Screening for Losers: Trade Institutions and Information

Jason S. Davis, University of Michigan*

Abstract

International institutions provide governments with a dizzying array of options for supporting domestic industries, each with varying costs and benefits. As examples, governments can choose where (i.e. at which international institution) to file trade disputes, whether to launch a trade dispute or make use of "flexibility measures" in a retaliatory fashion, and which flexibility measure (usually amongst several) to use to impose temporary protection. This paper presents a formal model that demonstrates that governments can use this multitude of options to screen between domestic groups for those with the strongest legal cases, which is private information that interest groups would otherwise not have an incentive to honestly reveal. This selection process can help to explain, amongst other things, why disputes pursued via the WTO have such a high rate of success (approximately 90%), and demonstrates another way in which international institutions and their particular features can be valuable to governments, namely their potential for providing governments with useful information about domestic political groups.

Introduction

In determining which industries to protect from trade competition, governments are faced with difficult tradeoffs in an environment of incomplete information. While governments would like to protect politically important groups who are threatened by trade competition, doing so imposes aggregate welfare costs that may be politically costly, and can impose significant concentrated costs on downstream industries that are also politically important (for instance, automobile manufacturers would be affected by steel tariffs). As a consequence, governments are often best served by protecting only a subset of groups that are harmed by trade competition, such as those that are harmed the most severely, or those that are facing "unfair" competition from firms abroad. However, whether or not this is true for any group is often the private information of that group, and they do not have an incentive to honestly reveal that information, given that they benefit unconditionally from more protection.

Similarly, exporting firms often have a clear sense of how well the laws and regulations of other countries conform with international legal commitments, given that these firms have

*Department of Political Science. E-mail: jasonsd@umich.edu.

an incentive to monitor such things and often experience the consequences directly. However, firms benefit unconditionally from any changes to the policy that will boost their exports' competitiveness, and thus have an incentive to misrepresent the legality of any policies that they find unfavorable when lobbying the government. Governments, however, may only want to invest political capital and financial resources in the cases which involve truly unfair practices on the part of foreign actors. Thus, a question arises: are there mechanisms by which interest groups can credibly signal these characteristics of their situation in order to allow the government to overcome the selection problem?

This paper presents a formal model in which the selection of the forum and/or instrument through which an interest group pursues government support can perform this function. Trade institutions often provide many options for supporting domestic industries, from several kinds of "trade remedies", which allow for temporary protection of industries that are suffering injury as a result of trade competition (see, for instance, safeguard measures under Article XIX of the GATT or antidumping actions under Article VI), to procedures for challenging the illegal practices of other countries. However, these institutions will often independently assess the validity of such claims when faced with a dispute (e.g. Dispute Settlement proceedings in the WTO). As such, given that institutions and instruments differ in their standards for granting claims, an interest group's selection of one means of support over another can credibly reveal information about the group's type.

Brief Overview of the Literature

One important related literature to this paper is that on forum-shopping in international trade. (Busch 2007, Davis 2009) This literature suggests that groups will select the forum that gives them the highest probability of success, except in such cases where the informal precedent set by a ruling may bind on different subsets of countries, in which case one selecting an institution may trade-off the likelihood of success against how important the third parties to a dispute are relative to the defendant alone. (Busch 2007) The theory of this paper suggests that interest groups may select institutions that give them a lower likelihood of success *holding fixed the weighting placed on third parties*. This theory also provides an explanation for patterns of forum-shopping that is consistent with the possibility that this "informal legal precedent" does not have any impact on trade relations with third parties; a possibility that is distinctly plausible given the absence of true, legally-binding precedent in international trade law. (See, for instance, Article 3.2 of the WTO DSU)

Another important literature is that which discusses the inclusion of flexibility provisions in international trade agreements. This literature suggests that flexibility provisions are a means of making trade agreements more "stable", by allowing parties to the agreement a "safety valve" in cases of heightened domestic political pressure for protection. (Rosendorff and Milner 2001, Koremenos 2001, Rosendorff 2005) However, this literature does not provide a clear sense of why an institution would include multiple trade remedies; indeed, Rosendorff

simply states that the different means "have the same effect of allowing temporary relief when the local industry comes under pressure from foreign competitors." (Rosendorff 2005 p.396) In contrast, this paper suggests that having different instruments for temporary protection with differing probabilities of being overturned and differing benefits allows governments to match higher levels of protection to those with the strongest cases.

This paper also speaks to a relatively nascent literature on informational lobbying with respect to trade liberalization. This literature outlines how firms can use costly lobbying to signal the strength and value of potential cases. (See Brutger 2015) Like Brutger, I note that firms have private information about the strength of their cases that can be difficult to reveal credibly, but I posit a different mechanism by which groups can overcome this credibility problem. I believe that the mechanism I posit is complementary to Brutger's, and is consistent with the same evidence on the high success rates of WTO complainants.

Lastly, this paper speaks to a broader literature on how international institutions and international law can be helpful to national governments. (Keohane 1984, Koremenos et. al 2001, Koremenos 2001) This literature has identified "information" as a potential benefit of such institutions, but has focused mostly on how institutions can help to provide information about other states in an agreement by, for instance, monitoring compliance. This paper posits a new reason why international institutions can be helpful; namely, that they allow governments to obtain private information about interest groups so as to better allocate protection and other forms of political support.

