorem tariff rate; if it is an export sector, \(\tau_{ij}\) corresponds to one plus the export subsidy rate.

Suppose \(p^*_i\) is the prevailing international price of good \(i\). Then the domestic price of good \(i\) in country \(j\) is \(p_{ji} = \tau_{ij} p^*_i\). Let \(M_{ji}^d(\tau_{ij} \cdot p^*_i)\) denote the import demand for good \(i\) by country \(j\) given the domestic price \(p_{ji}\).

An negative \(M_{ji}^d\) indicates that country \(j\) is an export supplier of good \(i\). In some sectors, one or both of the defendant and complainant countries may be importing from the other countries, while in some other sectors, both countries may be exporting to the rest of world. Since the world trade must balance in every sector given the trade policies used by the countries, the international price of good \(i\) at the equilibrium satisfies:

\[
M_{di}^d(\tau_{di} \cdot p^*_i) + M_{ci}^c(\tau_{ci} \cdot p^*_i) + M_{wi}^w(\tau_{wi} \cdot p^*_i) = 0 \quad (1)
\]

for \(i = 1, \ldots, n\). Therefore, equation (1) defines the equilibrium international price of good \(i\) as a function of countries’ trade policies in that sector: \(p^*_i = p^*_i(\tau_{di}, \tau_{ci}, \tau_{wi})\) for \(i = 1, \ldots, n\). It is straightforward to verify that

\[
\frac{dp^*_i}{d\tau_{ji}} = \frac{-\frac{dM_{ji}^d}{dp_{ji}} p^*_i}{\frac{dM_{ji}^d}{dp_{ji}} \tau_{di} + \frac{dM_{ji}^c}{dp_{ji}} \tau_{ci} + \frac{dM_{ji}^w}{dp_{ji}} \tau_{wi}} < 0, \quad (2)
\]

for \(j = \{d, c, w\}\) and \(i = 1, \ldots, n\), where I have used the regularity assumption that \(\frac{dM_{ji}^d}{dp_{ji}} < 0\) and the positive constraint that \(\tau_{ji} > 0\) for \(j = \{d, c, w\}\) and \(i = 1, \ldots, n\). Equation (2) states that other things being equal, any of the countries by increasing the protection (or export subsidy) for a sector will depress the equilibrium international price of good \(i\).\(^6\) If the defendant is a small country, its trade policies has no effect on the world prices and on the complainant’s welfare. This can not explain the complainant’s action to file the dispute in the first place.
international price in the sector. Furthermore, it can be shown that

\[
\frac{dp^j_i}{d\tau_k} = \tau_j^i \frac{dp^a_i}{d\tau_k} + p^*_i \frac{d\tau^j}{d\tau_k}
\]

\[
= \begin{cases} 
- \frac{dM^b_i}{dp^a_i} \tau^j_i + \frac{dM^b_i}{dp^a_i} \tau^c_i + \frac{dM^b_i}{dp^a_i} \tau^w_i p^*_i > 0 & \text{if } j = k \\
\frac{dM^b_i}{dp^a_i} \tau^j_i + \frac{dM^b_i}{dp^a_i} \tau^c_i + \frac{dM^b_i}{dp^a_i} \tau^w_i p^*_i < 0 & \text{if } j \neq k 
\end{cases}
\]

(3)

for \( j, k = \{d, c, w\} \), and \( i = 1, \ldots, n \). Hence, other things being equal, any of the countries by increasing the protection (or export subsidy) for a sector will raise the domestic price of the good at home, but lower the domestic price of the good overseas through the decrease in the equilibrium international price.

As described in the appendix, the profits \( \Pi^j_i \) of sector \( i \) in country \( j \) increase with the domestic price of the same sector \( p^j_i \). Therefore,

\[
\frac{d\Pi^j_i}{d\tau_k} = \frac{d\Pi^j_i}{dp^j_i} \frac{dp^j_i}{d\tau_k} \begin{cases} > 0 & \text{if } j = k \\
< 0 & \text{if } j \neq k 
\end{cases}
\]

(4)

Thus, the objective of each interest group is to influence the local government to maintain higher protection (or export subsidy) for the sector they represent, while at the same time influencing the local government to pressure its trading partners to lower protection (or export subsidy) in the same sector.

On the other hand, the effect of protection (or export subsidy) on the aggregate welfare of the local country or its trading partners is less clear cut. A country’s aggregate welfare depends on the equilibrium international prices, as well as the domestic prices. Given the economic structure described in the appendix, it can be shown that

\[
\frac{dW^j}{d\tau_k} = -M^j_i \frac{dp^j_i}{d\tau_k} + (p^j_i - p^*_i) \frac{dM^j_i}{d\tau_k},
\]

(5)

where \( W^j \) is the aggregate welfare of country \( j \), which includes total labor income, total profits, total trade tax revenues net of subsidy expenditures, and aggregate consumer surplus.\(^7\) The first term in equation (5) can be interpreted as the terms of trade (TOT) effect on country \( j \) of the trade policy change in country \( k \), and the second term the effect of this change on the magnitude of deadweight loss (DWL) incurred by country \( j \) due to its own existing trade policy. A positive (negative) first term indicates a TOT gain (loss), while a

\(^7\) \( M^j_i > 0 \) if country \( j \) is an importer of good \( i \), and \( M^j_i < 0 \) if country \( j \) is an exporter of good \( i \); \( \frac{dp^j_i}{d\tau_k} < 0 \) as shown in equation (2); \( (p^j_i - p^*_i) > 0 \) if there is an import tariff (export subsidy), and \( (p^j_i - p^*_i) < 0 \) if there is an import subsidy (export tax); and \( \frac{dM^j_i}{d\tau_k} = \frac{dM^j_i}{dp^j_i} \frac{dp^j_i}{d\tau_k} < 0 \) if \( j = k \), and \( \frac{dM^j_i}{d\tau_k} > 0 \) if \( j \neq k \).
positive (negative) second term indicates an improvement (worsening) in the country’s deadweight loss. For example, an increase in import tariff by country $k$ on good $i$ has a negative TOT effect on a country who exports the good, but has a positive effect on the exporting country’s deadweight loss if an export subsidy is originally in place. The original export subsidy expands the exporting country’s trade artificially, so the decrease in the TOT which brings about lower exports actually works to reduce the exporting country’s deadweight loss due to excess trade. In sum, an increase in the import tariff by an importing country can have either positive or negative welfare effect on a country who exports the good, depending on the relative strength of TOT loss and DWL gain. However, for cases where exports are not subsidized, an increase in import tariff by an importing country has a definite negative welfare effect on the country who exports the good.