Reviewing the Trade Law

Overlapping Institutions and Forum-Shopping

Founded in 1947 as a provisional agreement between 23 countries, the General Agreement on Tariffs and Trade, or GATT, was initially conceived of as a temporary precursor to a forthcoming International Trade Organization (ITO) that was expected to form the institutional basis for world trade. (Trebilcock 2011) However, due to strong opposition from the US Congress, the ITO never materialized, and the GATT became the main institutional/legal foundation for world trade by default. Over the course of the eight completed rounds of negotiation since, membership in the GATT expanded to more than 150 countries, and tariff rates in member states fell dramatically. This culminated with the Uruguay Round of negotiations, which ended in 1993, and at long last established a formal World Trade Organization (WTO), which included a formal apparatus for settling disputes (the Dispute Settlement Body, which is governed by the Dispute Settlement Understanding, or DSU) instead of the ad-hoc panels that had been used prior to that point. (Trebilcock and Howse 2005)

Many initially hoped that the World Trade Organization would be a single forum through which trade liberalization could be negotiated on a broadly multilateral basis, avoiding the

possible trade diversion inefficiencies and international resentment that could be brought on if trade liberalization was instead conducted through a series of bilateral agreements. Indeed, GATT Article XXIV attempts to limit the development of preferential trade agreements (PTAs) by insisting that they only be allowed in such cases where they eliminate all duties and other restrictions on commerce on "substantially all trade". (GATT Article XXIV) However, especially in recent years, this hope has been dashed; from 1990-2010, the number of PTAs rose from about 70 to approximately 300. (Baccini et al. 2011)

This explosion in the number of PTAs has led to the peculiar situation where trade between countries is often governed by several overlapping institutions, such that complainants may have to choose between forums through which to lodge a complaint. Moreover, these forums can differ in important ways in the way they resolve disputes; for instance, while both the North American Free Trade Agreement (NAFTA) and the WTO have dispute resolution proceedings (NAFTA Chapter 19 & 20 and the DSU respectively), the former tends to draw panels of those with domestic judicial expertise (this was developed under pressure from the US Congress to ensure that panelists would have an in-depth familiarity with US Administrative law), while the latter is weighted more towards those with expertise in international trade law and economics. (Howse 1998) This can lead to differences in how similar cases would be adjudicated, given that trade law cases often rest on technical determinations of "material injury" and "dumping" that are necessarily made by economists and statisticians. For instance, in the somewhat unusual case of the US-Canada Softwood Lumber dispute, where aspects of the dispute were brought to both the WTO and NAFTA, a WTO panel ruled that a threat of material injury to US industries was present, while a NAFTA panel ruled precisely the opposite. (Pauwelyn 2006)

If forums differ in how they adjudicate disputes, and if states have a choice about which forum to use when pursuing a claim, then "forum-shopping" becomes inevitable, whereby states and firms choose between different forums to satisfy some political objective function. Furthermore, the issue of overlapping institutions is likely to continue to increase, given the rapidly rising number of PTAs. Marc Busch identifies several reasons why a state might prefer one forum over another, including timeliness of dispute resolution, available remedies, etc. and ultimately argues that countries choose the forum that gives them the best probability of success *ceteris paribus*, but may also trade this off against the value they place on trade with third parties in the institution who may be affected by the setting of any informal precedent. (Busch 2007)

As noted earlier, any precedent effects are strictly informal. As Article 3.2 of the DSU states, "Recommendations and rulings... cannot add to or diminish the rights and obligations provided in the covered agreements." (WTO DSU Article 3.2) Thus, dispute rulings are not intended to have spillover effects outside of the particular case. Whether or not they do is the subject of active academic debate. (See Kucik and Pelc 2014) If rulings do not impact trade on third parties, then Busch's argument reduces to "states choose the forum that gives

them the best chance of success." In this paper, I argue that the opposite can be true, if firms have private information about the strength of their case that they wish to reveal credibly.

Flexibility Provisions

In addition to providing means for governments to claim violations of an agreement, trade agreements generally allow states to temporarily suspend certain obligations irrespective of such a violation. These have been referred to by Koremenos et al. as "flexibility provisions"; i.e. those provisions that allow members to "escape" temporarily from obligations under the agreement, usually in response to some unanticipated shock. (Koremenos et al. 2001) "Safeguard measures", as they are often called, exist under both NAFTA and the WTO; NAFTA has measures under Chapter 8, and the WTO has measures under GATT Article XIX. (Trebilcock and Howse 2005) Moreover, there are certain measures that have been interpreted as being de facto flexibility provisions even if they appear in principle to target unfair trade practices; for instance, it has been argued that anti-dumping (AD) laws are a form of flexibility provision. (Kucik and Reinhardt 2008) Countervailing duties (CVDs) are the main other form of trade remedy, and are formally a way of responding to illegal subsidies of other countries, but may be used instead as a flexibility provision (particularly given that states have the option to challenge illegal subsidies via the DSU).

For all forms of trade remedies, firms are almost certain to have private information about the strength of their case. All of these provisions usually require evidence of "injury"; an empirical claim that necessitates showing both that the firm is under financial duress, and that this duress is causally related to competition from international trade. Anti-dumping provisions also require evidence that imported goods are being sold in the complainant's country at a lower price than they are being sold in the exporter's country, or that the goods are being sold below cost. (Trebilcock and Howse 2005) Similarly, CVDs require evidence that the exporting country is subsidizing their exports.

The Argument

Firms naturally have information about material injury and prices of competing goods as part of their regular business practices, while governments will often either not have access to it (as with internal research conducted by the firm), or will be unwilling to expend the resources required to collect it. It is also likely the case, as Brutger argues, that firms have private information about the compliance of other countries with their international legal obligations, given that these firms have an incentive to invest more resources in monitoring other countries for violations, and will experience the consequences of violations directly when it affects their balance sheet. (Brutger 2015) All of this is reinforced by the fact that the agencies tasked with administering trade law are financially constrained; for instance, the United States Trade Representative (USTR), which is tasked with pursuing any claims

via the DSU, has a budget of approximately $50 million, much of which is allocated towards funding trade negotiations instead of monitoring domestic firm performance. (USTR Budget Report 2014) Similarly, the United States International Trade Commission (USITC), which is tasked with investigating and implementing AD provisions and CVDs, has an annual budget of approximately $85 million, of which approximately $25 million is spent on the administration of trade remedies. (USITC Budget Report 2016)

As a consequence, firms need to signal their private information to governments if governments are to be able to select between cases when choosing which disputes to pursue, or whom to grant protection via a trade remedy. However, as firms benefit unconditionally from this government support, they always have an incentive to say that their injury is high, and that their case is otherwise strong.

Governments likely do not want to invest reputational capital and other financial resources in pursuing cases that have a high probability of failure. Moreover, governments would likely prefer not to protect those firms which have not experienced material injury, given that protecting such "weakly injured" groups provides fewer political gains while imposing costs on potentially influential downstream competitors, as well as aggregate welfare costs that may be politically important. Put differently, distributing trade protection is a "negative sum good"; giving trade protection to some groups reduces the amount of resources that can be distributed to others.[1] Thus, absent credible information transfer from firms to the government, governments may choose not to protect any groups at all, or not to pursue any trade disputes.

The argument of this paper is that firms may choose to pursue support via institutions or mechanisms that give them a lower probability of success or that are more costly if this allows them to credibly signal private information about the strength of their cases. In effect, a firm may choose a "hard test" of the strength of their case if it allows governments to distinguish between that group and others that would be unwilling to select the hard test due to their even lower likelihood of "passing" it.

This works if the dispute settlement process can reveal information about a firm's type, which I argue is the case in practice for two reasons. First, if a dispute is initiated (either by a domestic firm or by a foreign firm challenging a trade remedy), the case will often reduce to technical determinations of fact by economists and statisticians. This should reveal information about a firm's type. Second, for trade remedies, if we assume that governments will only initiate disputes in which they think they have a chance of succeeding, then dispute initiation reflects the aggregated information of both foreign states and (if they can credibly transfer information via some mechanism) foreign firms. Thus, weak cases are both more likely to be challenged, and (not independently) more likely to be overturned when challenged. The combination of these two things reflects the "probability of success" when

[1] I thank James Morrow for this way of phrasing it.

a government implements a trade remedy.

Not only does this selection mechanism help with legal case selection (helping to explain the extremely high success rate of WTO complainants), but it allows governments to separate the groups that they would want to protect from those that they would not even if a legal institution regulating trade did not exist. Thus, this paper provides another argument for why governments may want to have independent institutions that regulate and enforce trade policy; namely, because these institutions may provide useful information to governments that allow them to better satisfy their domestic political objective function.

Model

In this model, there are two players: Government (G) and an interest group (I). An interest group is lobbying for trade protection, and may be "severely injured" (SI) by trade competition or "weakly injured" (WI) (i.e. type space is $T = \{WI, SI\}$). Governments want to protect the strongly injured groups but not weakly injured groups. Thus, interest groups always have an incentive to tell the government that they are severely injured in order to try to obtain the most protection. This can be generalized by thinking of SI types as any firms with a strong legal case and WI types as any firms with a weak legal case.

Now suppose that I can choose between two institutional mechanisms when pursuing protection, and one of those mechanisms gives a strictly lower probability of success than another. For expository purposes, I call the more stringent mechanism the DS and the less stringent mechanism CVD; this reflects what I think is a relatively clean example of screening, wherein an interest group facing subsidies can either lobby the government to pursue a legal claim against another country via dispute settlement (DS) or file for CVDs via the USITC. However, there are many instruments and institutions that interest groups can choose from, so this is only one example of screening; others will be elaborated upon later in the paper. The government then observes which request is made, and decides whether to grant it.

If protection is pursued via the DS, then a panel rules in favour of I with probability π_1 if $T_i = SI$, and with probability π_0 if $T_i = WI$, with $\pi_1 > \pi_0$. If protection is pursued via CVDs, then the CVD stands (i.e. is either not challenged, or is challenged and upheld) with probability π_1' if $T_i = SI$ and with probability π_0' if $T_i = WI$, with $\pi_1' > \pi_0'$, $\pi_1' > \pi_1$ and $\pi_0' > \pi_0$. Government obtains $\alpha \in \mathbb{R}^+$ for protecting an industry that is several injured, and experiences cost $\gamma \in \mathbb{R}^+$ if it protects an industry that is weakly injured. Government obtains a payoff of zero from either rejecting an industry's request, or if the panel rejects a claim or the CVD is overturned (leading to no protection).

Industries of either type obtain payoffs of $\beta > 0$ to getting protection, but experience fixed legal costs $c_1 > 0$ if a government pursues their claim via DS and fixed legal costs $c_2 > 0$ if a government approves their claim via CVD. So pursuing a claim is costly for the industry,