Depending on the initial protection structure of the countries, the effects of one country’s policy change can therefore have different implications on the other countries’ aggregate welfare. We can study the effects under all possible scenarios, given equation (5). However, since import subsidy or export tax is rarely in use, I choose to focus on the case where import tariff and export subsidy are the only instruments used by countries. In this case, other things being equal, a country by increasing the import tariff of one sector can have either positive or negative welfare effect on the country itself and the countries who export the good, but will benefit any other country who imports the good; while an increase in export subsidy will have negative welfare effect on the local country, positive welfare effect on the countries who import the good, and can have positive or negative effect on any other country who exports the good. Let $W_{ij}$ denote the proportion of aggregate welfare in country $j$ that is attributable to sector $i$ (the profits of sector $i$, the tariff revenue or subsidy expenditure of sector $i$, and the consumer surplus derived from good $i$). Then given the political objective function of the government described in the appendix, the political clout of sector $i$ in country $j$ is $\Pi_{ij} + a^j W_{ij}$, which includes government $j$’s concern for the welfare of the domestic interest group representing sector $i$, as well as the aggregate welfare attributable to sector $i$. The parameter $a^j$ captures government $j$’s relative attention to aggregate welfare versus special interests. Governments each choose actions that maximize their political welfare $G^j = \sum_{i=1}^{n} \Pi_{ij} + a^j \sum_{i=1}^{n} W_{ij}$, for $j = \{d, c, w\}$, subject to any international rules and constraints.

I now examine the political incentives the governments face under the WTO enforcement mechanism. The mechanism can be characterized as follows. Initially, countries agree to a set of tariff/subsidy commitments after the latest round of trade negotiation. The defendant later deviates and exceeds the tariff/subsidy bindings in some sector. The breach is challenged by the complainant and later ruled by the WTO to be in violation of the WTO agreements. The complainant may retaliate against the defendant if the latter fails to comply or compensate. The retaliatory action if taken by the complainant is discriminatory in nature and is
usually carried out in practice by imposing 100% import tariffs on selected products from the defendant. To simplify analysis, I will focus on the case where the defendant’s violation is Most-Favored-Nation (MFN) in nature and does not target a particular trading partner. Yet, for some reason not investigated in this paper, this violation is challenged by the complainant alone. I will also assume that the effect of imposing a 100% retaliatory tariff by the complainant is equivalent to that of a prohibitive tariff. Therefore, the defendant’s exports affected by the tariff are excluded from the complainant’s market. This approximation is close to what countries have in mind in practice when they undertake such retaliatory action. As documented by Charnovitz (2001), both the United States and Canada in the Hormone case retaliated using 100% ad valorem tariffs, with an intention for them to be prohibitive.

Suppose under some initial political and economic structure, the countries negotiate and agree to implement the MFN trade policies \((\tau^d_{i,l}, \tau^c_{i,l}, \tau^w_{i,l})\) for \(i = 1, \ldots, n\). Suppose some changes occur later to the world’s political and economic structure which prompt the defendant government to defy the agreement and raise protection for some sector(s). Let \((\tau^d_{i,q}, \tau^c_{i,q}, \tau^w_{i,q})\) for \(i = 1, \ldots, n\) denote the new MFN protection structure after the defendant breaks the rules, and before the other countries take any action in response to the defendant’s violation. Also let \((a^j, \Pi^j_i, M^j_i, W^j_i)\) denote the current political and economic structure of the world.

Along with the trade policies in use, this determines the prevailing world and domestic prices: \(p^*_{i,q}\) and \(p^*_{i,q}\) for \(j = \{d, c, w\}\) and \(i = 1, \ldots, n\). The prevailing world price \(p^*_{i,q}\) satisfies: \(M^j_i(p^d_{i,q}) + M^j_i(p^c_{i,q}) + M^w_i(p^w_{i,q}) = 0\) for \(i = 1, \ldots, n\), where \(p^d_{i,q} = \tau^d_{i,q} p^*_{i,q}\), \(p^c_{i,q} = \tau^c_{i,q} p^*_{i,q}\) and \(p^w_{i,q} = \tau^w_{i,q} p^*_{i,q}\). Hence, the government’s political welfare under this state is \((G^d_q, G^c_q, G^w_q)\), where \(G^d_q = \sum_{i=1}^n \Pi^j_i(p^d_{i,q}) + \sum_{i=1}^n W^j_i(p^d_{i,q}, p^*_{i,q})\). I will refer to this state as the status quo.

Afterwards, suppose the complainant successfully challenges the defendant’s new trade policy and the WTO recommends the latter to bring his policy into conformity with the agreement. The defendant may comply, try to settle with the complainant, or else face the likelihood of retaliation from the complainant. If the defendant complies, the old protection structure of the world \((\tau^d_{i,l}, \tau^c_{i,l}, \tau^w_{i,l})\) is recovered. Let \(p^*_{i,l}\) and \(p^d_{i,l}\) for \(j = \{d, c, w\}\) and \(i = 1, \ldots, n\), denote the would-be prevailing world and domestic prices if the defendant complies under the current political and economic structure \((a^j, \Pi^j_i, M^j_i, W^j_i)\). Then, the world price \(p^*_{i,l}\) satisfies: \(M^d_i(p^d_{i,l}) + M^c_i(p^c_{i,l}) + M^w_i(p^w_{i,l}) = 0\) for \(i = 1, \ldots, n\), where \(p^d_{i,l} = \tau^d_{i,l} p^*_{i,l}\), \(p^c_{i,l} = \tau^c_{i,l} p^*_{i,l}\) and \(p^w_{i,l} = \tau^w_{i,l} p^*_{i,l}\). The government’s political welfare under this state, if the defendant complies, is \((G^d_{l}, G^c_{l}, G^w_{l})\), where \(G^d_{l} = \sum_{i=1}^n \Pi^j_i(p^d_{i,l}) + \sum_{i=1}^n W^j_i(p^d_{i,l}, p^*_{i,l})\).

On the other hand, if the defendant fails to comply or to settle with the complainant, the complainant may retaliate with the WTO’s authorization up to the level determined as appropriate by the WTO. I will investigate the complainant’s decision in choosing the list of sectors to retaliate in a moment in Section 3. But first of all, I characterize the equilibrium world and domestic price that will emerge in a sector if the
sector is on the list, and the impact of this on the government’s political welfare. Suppose sector \( i \) is on the retaliation list, and the complainant levies a 100% import tariff (in lieu of any existing tariff) on the defendant’s exports in sector \( i \). Assume this rate of tariff is close to a prohibitive tariff. The equilibrium price that will arise depends on the structure of bilateral trade flows. First of all, if the complainant is an exporter of good \( i \), the complainant can not retaliate against the defendant. By default, such sectors will not be on the list. Secondly, if the defendant is the sole exporter of good \( i \), the complainant’s retaliation will divert the defendant’s exports toward the rest of the world, and the complainant has to satisfy its domestic demand by its available domestic supply. The equilibrium world price \( p_{i,r}^e \) of good \( i \) if it is on the retaliation list is determined by:

\[
M^d_i(p_{i,r}^d) + M^w_i(p_{i,r}^w) = 0,
\]