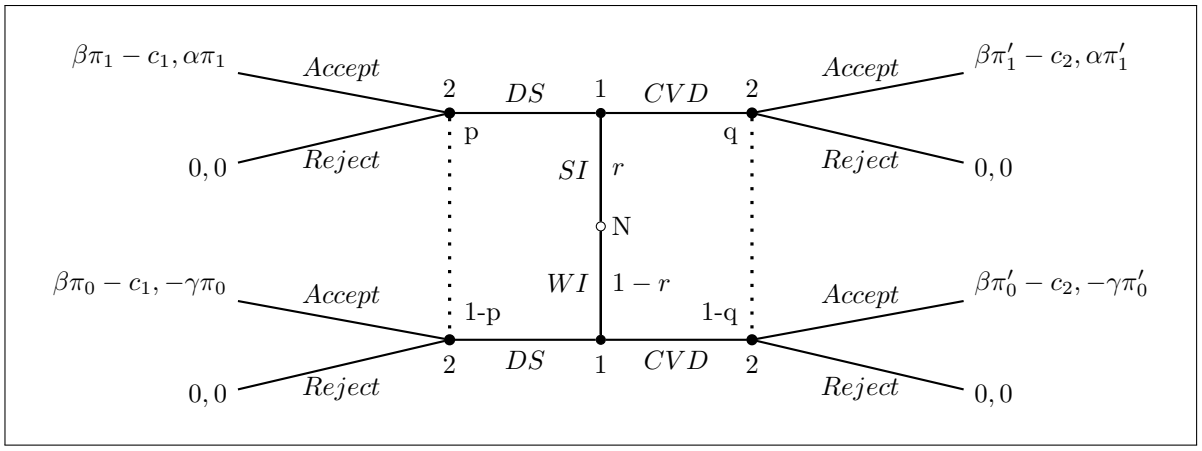

Figure 1: Institutional Selection Model

and may only be profitable if the chance of succeeding is sufficiently high. Industries obtain a payoff of zero if their request is denied in any case. Thus, we have the game tree found in Figure 1.

Pooling Equilibria

Throughout the equilibrium analysis, I assume that pursuing a claim for protection via CVD is profitable for both types (i.e. $\pi'_0 - c_2 > 0$). A simple extension to the model would allow a firm to choose not to pursue a claim at all and receive a payoff of 0, or to pursue unilateral protection outside of any international legal institution and avoid any legal costs (unilateral protection is the degenerate case where $\pi'_1 = \pi'_0 = 1$ and $c_2 = 0$). However, I am most interested in modeling the selection process between mechanisms when at least one of them is profitable to both types. One can simply keep in mind that unilateral protection or not pursuing protection is always an option, and note that this model applies to instances in which all firms can gain by having their claim pursued via at least one mechanism.

Several pooling equilibria are possible in this model depending on conditions on parameters. For instance, it is possible to sustain equilibria where G protects both types and each industry always pursues protection via CVD irrespective of type if the following condition holds:

$$r\alpha\pi'_1 - (1 - r)\gamma\pi'_0 \geq 0$$

Intuitively, the above constraint means that the percentage of firms that are strongly injured is high enough that it is still better for Government to pursue protection even if there is no way to screen between firms. It is also possible to have pooling where both types pursue protection via DS, if the above pooling condition holds, if pursuing protection via DS is profitable for both types (i.e. if $\pi_0 - c_1 > 0$), and if government has the following off the

equilibrium path beliefs:

$$\begin{aligned} q\alpha\pi_1' - (1-q)\gamma\pi_0' &\leq 0 \\ q\alpha\pi_1' + q\gamma\pi_0' &\leq \gamma\pi_0' \\ q(\alpha\pi_1' + \gamma\pi_0') &\leq \gamma\pi_0' \\ q &\leq \frac{\gamma\pi_0'}{\alpha\pi_1' + \gamma\pi_0'} \end{aligned}$$

We can also have a pooling equilibrium where each type always chooses either CVD or DS and Government never protects if you reverse the pooling condition and ensure that off the equilibrium paths are such that government prefers not to protect deviators.

Separating Equilibria

In order to obtain a separating equilibrium where SI types pursue protection via DS and WI types pursue protection via CVD, we need the following conditions to hold:

- $\pi_1\beta - c_1 \geq 0 \leftrightarrow \pi_1\beta \geq c_1$
- $\pi_0\beta - c_1 \leq 0 \leftrightarrow \pi_0\beta \leq c_1$

Intuitively, if these conditions hold, SI types can benefit from pursuing a claim via DS given their higher probability of success, but WI types have a sufficiently low probability of success that the costs of pursuing a claim would exceed their expected benefits. Thus, we have a separating equilibrium where SI types pursue protection via the DSU and Government pursues those claims, while WI types pursue protection via CVD and Government rejects those claims. Consequently, the "hard test" of the DS allows the Government to screen between strongly and weakly injured industries.

Semi-Separating Equilibria

However, in reality, we often do not see results as stark as those suggested in the strict separating equilibrium or the strict pooling equilibria. Interest groups appear to pursue protection via a variety of mechanisms, and not every industry that pursues protection and obtains it appears to have had a strong case for it. A more realistic conjecture in many cases is that interest groups play mixed strategies as part of a semi-separating equilibrium, where strongly injured types often pursue protection via CVD in order to obtain a higher probability of success (and possibly lower legal costs if $c_1 > c_2$).

In order to sustain a semi-separating equilibrium, Government will have to randomize in order to make SI types indifferent, and thus SI types must choose CVD with such a probability so as to make Governments indifferent between accepting and rejecting when observing a request for protection via CVD. The following conditions allow for a semi-separating equilibrium.

1. SI types randomize if:

   $\beta\pi_1 - c_1 = s(\beta\pi_1' - c_2) + 0(1-s)$

   $\leftrightarrow s = \dfrac{\beta\pi_1 - c_1}{\beta\pi_1' - c_2}$

   Where s is the probability G accepts upon observing CVD.

2. Governments randomize if:

   $EU(Accept|CVD) = q\alpha\pi_1' - (1-q)\gamma\pi_0' = EU(Reject|CVD) = 0$

   $\leftrightarrow q\alpha\pi_1' - \gamma\pi_0' + q\gamma\pi_0' = 0$

   $\leftrightarrow q = \dfrac{\gamma\pi_0'}{\alpha\pi_1' + \gamma\pi_0'}$

   Where by Bayes' rule, where z is $Pr(CVD|SI)$

   $$q = \frac{Pr(CVD|SI)Pr(SI)}{Pr(CVD|SI)Pr(SI) + Pr(CVD|\neg SI)Pr(\neg SI)}$$

   $\leftrightarrow q = \dfrac{zr}{zr + 1(1-r)}$

   Such that we have:

   $$\frac{zr}{zr+1-r} = \frac{\gamma\pi_0'}{\alpha\pi_1' + \gamma\pi_0'}$$

   $$zr = \frac{\gamma\pi_0'}{\alpha\pi_1' + \gamma\pi_0'}(zr + 1 - r)$$

   $$zr - zr\frac{\gamma\pi_0'}{\alpha\pi_1' + \gamma\pi_0'} = \frac{\gamma\pi_0'(1-r)}{\alpha\pi_1' + \gamma\pi_0'}$$

   $$z\left(r\left(1 - \frac{\gamma\pi_0'}{\alpha\pi_1' + \gamma\pi_0'}\right)\right) = \frac{\gamma\pi_0'(1-r)}{\alpha\pi_1' + \gamma\pi_0'}$$

   $$z = \frac{\gamma\pi_0'(1-r)}{r(\alpha\pi_1' + \gamma\pi_0')(1 - \frac{\gamma\pi_0'}{\alpha\pi_1' + \gamma\pi_0'})}$$

So we have a semi-separating equilibrum where s is the probability that Government protects when observing CVD and z is the probability that an interest group pursues protection via CVD when they are strongly injured.

A Degenerate Case: Considering Institutional Design

As mentioned earlier, a degenerate case of the model is where a firm is choosing between pursuing a case via an international institution or via unilateral protection from the government, which in this model would be when $\pi_1' = \pi_0' = 1$ and $c_2 = 0$. The mathematics of this

are the same as the above with these values plugged in, but the substantive interpretation is different. In this case, we are not talking about selecting between institutional mechanisms, but about why a firm might choose to pursue a claim via an international institution at all, given that there is a chance that this claim might be rejected. This model suggests that even if governments would prefer to protect all strongly injured firms without having to deal with the uncertainty of going through an international institution, firms may still pursue protection via these institutions if it can help screen between firms. Thus, this degenerate case focuses one's attention on a potentially important reason why governments might agree to institutions with external arbitration; namely, that such arbitration (or the threat of it) may provide governments with information that allows them to better select firms to protect in order to satisfy their domestic political objective function.

This can also help to provide insight into the important question of institutional design. First, we can consider government's welfare under different equilibria in the degenerate case. The pooling equilibria when pursuing unilateral protection are what you would have if there was no international institution through which to screen cases, and would turn on whether you have:

$$r\alpha - (1-r)\gamma \geq 0$$

If this condition holds, you would get all groups applying for protection and receiving it. If it does not, you would get all groups applying for protection and all of them being rejected. The utility to government is thus $max(r\alpha - (1-r)\gamma, 0)$.

In contrast, under the separating equilibrium, strongly injured firms self-select into the institutional/legal mechanism for pursuing protection. Thus, the utility to government is $\pi_1 \alpha r$, which is greater than that obtained under the pooling equilibrium in which no firm is protected, and greater than the "everyone gets protection" equilibrium whenever $\pi_1 \alpha r > r\alpha - (1-r)\gamma$, which can be rewritten as when $(1-\pi_1)\alpha r < (1-r)\gamma$. In other words, governments trade-off between identifying the SI types with certainty but accepting some probability of protection being overturned, and not distinguishing the SI types from the WI types but also avoiding any probability of protection being overturned.

Thus, government wants π_1 to be as high as possible, and conditional on it being high enough for government to benefit from the separating equilibrium, wants π_0 to be low enough to ensure the separation constraints are met (i.e. $\pi_1 \beta \geq c_1$ and $\pi_0 \beta \leq c_1$). This means that governments want the institutional legal process to be as informative as possible in distinguishing between SI and WI types, but the focus is on increasing π_1 while only worrying about getting π_0 sufficiently low to induce separation. This provides an explanation for why governments might set up international institutions with binding arbitration procedures that assess a lot of information to make technical determinations of fact, but which also tend to skew towards leaving protectionist claims unchallenged.

Comparative Statics

Given that this game has multiple equilibria, thinking about comparative statics can be a bit trickier. We can see a few things pretty clearly, i.e. increasing r or α or decreasing γ increases the chance of pooling. We can also look at how changes in parameters may move one out of a separating equilibrium. It's also worth noting that you can only get the semi-separating equilibrium if the separation constraint holds for SI types (otherwise $s < 0$, which is impossible given that it is a probability).

If you have a semi-separating equilibrium, the comparative statics can be obtained more straightforwardly. We can see, for instance, that an increase in c_1 or π_1' decreases the probability that Government protects when observing CVD (parameterized as s), while an increase in π_1 or c_2 increases this probability. We can find the comparative static of s with respect to β as follows:

$$\frac{\partial s}{\partial \beta} = \frac{c_1\pi_1' - c_2\pi_1}{(\beta\pi_1' - c_2)^2}$$

Note that we have assumed $\beta\pi_1' - c_2 > 0$ and that $\pi_1' > \pi_1$, so s is an increasing but concave function in β so long as $c_1 \geq c_2$ (which probably holds in the case of CVD versus DS, given that the legal costs of pursuing a claim via DS can be very high). Otherwise, it would depend on the ratio of π_1' to π_1.