where \( p_{i,r}^d = \tau_{i,q}^d p_{i,r}^e \) and \( p_{i,r}^w = \tau_{i,l}^w p_{i,r}^e \). The domestic price of good \( i \) in the complainant country is determined by: \( M^c_i(p_{i,r}^c) = 0 \). Thirdly, if the complainant is the sole importer of good \( i \), the complainant will now imports only from the rest of the world and the defendant has to absorb all of its excess supply at home. In this case, the equilibrium world price \( p_{i,r}^e \) of good \( i \) if it is on the retaliation list is determined by:

\[
M^c_i(p_{i,r}^c) + M^w_i(p_{i,r}^w) = 0,
\]

where \( p_{i,r}^c = \tau_{i,l}^c p_{i,r}^e \) and \( p_{i,r}^w = \tau_{i,l}^w p_{i,r}^e \). The domestic price of good \( i \) in the defendant country is determined by: \( M^d_i(p_{i,r}^d) = 0 \). In either case whether the defendant is the sole exporter or the complainant is the sole importer, if sector \( i \) is on the retaliation list, the domestic price of good \( i \) will increase in the complainant country and decrease in the defendant country, compared to the status quo, i.e. \( p_{i,r}^e > p_{i,q}^e \) and \( p_{i,r}^d < p_{i,q}^d \).

Given the effects on domestic prices, it follows that if good \( i \) is on the retaliation list, the impacts on the profits of sector \( i \) in the disputing countries are:

\[
\begin{align*}
\Delta \Pi^c_i &\equiv \Pi^e_i - \Pi^c_i > 0, \\
\Delta \Pi^d_i &\equiv \Pi^d_i - \Pi^d_i < 0.
\end{align*}
\]

Thus, the interest group representing sector \( i \) in the complainant country will benefit from the retaliation act, while the interest group of the corresponding sector in the defendant country will suffer. On the other hand, the retaliation has a negative impact on the aggregate welfare of the complainant country. Both its tariff revenue and the sum of its consumer surplus and profits decrease with a rise in its domestic price, when its import tariff against the rest of the world is unchanged. Furthermore, the retaliation will in general have a negative impact on the aggregate welfare of the defendant country, unless the defendant’s original
export subsidy in sector $i$ is highly distorting such that trade with the current subsidy is worse than without trade. Then restricting its exports by the complainant’s retaliation actually lessens its aggregate welfare loss. Therefore,

$$\Delta W_c^i \equiv W_{c,i}^r - W_{c,i}^q < 0,$$
$$\Delta W_d^i \equiv W_{d,i}^r - W_{d,i}^q \leq 0.$$

Despite the not impossible beneficial aggregate welfare effect of retaliation on the defendant country, I argue that the retaliation in any given sector can not make the defendant government better off compared to the status quo, in terms of its political welfare $\Pi_d^i + a_d^i W_d^i$. This is because it is always possible for the defendant government to replicate the would-be domestic price under retaliation $p_{d,i}^r$ by reducing his existing export policy $\tau_{d,i}^q$. The act would be WTO-consistent and would make the interest group $i$ as well off as under retaliation, while it would replicate or improve on the aggregate welfare under retaliation. The fact that the defendant government does not do so, reveals that the existing trade policy makes him better off than under retaliation. In summary, the retaliation in sector $i$ will have a negative impact on the defendant government in terms of its political welfare; can have a positive or negative impact on the complainant government’s political welfare, depending on the relative strength of welfare loss and profit gain. That is,

$$\Delta \Pi_c^i + a_c^i \Delta W_c^i \geq 0,$$
$$\Delta \Pi_d^i + a_d^i \Delta W_d^i < 0.$$

3. THE RETALIATION LIST

In the event that the defendant country fails to comply within the determined reasonable period of time or to reach a mutually satisfactory arrangement with the complainant, the complainant country may seek authorization from the WTO to retaliate. The Dispute Settlement Understanding (DSU) of the WTO stipulates that the level of retaliation be equivalent to the level of nullification or impairment suffered by the complainant. It is however somewhat hazy what the exact economic criterion should be used to measure the level of nullification or impairment and the level of retaliation. In practice, the determination of such level has been based on the amount of trade values restricted by an import-restricting measure,\(^8\) or the total amount of subsidy granted by an export-assisting policy.\(^9\) Once the level of nullification or impairment is determined by arbitration, the retaliation by the complainant country usually takes the form

\(^8\)The EC hormone case (WT/DS26/ARB; WT/DS48/ARB) and banana case (WT/DS27/ARB; WT/DS27/ARB/ECU).
\(^9\)The US FSC case (WT/DS108/ARB) and the Brazil aircraft case (WT/DS46/ARB).
of imposing a 100% ad valorem tariff, in lieu of any existing tariffs, on selected imports from the defendant country with a total trade value equal to the determined level of nullification. It is far from clear that these operational methodologies will result in a balancing welfare effect on the disputing parties; in fact, most likely they will not, as argued in Anderson (2002). However, I will take these practiced methodologies as given, and investigate the complainant’s strategy in selecting the retaliation list as well as the ensuing strategic interactions between the parties given such rules of game.

Suppose the level of nullification or impairment is determined by WTO arbitration to be $T$. The complainant may select imports from the defendant that sum up to $T$ and impose a 100% ad valorem tariff on them. Therefore, $T$ is the maximum trade value authorized for retaliation. Let $R$ represents the list of sectors or goods selected for retaliation by the complainant. Then the complainant’s constraint of retaliation is

$$\int_{i \in R} T_i \, di \leq T,$$

where $T_i$ is the trade value of imports from the defendant in sector $i$.

Given the authorized level $T$, the complainant has two potential strategies in selecting the retaliation list. The first strategy is to select the list such that the list maximizes its domestic political gain, through granting new protection to the selected industries. I call this list the politically optimal retaliation list $A$ or $R_A(T)$. The second strategy is to select the list such that the list maximizes the political cost of the defendant government, who incurs loss of political support from interest groups (as well as likely loss of aggregate welfare) in the selected sectors facing increased restrictions on their exports. I call this second list the politically optimal retaliation list $B$ or $R_B(T)$.

To maximize domestic political gain given the authorized retaliation level $T$, it proves convenient to order the sectors such that $i \in [0, n]$ and $g_i = (\Delta \Pi^c_i + \alpha^c \Delta W^c_i) / T_i$ decreases with $i$, where $\Delta \Pi^c_i = \Pi^c_{i,r} - \Pi^c_{i,q}$ and $\Delta W^c_i = W^c_{i,r} - W^c_{i,q}$. Note that in exporting industries, where the complainant imports nothing from the defendant, retaliation in terms of import restriction is not possible, so it follows that in these sectors, $\Pi^c_{i,r} = \Pi^c_{i,q}, W^c_{i,r} = W^c_{i,q}$, and $g_i = 0$. Let $i_0$ denote the lowest index such that $g_i = 0$. If $g_i < 0$ for all $i$, then $i_0 = 0$. In addition, define $\hat{i}$ such that $\int_0^{\hat{i}} T_i \, di = T$.