The direction of the effect of most parameters on the probability that a strong type chooses CVD (z) is ambiguous, as most show up in both the numerator and the denominator. However, an increase in r (the prior probability of being a strong type) unambiguously decreases z, as it decreases the numerator and increases the denominator. Also, an increase in the probability of success when filing a claim via CVD (π_1') unambiguously decreases the probability of choosing CVD in equilibrium, as it increases the size of the denominator. This may seem counterintuitive, but it is the kind of result that often arises in mixed strategy equilibria; in this case, increasing π_1' also increases the incentive that Government has to pursue CVD claims, which means that z has to decrease in order to keep Government indifferent.

Continuous Type Version of the Model

We can also consider a continuous type version of the model, i.e. a version of the model in which the degree of injury can take on any value in a particular range. This is in many ways a more realistic account of the situation, and may produce interesting implications not found in the discrete type version.

In this version of the model, interest groups have private information about their type $\theta \sim f(\theta)$ which has support on $\Theta = [0, w]$. Assume for simplicity that $f(\theta)$ is absolutely continuous. Interest groups observe their type and then choose to pursue protection via DS or CVD. As in the discrete type version of the model, governments then observe whether

the interest group has chosen DS or CVD and then choose whether or not to pursue a claim or not (i.e. choose *Accept* or *Reject*). If a claim is pursued via the DS, the panel renders a favorable decision with probability $\pi_D(\theta)$, with $\frac{\partial \pi_D}{\partial \theta} > 0$. If a claim is pursued via CVD, then the CVD stands with probability $\pi_C(\theta)$, with $\frac{\partial \pi_C}{\partial \theta} > 0$. To account for the fact that DS is the more "stringent" of the two mechanisms, it is also assumed that $\pi_D(\theta) < \pi_C(\theta),\ \forall \theta \in \Theta$.

Separating Equilibria

Pooling equilibria are easy to establish and have a similar character to those of the discrete type model, so I focus first on how to establish a separating equilibrium. I also start off by restricting attention to pure strategy equilibria.

The utility from protection via either DS or CVD to an interest group is defined as $v(\theta)$ with $\frac{\partial v}{\partial \theta} > 0$. In any separating equilibrium, we can establish a cutpoint $\bar{w}$ above which a group selects DSU and below which they select CVD. The only pure strategy that governments can adopt that would induce separation is $\sigma_G = (Accept|DS, Reject|CVD)$, otherwise CVD weakly dominates for the interest group (given that $\pi_D(\theta) < \pi_C(\theta)$). So assuming government adopts this strategy, we can derive the cutpoint by determining where $U_I(DS) = U_I(CVD)$, with $U_I(CVD) = 0$ (given that their claim will just be rejected by the government), and $U_I(DS) = \pi_D(\theta)v(\theta) - c_D$ (where c_D is the cost of pursuing a case via DS). Setting these equal to each other, we get $U_I(DSU) = U_I(CVD) = \pi_D(\theta)v(\theta) - c_D = 0 \leftrightarrow \pi_D(\theta)v(\theta) = c_D$. This implicitly defines a cutpoint $\bar{w}$.

Given this, we can define the government's utility function as $U_G(Reject) = 0$ and:

$$U_G(Accept|DS) = \int_{\bar{w}}^{w} (G(\theta)\pi_D(\theta) + (1 - \pi_D(\theta)0)f(\theta)d\theta = \int_{\bar{w}}^{w} G(\theta)\pi_D(\theta)f(\theta)d\theta$$

$$U_G(Accept|CVD) = \int_{0}^{\bar{w}} (G(\theta)\pi_C(\theta) + (1 - \pi_C(\theta)0)f(\theta)d\theta = \int_{0}^{\bar{w}} G(\theta)\pi_N(\theta)f(\theta)d\theta$$

Where $G(\theta)$ is the utility to government of winning a case, with $\frac{\partial G}{\partial \theta} > 0$. Note that $G(\theta)$ can be negative. I also normalize the cost of protection being overturned for the government to zero, irrespective of the mechanism by which it is pursued. So long as $U_G(Accept|DS) > 0 > U_G(Accept|CVD)$, we have a separating equilibrium where $\sigma_I = (DS|\theta > \bar{w}, CVD|\theta < \bar{w})$ and $\sigma_G = (Accept|DS, Reject|CVD)$.

Empirical Implications

The empirical implications of this paper depend on the equilibrium. In the case of the semi-separating equilbrium, we would expect to see that cases screened to the mechanism with tougher legal standards would tend to be resolved overwhelmingly in favor of the firm, while the remaining cases that end up at the mechanism with weaker standards would be more likely to be overturned. Other equilibria would entail starker results; either wholesale

rejection of cases screened to less stringent mechanisms, or pooling whereby nearly all cases go to one mechanism and are either accepted or rejected. In the next section, I outline several different choices that interest groups can make between different institutions and instruments, each of which provides an opportunity for screening.

One can think about how to apply this model to several nested choices between mechanisms by treating each as dealing with a different subpopulation: for instance, choosing between dispute settlement forums at different institutions is a selection process that goes on between firms that have already been screened to dispute settlement in general. However, the model would need to be elaborately slightly to make this entirely consistent. You may need to have differing benefits to providing protection via different mechanisms; for instance, governments may want to provide higher levels of protection to the most injured groups, but still provide some levels of protection to "moderately" injured groups. Working through the implications of this is something I hope to do in later variants of the model.

Different Kinds of Screening

Between International Institutions: Forum Shopping

One way in which screening might occur is between international institutions: for instance, if different institutions differ in their likelihoods for granting certain claims, then firms may lobby the government to pursue a particular dispute forum over another as a way of signaling information. Gathering systematic evidence on this is challenging, due to the overwhelmingly large number of PTAs with different legal standards that are not always easily placed in a "stringency hierarchy", difficulties in measuring "success" or "failure" in any legal case (oftentimes a disputant will receive a mixture of favourable and unfavourable rulings), etc.