**Definition 1** The politically optimal retaliation list $R_A(T)$, which maximizes the complainant government’s political gain of retaliation given the WTO-authorized level $T$, is the set of sectors $i$ such that $i \in [0, \min(i_0, \hat{i})]$.

Note that the country’s retaliation capacity is $i_0$ in terms of the number of sectors and $\int_0^{i_0} T_i \, di \equiv T^0$ in terms of trade value. If it so happens that $i_0 < \hat{i}$, then the country is short of the full retaliation capacity $T$. A complainant country who imports a lot from the defendant country has potentially higher retaliation capacity. However, an import sector does not automatically qualify as a potential sector to impose retaliation. Only the import sectors where the complainant government gains from the retaliation in terms of the sector’s contribution to its political welfare, $\Pi^c_i + \alpha^c W^c_i$, will be the candidates for the retaliation list. Therefore, if
a complainant country can impose the discriminatory tariffs on the defendant’s imports without suffering large aggregate welfare loss in more of the import sectors, the larger is the country’s retaliation capacity. In the case that \( i_0 > \hat{i} \), the complainant country has larger retaliation capacity than is authorized to exercise by the WTO; then sector \( i \in [0, \hat{i}] \) are the sectors that maximize the complainant’s political gain of retaliation given the authorized level \( T \).\(^{10}\)

Alternatively, the complainant country may select the retaliation list which maximizes the negative political impact on the defendant government. In this scenario, let the sectors be ordered alternatively so that \( j \in [0, n] \) and \( h_j = (\Delta \Pi^d_j + a^d \Delta W^d_j)/T_j \) increases with \( j \), where \( \Delta \Pi^d_j = \Pi^d_{j,r} - \Pi^d_{j,q} \) and \( \Delta W^d_j = W^d_{j,r} - W^d_{j,q} \). For sectors where the complainant exports, retaliation in terms of import restrictions is not possible. Therefore, in these sectors, \( \Pi^d_{j,r} = \Pi^d_{j,q}, W^d_{j,r} = W^d_{j,q} \) and \( h_j = 0 \). As argued earlier, retaliation can not make the defendant government better off than the status quo. It follows that \( h_j \leq 0 \) for all \( j \). Let \( j_0 \) be the lowest index such that \( h_j = 0 \). Finally, define \( \hat{j} \) such that \( \int_{j_0}^{\hat{j}} T_j \, dj = T \).

**Definition 2** The politically optimal retaliation list \( R^B(T) \), which maximizes the defendant government’s political loss from the retaliation given the WTO-authorized level \( T \), is the set of industries \( j \) such that \( j \in [0, \min(j_0, \hat{j})] \).

Given the definition of \( R^A(T) \) and \( R^B(T) \), it is straightforward to see that for the complainant

\[
G^c_{rA} \equiv \int_{i \in R^A(T)} (\Pi^c_{i,r} + a^c W^c_{i,r}) \, di + \int_{i \notin R^A(T)} (\Pi^c_{i,q} + a^c W^c_{i,q}) \, di \\
\geq \int_{j \in R^B(T)} (\Pi^c_{j,r} + a^c W^c_{j,r}) \, dj + \int_{j \notin R^B(T)} (\Pi^c_{j,q} + a^c W^c_{j,q}) \, dj \equiv G^c_{rB},
\]

and for the defendant

\[
G^d_{rA} \equiv \int_{i \in R^A(T)} (\Pi^d_{i,r} + a^d W^d_{i,r}) \, di + \int_{i \notin R^A(T)} (\Pi^d_{i,q} + a^d W^d_{i,q}) \, di \\
\geq \int_{j \in R^B(T)} (\Pi^d_{j,r} + a^d W^d_{j,r}) \, dj + \int_{j \notin R^B(T)} (\Pi^d_{j,q} + a^d W^d_{j,q}) \, dj \equiv G^d_{rB}.
\]

Therefore, between retaliation proposals \( R^A(T) \) and \( R^B(T) \), both parties prefer the former to the latter. There is no reason for the complainant to propose \( R^B(T) \) unless it can induce a better outcome for the complainant than to propose \( R^A(T) \). This point will become clear in Section 5.

\(^{10}\)See Evenett (2002) for an empirical study on the potential retaliation capacity of major trading countries.
4. THE SETTLEMENT POSSIBILITIES

Although the DSU states preference for full compliance with the panel/appellate body’s recommendations within the determined reasonable period of time, it also allows the disputing parties to work out some compensation schemes as temporary solutions if immediate full compliance by the defendant government is not feasible. Compensation is supposed to be carried out through additional openness of the defendant’s domestic market in some sectors and at a magnitude agreeable to both parties. However, in practice, a dispute can also be resolved through a mutually agreed solution at this late stage of enforcement. They may take the form of (i) partial removal of the contentious policy and (ii) restructuring of the original contentious policy to some kind of rent-sharing agreement, as pointed out in Bown (2002). I pool all these intermediate enforcement outcomes in one category and label it “settlement.” This category includes potential compensation outcomes as well as other forms of mutually agreeable solutions. One task that might pose challenges to both disputing parties is to identify the set of settlement possibilities, and to locate the Pareto optimal ones among the available options. I investigate this issue below.

Before investigating the settlement possibilities, it is necessary to identify the ranking of the payoffs of compliance and the status quo for both parties, as these set the background for meaningful negotiations. Relative to the status quo, compliance by the defendant by removing the contentious policy will raise the international price and domestic prices of other countries in the affected industries. This makes the complainant’s interest groups in the affected sectors better off, but has potential positive or negative effect on the complainant’s aggregate welfare. The latter effect depends on whether the complainant is an exporter or importer of the goods and on the complainant’s original trade policy in these sectors.\footnote{See equations (4) and (5).} However, I argue that compliance by the defendant must render the complainant government politically better off in terms of its political objective: $G^c = \sum_{i=1}^{n} \Pi^c_i + a^c \sum_{i=1}^{n} W^c_i$, since otherwise, the government would not have filed the dispute in the first place. Therefore, $G^c_l = \sum_{i=1}^{n} \Pi^c_i,l + a^c \sum_{i=1}^{n} W^c_i,l > G^c_q = \sum_{i=1}^{n} \Pi^c_i,q + a^c \sum_{i=1}^{n} W^c_i,q$. On the other hand, the defendant’s compliance will hurt the local interest groups in the affected sectors, but its effects on aggregate welfare depends on the sectors’ original trade structure and policies. Nevertheless, the adoption of the contentious policy by the defendant government in the first place implies that revoking the policy, so as to conform with the WTO ruling, will make the defendant government politically worse off. Therefore, $G^d_l = \sum_{i=1}^{n} \Pi^d_i,l + a^d W^d_i,l < G^d_q = \sum_{i=1}^{n} \Pi^d_i,q + a^d \sum_{i=1}^{n} W^d_i,q$. The ranking of the two outcomes by the two disputing parties is illustrated in Figure 1, where the political welfare of the defendant government $G^d = \sum_{i=1}^{n} \Pi^d_i + a^d \sum_{i=1}^{n} W^d_i$ is indicated on the horizontal axis, and the political welfare of the complainant government $G^c = \sum_{i=1}^{n} \Pi^c_i + a^c \sum_{i=1}^{n} W^c_i$ on the vertical axis. The point representing the compliance outcome

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\[ 11 \text{See equations (4) and (5).} \]
thus lies above and to the left of the point representing the status quo.

Given the basic ranking of compliance and the status quo, I now explore possible settlement schemes. First of all, whatever the settlement arrangements might be, they should not render the complainant worse off than the status quo, for such arrangements can not be agreeable to the complainant. Therefore, it must be the case that $G^c_s \geq G^c_q$. By the same token, any potential settlement arrangements can not render the defendant worse off than simply complying with the ruling and removing the policy. This implies that $G^d_s \geq G^d_l$.

Next, it is straightforward to see that if a settlement specifies a less than full removal of the original contentious policy, it will render the complainant not as well off as in the case of full compliance. A more interesting question is that whether it is possible that some compensation scheme might make the complainant better off than the defendant’s full compliance. Would the complainant rather see some other sectors of the defendant’s liberalized and allow the defendant to keep the contentious policy in place? I will argue that this is not likely. If the defendant offers a compensation scheme which allows him to keep the contentious policy violating previous commitment but at the same time adjusts downward trade restrictions in other sectors as rewards to the complainant, and this compensation scheme also makes the complainant government better off than the defendant’s compliance, then this alternative scheme of trade policies should have been negotiated successfully between the two parties through the WTO safeguard clause. The fact that the complainant is challenging the defendant’s contentious policy indicates that no such mutually beneficial compensation scheme, compared to the defendant’s full compliance, is available. Therefore, I postulate that any compensation scheme that the defendant is willing to propose (i.e. which renders himself no worse off than complying) can not make the complainant better off than the state of compliance. It follows that $G^c_s \leq G^c_l$.

On the other hand, for the defendant, any partial compliance will render himself worse off than in the status quo, if full compliance does, which was argued to be true in the beginning of this section. Likewise, any compensation scheme where the defendant concedes at some other import sectors by reducing restrictions, will also render the defendant worse off than in the status quo. The argument is similar to that given earlier for $G^d_l < G^d_q$. The fact that some trade restrictions exist in these scapegoat sectors implies that the political clout ($\Pi^d_i + a^dW^d_i$) is maximized at the existing tariff/subsidy level in these sectors. Any cutback of tariffs/subsidies in these sectors, compelled by the WTO’s decision on the contentious policy, implies a loss for the defendant government, relative to the status quo. Therefore, it must be the case that $G^d_s \leq G^d_q$. In summary of this and the previous two paragraphs, the settlement possibilities are restricted to the rectangular area between “compliance” and the “status quo” as shown in Figure 1.

The set of settlement possibilities can be further pinpointed. First of all, all the settlement schemes
involving partial compliance will yield payoffs to the two parties that are weighted averages of the two polar outcomes, “compliance” and the “status quo”. This is represented by the line segment $\overline{LQ}$ in Figure 1. Furthermore, as argued earlier, any compensation scheme will yield payoffs that lie within the rectangular box. For expository purpose, assume for now the parties can identify four such compensation schemes, whose payoffs are indicated respectively by $S_1$, $S_2$, $S_3$, and $S_4$. Then all convex combinations of the four compensation schemes and the two polar outcomes (compliance and the status quo) are also possible settlement arrangements. It is straightforward to see that the compensation scheme $S_4$ is inferior to a proper partial compliance scheme such as $P$, and the compensation scheme $S_3$ is inferior to some weighted average of the two other schemes $S_1$ and $S_2$. Given the identified compensation options, the Pareto-optimal settlement possibilities frontier, which yields the highest payoff for one party given the payoff attained by another party, is the line segment connecting the four points $L$, $S_1$, $S_2$, and $Q$. The argument above can be generalized to other scenarios with different compensation options available to the two parties. The dashed curve $L S_1 S_2 Q$ represents a scenario where parties can identify a continuous stream of compensation possibilities, each of them with very small differences from one another. On the other hand, it is possible that in some case, there exists no compensation schemes at all that lie to the northeast of $\overline{LQ}$. In this case, the settlement possibilities frontier reduces to the simple line segment $\overline{LQ}$.

5. EQUILIBRIUM OUTCOMES

The sequence of interactions between the disputing parties at the enforcement stage of the WTO dispute settlement procedure can be illustrated with the game tree in Figure 2. I assume that the interaction described below between the disputing parties can be carried out in a rather short period of time and that the flow payoffs attached to the final equilibrium outcome are countries’ major concerns, so the transition payoffs during the process can be ignored.

If the panel/appellate body’s final decision finds the contentious policy to be inconsistent with the WTO agreement, the defendant government has up to a reasonable period of time, usually determined by arbitration, to implement the panel/appellate body’s recommendations and comply with the rulings. If the defendant fails to do so, the defendant is recommended to enter into negotiations with the complainant with a view to reach a mutually acceptable compensation within 20 days following the expiry of the reasonable period of time. If no compensation schemes can be agreed between the parties within the time period specified above, the complainant may request authorization from the WTO to retaliate against the defendant (DSU 22.2). Thus in Figure 2, the defendant at the first decision node is characterized as choosing between two alternative actions, to “comply” or to “take no action” within the reasonable period of time, and at the
second decision node following the expiry of the period, to propose to “settle” with the complainant or still to “take no action” and wait for the complainant’s response. The dispute ends with the WTO’s preferred outcome, if the defendant complies. The payoffs to the two governments are \((G^d_1, G^c_1)\).

If the defendant fails to take any action, the complainant may request authorization from the WTO to retaliate at a proposed level, which is subject to the defendant’s challenge and arbitrators’ modification (DSU 22.6 and 22.7). Once the level of retaliation equivalent to nullification or impairment is determined by arbitration, the complainant has the discretion to select sectors to carry out retaliation. Although the DSU sets out certain rules in the sector-selection process (DSU 22.3), the restriction is minimal. For example, the rule says that retaliation should be carried out in the same “sector” where the violation or other nullification or impairment is found. The “sector” in the DSU carries a different meaning from the usual economic definition. With respect to goods trade, all goods are considered by the DSU as in the same sector.\(^{12}\) As a result, in our current context, where goods trade is the main concern, the rule virtually imposes no restriction on the complainant’s choice of sectors for retaliation. As discussed in Section 3, the complainant has two potential strategies in setting the retaliation list: one to maximize his domestic political welfare and the other to maximize the negative political impact on the defendant. Therefore in Figure 2, following the defendant’s failure to take any action, the complainant’s strategy is indicated as choosing between “retaliation list A”, “retaliation list B”, or “taking no action.” The dispute ends with the status quo if the complainant does not take any retaliatory action. The payoffs to the two governments are \((G^d_q, G^c_q)\).