However, in the case of United States dispute resolution via the WTO and NAFTA, it would appear that the stylized facts correspond to what is predicted by the model. The NAFTA dispute resolution process was developed under heavy influence from the US Congress, and the US is the largest and most powerful country in NAFTA by far, so one would expect NAFTA to be the institution most likely to return a ruling favorable to US interests - indeed, there are instances in which the US has advocated for dispute resolution to be moved from the WTO to NAFTA after proceedings had begun, as with the Tuna-Dolphin II case between the US and Mexico. (Pauwelyn 2009) However, despite this, the US has a high success rate for cases via the WTO, while their success rate via NAFTA is generally much lower. (Guzman 2002, Davis 2012, McRae and Siwiec 2010) This accords well with the predictions of the model: while NAFTA is more favourable to the United States, firms with the strongest cases select into pursuing their disputes via the WTO.

Between Dispute Settlement and Trade Remedies

Another way in which screening might occur is between pursuing claims via dispute settlement, or pursuing government support via some trade remedy. The cleanest example of this, as mentioned earlier, is subsidies: in the US, an interest group can choose to lobby the government to challenge a foreign country's laws, or they can simply apply for CVDs via the USITC. Dispute settlement gives a much lower chance of success, given that the majority of CVDs go unchallenged; the worst case scenario of a CVD is that it is challenged by a foreign country, in which case it would go to dispute resolution anyway, and the firm would be no worse off than if they had started with dispute settlement. A similar selection process could be at work with antidumping: a firm could lobby to have foreign antidumping measures challenged, or could engage in "retaliatory" antidumping, whereby they request antidumping measures be put in place for imports that they are competing with (this works only if the industry has both imports and exports from the country in question). The stylized facts on this are largely consistent with the separating equilibria of the model: as mentioned earlier, WTO claimants have extremely high rates of success, while nearly every trade remedy that has been challenged by the WTO has been ruled inconsistent with the trade law in at least one respect. (Bown 2005 p. 1)

Between Different Trade Remedies

With the WTO/GATT, firms can pursue temporary protection via safeguard measures, antidumping provisions, or countervailing duties. In many ways, these mechanisms are substitutes for each other (see Bown 2013), but they vary in the stringency of what needs to be demonstrated in order to claim protection. For instance, both safeguard measures and antidumping duties require proof of material injury to a firm, but antidumping measures require additional evidence that goods are being dumped at lower prices in the domestic market. Thus, if antidumping provisions have more stringent requirements, we might expect screening to occur whereby firms with the strongest cases select into pursuing them.

The stylized facts, once again, appear to comport well with the separating equilibrium story. Many antidumping measures are approved (in the US, hundreds have been implemented since 1995) and only a small percentage (less than 10%) of these have been challenged via the WTO DSU. (Bown 2015a) In contrast, safeguard measures have been employed by the United States only six times since 1995, of which four have been challenged and then found in violation of WTO law. (Bown 2015b, Bown 2015c) If this were a case of the separating equilibrium, we would expect that screening would occur in which firms with strong cases pursue antidumping, while those with weaker cases would choose to pursue safeguard measures and would then be rejected. What we observe is that very few firms formally apply for safeguards; I posit that this may be because applications to the USITC are not made in a vacuum, but in the shadow of prior lobbying activity. (Hansen 1990) Firms already have a sense of the likelihood of their claim being pursued by the government prior to filing a claim with the USITC; thus, the vast majority of such firms with weak cases have already

been informally "pre-rejected" for safeguard provisions, and do not bother filing petitions. The remaining cases that are pursued are those for which the United States has an overwhelming political interest in doing so irrespective of the strength of the case, as with the famous US steel tariffs of 2002. In contrast, pursuing an antidumping claim can be a way of signaling significant injury credibly to the government, which may at least partially account for the greater use of antidumping and relatively low rates of such measures being overturned.

It is worth noting a few caveats to this characterization. Some have argued that safeguards are more "costly" to use, noting that they formally require "serious injury" instead of "material injury", and noting that they used to require that compensation be provided to those countries that faced increased tariffs as a result of their use. However, safeguards were reformed with the advent of the WTO, and currently do not require compensation for any measures put in place for three years or less. It is also not clear to me from the case law that "material injury" is interpreted any differently than "serious injury". However, if one still believes that antidumping measures are uniformly less costly than safeguard measures, then one could argue this looks more like one of the pooling equilibria of the model than the separating equilibria.

Between International Institutions and Unilateral Protection

Screening may also occur between firms pursuing protection via a legal mechanism embedded in some international institution versus pursuing protection unilaterally from the government. Any interest group could bypass the whole process of legal trade remedies and lobby the government directly for protection: this would entail no legal costs, and would have a 0% probability of being overturned, as there would be no opportunity for it to be legally challenged. This corresponds to the degenerate case described during the discussion of the model. In this case, screening occurs when firms subject themselves to the legal costs and possibility of being overturned associated with pursuing protection via legalized means: in the separating equilibrium, only those with the strongest cases should be willing to do so, and those that try to pursue unilateral protection would usually have their efforts denied.

This also appears to correspond with reality. It is rarely the case now that interest groups lobby for and obtain protection independently from some international institution; instead, groups that are seeking protection tend to apply for it through means prescribed by international law, while those seeking it independent of such international institutions usually do not succeed.