Following the complainant’s proposal of either retaliation list, the defendant may decide whether to “comply”, to “settle”, or still to “take no action”. The dispute ends if the defendant complies, with payoffs \((G^d_1, G^c_1)\). On the other hand, if the defendant does not take any action in response to the complainant’s retaliation threat, the complainant may then decide whether or not to carry out the retaliation as proposed. The payoffs to the two governments are \((G^d_{rA}, G^c_{rA})\) if the retaliation list A is carried out, are \((G^d_{rB}, G^c_{rB})\) if the retaliation list B is carried out, and are \((G^d_q, G^c_q)\) if the complainant does not carry out the retaliation. Finally, if the defendant proposes to settle following the complainant’s threat of retaliation, the complainant then has the option to accept, with payoffs \((G^d_s, G^c_s)\), or to reject the proposal. If the complainant rejects the proposal, the defendant then decides whether or not to comply. If he complies, payoffs \((G^d_1, G^c_1)\) accrues to the governments; if not, the complainant then either carries out the retaliation as proposed earlier, with payoffs of \((G^d_{rA}, G^c_{rA})\) in the case of proposal A and \((G^d_{rB}, G^c_{rB})\) in the case of proposal B, or takes no action with the status quo payoffs \((G^d_q, G^c_q)\) maintained.

Alternatively, the defendant may propose to settle in the very beginning, which the complainant may accept, with payoffs \((G^d_s, G^c_s)\), or reject. If no settlement is accomplished, the defendant then decides whether

\(^{12}\)Service trade and intellectual property rights, on the other hand, have more detailed sector classifications.
to comply or not. In the first case, the payoffs \((G^d_i, G^r_i)\) applies. In the second case, the complainant may propose to retaliate. The subsequent subgame is the same as the one that follows the defendant’s inaction at the second decision node.

In what follows, I characterize the equilibrium outcome that will emerge under alternative conditions. The analysis is presented in a concise, intuitive way, but it can be verified in a rigorous manner using backward induction applied to the flow of strategy interactions as characterized by the game tree in Figure 2.

5.1 The Enforcement Failure Scenario - Status Quo

If the complainant imports little from the defendant, or for all the sectors where the complainant imports from the defendant, retaliation renders the complainant government worse off – the loss in general welfare from retaliation dominates the gain in profits, then the complainant has no retaliation capacity (\(g_i \leq 0\) for all \(i\)), and the status quo will remain.

To see this, note that when the complainant does not have retaliation capacity (\(g_i \leq 0\) for all \(i\)), the **politically optimal retaliation list** \(R^A(T)\) is empty (\(i_0 = 0\)). Therefore, the political welfare of the parties under this retaliation proposal is identical to the status quo. This scenario is indicated in Figure 3, where the point specifying the political welfare of the parties when the complainant follows the retaliation list \(R^A(T)\) coincides with the point representing the status quo. Furthermore, as shown in equation (6) and (7), the alternative retaliation list \(R^B(T)\) renders both parties worse off than does \(R^A(T)\). Therefore, the point representing the political welfare of both parties if the complainant follows the retaliation list \(R^B(T)\), lies to the southwest of \(R^A(T)\).

In this case, if the defendant fails to comply or reach a settlement with the complainant, it is not credible for the complainant to carry out retaliation in accordance with \(R^B(T)\), as it renders the complainant himself worse off than in the status quo. Knowing that the complainant will not carry out the retaliation if he does not comply or offer to settle, the defendant will then choose to take no action. This is true regardless of the ranking of the defendant’s payoffs between compliance and retaliation with \(R^B(T)\). As a result, the status quo remains and the defendant gets away with the contentious policy, ruled in violation of his obligations under the WTO agreements.

This enforcement failure problem, prone to happen when country sizes differ a lot and when trade flows among countries are very asymmetric, is inherent in the current WTO enforcement mechanism where enforcement is carried out on a bilateral basis. Although this scenario does not occur very often in practice as shown in Table 1, it might be the case that the affected small countries simply do not attempt to bring such disputes to the WTO, anticipating the lack of enforcement power. The WTO has attempted to remedy this
asymmetric enforcement power problem by authorizing, in the *Banana* case, the small complainant country, Ecuador, to retaliate with respect to the obligations under the TRIPS agreements, beyond the conventional enforcement instrument of 100% tariffs on goods trade. This extra enforcement power worked to propel the EU to reach a settlement deal with Ecuador.

5.2 The Partial Enforcement Scenario - Settlement

When the complainant becomes more powerful such that he has some retaliation capacity \( i_0 > 0 \), imposing retaliation according to \( R^A(T) \) will render the complainant government politically better off and the defendant government worse off than the status quo. This is illustrated in Figure 4, where the point representing the political welfare of the parties when the complainant carries out \( R^A(T) \) lies to the northwest of the point representing the status quo. Suppose that the settlement possibilities frontier for this dispute is the dotted curve connecting the two points of “compliance” and the “status quo.”

As discussed above, the political payoffs for both parties when the complainant carries out the alternative retaliation list \( R^B(T) \) are lower than that of \( R^A(T) \). There are two potential scenarios, which are indicated in Figure 4. In case (1), although it is not credible for the complainant to carry out \( R^B(T) \), it is credible for him to carry out \( R^A(T) \). Given that the defendant is better off under retaliation \( R^A(T) \) than under compliance, the defendant will not comply. However, the defendant can improve on \( R^A(T) \) by offering to settle with the complainant along the solid curve \( \overline{ss} \) indicated in the figure. Such offers will be accepted by the complainant as they render him better off than retaliating with \( R^A(T) \). Therefore, the two parties will reach a mutually acceptable scheme of compensation, or some other forms of solutions. The solid curve \( \overline{ss} \) indicates all feasible and Pareto-optimal settlement possibilities.

In case (2), both \( R^A(T) \) and \( R^B(T) \) are credible retaliation proposals. If the complainant publishes retaliation proposal \( B \) and the defendant does not comply or offer to settle, it is credible for the complainant to carry out \( R^B(T) \), as it renders him better off than the status quo. Given that the biggest harm the complainant can inflict on him with \( R^B(T) \) is smaller than if he complies, the defendant will not comply. However, the defendant can improve on \( R^B(T) \) by offering to settle along the curve \( \overline{s_1s_4} \), which the complainant will accept. Similarly, if the complainant publishes retaliation proposal \( A \), settlement along the curve \( \overline{s_2s_3} \) is optimal for both. The settlement possibilities are enlarged with the introduction of the extra credible retaliation \( R^B(T) \). However, since the complainant can choose between \( R^A(T) \) and \( R^B(T) \), he will not take settlement offer less than his payoff at \( R^A(T) \). Therefore, the settlement offer has to lie somewhere along the curve \( \overline{s_1s_3} \). On the other hand, the defendant has no incentive to offer any settlement along the curve \( \overline{s_1s_2} \), as any offer along \( \overline{s_2s_3} \) will be accepted by the complainant regardless of whether \( R^A(T) \) or
$R^B(T)$ is threatened to be used. Therefore, the equilibrium outcome is some form of settlement along the curve $s_{253}$.

In this scenario, the defendant’s political loss from its import sectors in the compensation scheme is smaller than that from its export sectors under retaliation $R^A(T)$. On the other hand, the complainant’s political benefit from its export sectors in the compensation scheme is larger than that from its import sectors under retaliation $R^A(T)$. This mutual improvement in the political payoffs for both governments compared to retaliation allows the possibility of settlement. Although such arrangements are short of full compliance, but the complainant is compensated partially in terms of its political welfare. As indicated in Table 1, a small proportion of violations are resolved in this way.

### 5.3 The Political Escape Scenario - Retaliation

In the following scenario, the worst damage the complainant can inflict upon the defendant through imposing $R^B(T)$ is not enough to induce compliance as in previous scenarios. However, settlement between the parties now becomes impossible, and the defendant will rather let retaliation taking place than to settle. Figure 5 illustrates three representative cases. Suppose that the settlement possibilities frontier for this dispute is the dotted curve connecting the two points of “compliance” and the “status quo.”

In all cases, the defendant will not comply even if the complainant threatens to retaliate with $R^B(T)$. In case (1), the defendant can potentially offer to settle along the solid curve indicated in the figure, which will make himself better off than if retaliated with $R^B(T)$ and at the same time make the complainant better off than retaliating with $R^A(T)$. However, comparing the payoffs under possible settlements along the solid curve and under $R^A(T)$, the defendant is in fact better off under $R^A(T)$. Therefore, the defendant will not comply or offer to settle under either retaliation proposal, and in response, the complainant will choose to retaliate according to $R^A(T)$.

In case (2), the defendant can not find any settlement that will improve upon the state of $R^B(T)$ for himself and at the same time make the complainant better off than under $R^A(T)$. Therefore, settlement is not possible and the complainant will retaliate according to $R^A(T)$ at the equilibrium. In case (3), under either retaliation proposals, no settlement is possible and retaliation is inevitable. However, since $R^A(T)$ renders the complainant higher payoff than $R^B(T)$, the complainant will carry out the former at the equilibrium.

In this scenario, the political cost to the defendant government if he complies is much larger than any potential harm the complainant’s retaliation can do to his export sectors. Furthermore, there exists no mutually beneficial settlement arrangements, which will make him better off than under retaliation and at the same time be acceptable to the complainant. As a result, retaliation emerges as the equilibrium
outcome. As can be seen from Table 1, there have been six cases where retaliation is authorized. However, some of these authorizations of retaliation have prompted settlement between the parties or compliance from the defendant. Only in one case, the Hormone case against the EU, has the retaliation been carried and remained so far. In spite of the negative opinions some WTO observers expressed toward the use of retaliation and the non-compliance of the defendant, the fact that the defendant is willing to accept retaliation without further counter-retaliation speaks volumes for the political difficulty that the defendant as a democratic government faces domestically to comply with the ruling. In this sense, the retaliation outcome can be viewed as a political escape from the WTO system, if compliance indeed will result in great political cost for the defendant government.\textsuperscript{13}

5.4 The Full Enforcement Scenario - Compliance

If it is credible for the complainant to carry out the retaliation proposal $R^B(T)$ and the defendant is worse off under the retaliation proposal $R^B(T)$ than under compliance, then compliance will emerge as the equilibrium outcome. Figure 6 illustrates this scenario. Suppose that the settlement possibilities frontier for this dispute is the dotted curve connecting the two points of “compliance” and the “status quo.”

In case (1), note that if the defendant does not comply or settle, it is credible for the complainant to carry out $R^B(T)$ as retaliation renders him better off than the status quo. The defendant will comply if $R^B(T)$ is proposed by the complainant. On the other hand, under proposal $R^A(T)$, the two parties will settle along the solid curve. Since the complainant is better off proposing $R^B(T)$, which induces compliance, than proposing $R^A(T)$, which induces settlement offers less than full compliance, he will propose $R^B(T)$. Therefore, the equilibrium outcome is “compliance.” In case (2), the complainant can induce the defendant to comply using either proposal $R^A(T)$ or $R^B(T)$, and there is no feasible settlement that will make both parties better off than the defendant’s compliance. Therefore, the desired enforcement outcome of the WTO procedure successfully emerges in the equilibrium.

In this scenario, the defendant government’s political loss from its export sectors which will be affected by the complainant’s retaliatory tariffs is larger than the political gain from the sectors which benefit from the existing illegal trade policy. Therefore, the defendant government will choose to comply. From Table 1, we see that most of the violations are resolved successfully through the defendant’s withdrawal of the contentious policy. In general, the larger is the complainant’s retaliation capacity and the stronger politically are the defendant’s export sectors, the more likely is the compliance outcome.

\textsuperscript{13}See Charnovitz (2001, pp. 820) for a similar opinion.
6. CONCLUSION

This paper attempts to develop a formal economic framework to analyze the influences of domestic political considerations by democratic governments in shaping the WTO enforcement outcomes in the wake of a violation ruling against the defendant. Since a different mix of import and export sectors in the defendant and complainant country will benefit from the various potential enforcement outcomes, of compliance, compensation, retaliation, or the status quo, they become competing forces which steer the strategic interactions between the disputing governments. The results of the paper illustrate the complainant’s strategy in selecting the retaliation list, and the likelihood of the defendant’s compliance or compensation in response to the foreseeable retaliation, given the political and economic environments on both sides of the disputing parties. It is shown that the likelihood of compliance depends on the relative political power of the defendant’s sectors which have benefited from the existing illegal trade policy, versus that of its export sectors which will be the targets of retaliation. The complainant, in turn, will target the defendant’s export sectors which has the greatest political clout, subject to his own retaliation capacity and the level authorized by the WTO. If compliance is not foreseeable with the threat of this list, however, the complainant will instead put on the list the domestic import sectors that are most influential politically. When compliance outcome is not likely, but the complainant has some retaliation capacity, it is possible to avoid retaliation by identifying some mutually agreeable compensation scheme which makes both governments better off. When no such settlement deals can be identified, retaliation becomes the last resort by which the re-balancing of benefits and obligations between the disputing parties is carried out. This paper also captures the possibility of enforcement failures under the current WTO dispute settlement procedure, where the complainant does not have enough retaliation capacity to induce compliance or some form of compensation from the defendant. In summary, the WTO dispute settlement procedure serves an important function as a political escape device. The enforcement outcome which emerges reflects the political trade-off by the disputing governments of industry interests and aggregate welfare, as well as the political re-balance of benefits and obligations between the disputing governments in response to changes in the political climate or economic environment.
**APPENDIX: THE ECONOMIC AND POLITICAL STRUCTURES OF INDIVIDUAL COUNTRIES**

This appendix establishes notation and summarizes the basic framework of Grossman and Helpman (1994, 1995a,b). The description is given for a representative country, with the country superscript suppressed.