As mentioned during the discussion of the model, this kind of screening directs our attention to questions of institutional design. Why might governments want to establish international institutions that bind them to using trade protection in only a restricted set of circumstances? While there are many reasons, including the standard claim that concessions on protection domestically are made reciprocally in order to obtain reduced tariffs abroad, this paper posits an additional reason: that governments may be better able to allocate protection because of

the information obtained through the screening device of an international institution. That potential benefit is demonstrated in the model, and has not been explored in the existing literature.

Conclusion

In this paper, I have shown that interest groups may pursue trade protection via instruments and institutions that give them a strictly lower probability of success even when there are not other benefits of a favourable ruling from that mechanism relative to others; a finding that is in stark contrast to both conventional wisdom and the literature on forum shopping in the political economy of trade. This can help to explain such stylized facts as the high success rate of WTO claims (only those with strong cases self-select into pursuing government support via the DSU), as well as a number of seemingly counterintuitive selection choices of institutions and instruments by interest groups. Moreover, this model outlines an important possible benefit to governments of international institutions outside of such things as their ability to foster international co-operation or render policies more commitment credible domestically; namely, that such institutions may help governments to obtain information privately held by interest groups that such groups would otherwise not have an incentive to reveal.

References

[1] Baccini, Leonardo, Andreas Dur, Manfred Elsig, and Karolina Milewicz. 2011. *The Design of Preferential Trade Agreements,* in World Trade Report, "Preferential Trade Agreements and the WTO: A New Era," edited by the WTO.

[2] Bown, Chad P. 2005. *Trade Remedies and World Trade Organization Dispute Settlement: Why Are So Few Challenged?* The Journal of Legal Studies 34 (2): 515-55.

[3] Bown, Chad P. 2013. *How Different Are Safeguards from Antidumping? Evidence From U.S. Trade Policies Towards Steel.* Review of Industrial Organization v42, 449-481.

[4] Bown, Chad P. (2015a) *Global Antidumping Database.* The World Bank, June, available at http://econ.worldbank.org/ttbd/gad/

[5] Bown, Chad P. (2015b) *Global Safeguard Database.* The World Bank, June, available at http://econ.worldbank.org/ttbd/gsgd/

[6] Bown, Chad P. (2015c) *WTO Dispute Database.* The World Bank, June, available at http://econ.worldbank.org/ttbd/dsud/

[7] Brutger, Ryan. 2015. *Screening for Success: The Effect of Firm Signaling on WTO Case Selection.* Princeton University Working Paper.

[8] Busch, Marc L. 2007. *Overlapping Institutions, Forum Shopping, and Dispute Settlement in International Trade* International Organization: 309-338.

[9] Davis, Christina L. 2009. *Overlapping Institutions in Trade Policy.* Perspectives on Politics 7.1: 25-31.

[10] Davis, Christina. 2012. *Why Adjudicate? Enforcing Trade Rules in the WTO.* Princeton University Press.

[11] Guzman, Andrew. 2002. *The Political Economy of Litigation and Settlement at the WTO.* Public Law and Legal Theory Research Paper No. 98, University of California, Berkeley School of Law.

[12] Hansen, Wendy L. 1990. *The International Trade Commission and the Politics of Protectionism.* American Political Science Review 84 (01): 21-46.

[13] Howse, Robert. 1998. *Settling Trade Remedy Disputes: When the WTO Forum Is Better than the NAFTA.* CD Howe Communique.

[14] Keohane, Robert O. 2005. *After Hegemony: Cooperation and Discord in the World Political Economy.* Princeton University Press.

[15] Koremenos, Barbara. 2001. *Loosening the Ties That Bind: A Learning Model of Agreement Flexibility.* International Organization 55 (02): 289-325.

[16] Koremenos, Barbara, Charles Lipson, and Duncan Snidal. 2001. *The Rational Design of International Institutions.* International Organization 55.04: 761-799.

[17] Kucik, Jeffrey, and Krzysztof J. Pelc. 2014. *Can International Legal Rulings Deter? Financial Markets Say Yes.* Working Paper.

[18] Kucik, Jeffrey, and Eric Reinhardt. 2008. *Does Flexibility Promote Cooperation? An Application to the Global Trade Regime.* International Organization 62.03: 477-505.

[19] McRae, Donald and John Siwiec. 2010. *NAFTA Dispute Settlement: Success or Failure?* Arturo Oropeza Garcia, ed. Amrica del Norte en el siglo XXI (Mexico City: Corporacin Industrial Grfica).

[20] Pauwelyn, Joost. 2006. *Editorial Comment: Adding Sweeteners to Softwood Lumber: The WTO-NAFTA 'Spaghetti Bowl' Is Cooking.* Journal of International Economic Law 9.1: 197-206.

[21] Pauwelyn, Joost. 2009. *Mexico Secures WTO Tuna-Dolphin Panel; U.S. Seeks Move To NAFTA.* Inside U.S. Trade. April 24, 2009.

[22] Rosendorff, B. Peter. 2005. *Stability and Rigidity: Politics and Design of the WTO's Dispute Settlement Procedure.* American Political Science Review null (03): 389-400.

[23] Rosendorff, B. Peter, and Helen V. Milner. 2001. "The Optimal Design of International Trade Institutions: Uncertainty and Escape." International Organization 55 (04): 829-57.

[24] Trebilcock, Michael J. 2011. *Understanding Trade Law.* Cheltenham, UK?; Northampton, MA: Edward Elgar Pub..

[25] Trebilcock, Michael J., and Robert Howse. 2005. *The Regulation of International Trade, 3rd Edition.* 3rd edition. London?; New York: Routledge.

[26] *United States International Trade Commission Budget Justification 2016.*

[27] *Office of the United States Trade Representative Fiscal Year 2015 Budget.* Published March 2014.