The country is populated with \( N \) individuals who have identical preferences \( u(c) = c_0 + \sum_{i=1}^{n} u_i(c_i) \), where \( c_i \) is the consumption of good \( i \) and \( u_i(\cdot) \) is an increasing and concave function. Good 0 is normalized to have a price of one and is freely traded among countries. Given the utility function and the goods prices \( p_i \) for \( i = 1, \ldots, n \), an individual with income \( y \) demands \( D_i(p_i) \) of good \( i \) for \( i = 1, \ldots, n \) and \( y - \sum_{i=1}^{n} p_i D_i(p_i) \) of good 0. It follows that the individual’s indirect utility function is \( V(y, p) = y + \sum_{i=1}^{n} s_i(p_i) \), where \( p = (p_1, \ldots, p_n) \) and \( s_i(p_i) = u_i(D_i(p_i)) - p_i D_i(p_i) \) is the consumer surplus derived from consumption of good \( i \) for \( i = 1, \ldots, n \).

The production of good 0 uses only labor with a unit labor requirement equal to one. The production of all other goods uses labor and a sector-specific factor with constant returns to scale. The labor force is taken to be large enough that good 0 is always produced. Since good 0 is freely traded among countries with a world price of one, the wage rate must equal one. Therefore, the owners of the specific factor used in sector \( i \) receive profits of \( \Pi(p_i) \), which increases with \( p_i \). The supply of good \( i \) equals \( X_i(p_i) = \Pi'(p_i) \) for \( i = 1, \ldots, n \).

The ownership of sector-specific factors is assumed to be highly concentrated and constitutes only a negligible fraction of the voting population \( N \). The owners of the specific factor used in each sector have a common interest in seeing a higher domestic price for their own sector. The common interest and small number of specific-factor owners in one sector facilitate the formation of interest groups. The interest groups compete noncooperatively with one another to induce favorable actions from the government that will improve their group’s joint welfare. They do so by presenting the government a campaign contribution schedule \( C_i(\cdot) \), which is tied to the actions taken by the government (and possibly those of foreign governments which the lobbies hope to influence through the local government). Since the interest groups constitute a negligible fraction of the total population, they receive negligible amount of tariff revenue rebates and gain a negligible fraction of consumer surplus. Therefore, the joint welfare of the interest group in sector \( i \) can be approximated by \( \Pi_i(p_i) - C_i \) for \( i = 1, \ldots, n \).

The incumbent government values the campaign contributions as well as the general welfare, both of which help to promote its likelihood of being re-elected. Its politically motivated objective function takes the linear form \( \tilde{G} = \sum_{i=1}^{n} C_i + aW \), where \( W \) is aggregate welfare and \( a \) is the weight the government places on aggregate welfare relative to campaign contributions. The aggregate welfare includes total labor income,
total profits, total trade tax revenues net of subsidy expenditures, and aggregate consumer surplus. That is

\[ W(p, p^*) = L + \sum_{i=1}^{n} \Pi_i(p_i) + \sum_{i=1}^{n} (p_i - p_i^*) M_i(p_i) + Ns(p), \]

where \( p^* = (p_1^*, \ldots, p_n^*) \), \( p_i^* \) is the equilibrium world price of good \( i \) given the trade policies of all countries, and \( M_i = ND_i(p_i) - X_i(p_i) \) is the net import demand for good \( i \) given \( p_i \). In the case of an export subsidy, \( p_i > p_i^* \) and \( M_i < 0 \); on the other hand, an import tariff corresponds to \( p_i > p_i^* \) and \( M_i > 0 \). The trade tax revenues net of subsidy expenditures are assumed to be rebated evenly to all individuals.

At the equilibrium, the contribution schedule of each interest group maximizes the joint welfare of its members, given the contribution schedules set by other groups and the government’s optimization of its political objective; and the action taken by the government maximizes its political objective function given the contribution schedules offered by the interest groups. It is shown in Grossman and Helpman (1994) that if the contribution schedules are globally truthful, i.e. the contribution schedules everywhere reflect the true preferences of the lobbies, the government’s political objective function is equivalent to \( G = \sum_{i=1}^{n} \Pi_i + aW \).
REFERENCES


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Table 1: The Outcomes of WTO Disputes

<table>
<thead>
<tr>
<th>Procedural Outcome\textsuperscript{a}</th>
<th>Enforcement Outcome\textsuperscript{b}</th>
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<tr>
<td>Total Complaints 301</td>
<td>Panel/Appellate Reports Adopted 88</td>
</tr>
<tr>
<td>withdrawn 24</td>
<td>no violation\textsuperscript{c} 14</td>
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<tr>
<td>settled 41</td>
<td>violation 74</td>
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<tr>
<td>report adopted 88</td>
<td>compliance\textsuperscript{d} 43</td>
</tr>
<tr>
<td>in progress 148</td>
<td>mutually agreed solution\textsuperscript{e} 9</td>
</tr>
<tr>
<td></td>
<td>authorization of retaliation\textsuperscript{f} 6</td>
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<tr>
<td></td>
<td>outcome unknown\textsuperscript{g} 8</td>
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<tr>
<td></td>
<td>in progress\textsuperscript{h} 8</td>
</tr>
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\textsuperscript{a}The data is compiled from WTO (2003) as of 9/17/2003.
\textsuperscript{b}The data are author’s tabulation based on WTO (2003) as of 9/17/2003.
\textsuperscript{c}These are Disputes No. 22, 44, 60, 62, 67, 68, 135, 152, 163, 165, 194, 213, 221, 243.
\textsuperscript{d}These are Disputes No. 2, 4, 8, 10, 11, 18, 24, 31, 33, 50, 54, 55, 59, 63, 56, 58, 70, 75, 84, 76, 79, 87, 110, 90, 98, 114, 121, 138, 139, 142, 146, 175, 156, 161, 169, 170, 177, 178, 179, 189, 192, 202, 236.
\textsuperscript{e}These are Disputes No. 34, 99, 103, 113, 122, 126, 155, 160, 231.
\textsuperscript{f}These are Disputes No. 26, 48, 27, 46, 108, 222.
\textsuperscript{g}These include the disputes where their enforcement outcomes can not be concluded given the information provided by WTO (2003) or other documents available on WTO Web site. The disputes may be unresolved with the contentious policy still in place, or they may have been resolved between disputing parties without being notified to or recorded by the WTO. They are Disputes No. 69, 132, 136, 162, 141, 166, 206, 211.
\textsuperscript{h}These include the disputes where the reasonable period of time to comply has not yet expired and no compliance or settlement has yet resulted as of 9/17/2003. They are Disputes No. 176, 184, 207, 212, 217, 234, 238, 241.

Figure 1: Settlement Possibilities Frontier

![Settlement Possibilities Frontier](image-url)
Figure 2: Game Tree of the WTO Enforcement Mechanism
Figure 3: The Enforcement Failure Scenario - Status Quo

Figure 4: The Partial Enforcement Scenario - Settlement

(1)
Figure 5: The Political Escape Scenario - Retaliation

(1)

(2)
Figure 6: The Full Enforcement Scenario - Compliance

(1)

(2)