

Information Transmission and the Strategic Timing of Trade Disputes

Stephen Chaudoin*

Princeton University

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Abstract

Existing theories argue that legalized dispute settlement plays an important role in transmitting information to subnational actors, most often the general voting public, about the behavior of member states with regards to their international obligations. I better specify these theories in order to derive predictions about the timing of formal international disputes. Disputes should be most likely to arise when the audience in the defendant country has both the ability and inclination to punish their government for violation of the agreement. I test these predictions using data on the lifespans of certain U.S. protectionist barriers, examining whether and when other countries choose to target them with formal WTO disputes. The timing of WTO disputes is consistent with informational theories of endogenous dispute initiation. A U.S. protectionist barrier is more likely to be challenged with a WTO dispute as U.S. national elections approach and when the public is less likely to support protectionism.

Introduction

International organizations influence member state behavior, in part, because they play an important role in transmitting information about the behavior of their members (Keohane (1984)).

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Member states and subnational actors cannot use the threat of punishment to ensure cooperation if they cannot detect instances of defection from an international obligation. By transmitting information about defections, international organizations potentially facilitate cooperation by raising the costs of violating the agreement. Legalized dispute settlement provisions are thought to be particularly important devices for transmitting information (Carrubba (2005), Dai (2007), Dai (2002), Fang (2008)). Other member states, who are often the victims of defections by another member state, can use legalized disputes to “sound the fire alarm” allowing for the defecting member to be held accountable. A prominent strand of this literature describes information transmission to subnational actors, like the general public (Mansfield, Milner and Rosendorff (2002), Mansfield, Milner and Rosendorff (2000), Simmons (2000), Kono (2006)). These principals or alternatively, this audience, may not always have information about the behavior of their agents, elected officials in government, but when another member state initiates a legalized dispute against their government, the public can hear the alarm, and can thus better hold their government accountable for its policies.

If legalized disputes are an important way in which member states can trigger punishment, then when should member states who are the victims of another member state’s defections from an agreement decide to sound the alarm? Existing work assumes that sounding the alarm always results in additional costs for a defector, leaving the audience’s preferences and its ability to punish the government unspecified. I leverage variation on these two dimensions to endogenize the occurrence of disputes and explain their timing. A victim of another country’s defection from an agreement will be more likely to initiate a dispute under two conditions. First, the leaders who are accountable to the audience must care about the audience’s preferences. The audience must have the *ability* to hold their government accountable. If the defecting government is insensitive to punishment, then other member states gain less from the costly action of sounding the alarm. Second, The audience must have the *inclination* to punish defections. The audience listening to the fire alarm must want increased cooperation, i.e. policies that are more in line with the obligations of the international agreement and the preferences of the other member states who are contemplating a legalized dispute. If the audience does not want their government to comply with the international organization’s obligations, then victims of defections gain nothing from informing them about their

government's behavior.

The World Trade Organization, with its Dispute Settlement Understanding (DSU), is a good laboratory in which to test these theories. The WTO is frequently cited as an example of how international institutions have expanded in both scope and membership. The DSU is often cited as one of the world's most sophisticated and important forums for settling interstate disputes over trade barriers. Under the DSU, members regularly request consultations and bring formal litigation against one another over real or perceived violations of WTO law. To date, over three hundred cases have been brought before the WTO's DSU, covering diverse issue areas of international trade ranging from airplane manufacturing subsidies to the mathematical methods used to calculate tariff margins. When a WTO member is suspected of violating WTO law, disputes sometimes occur quickly, within months of the perceived violation. Other times, the plaintiff waits years before ever challenging a particular policy. Many WTO-inconsistent policies never receive any scrutiny at the DSU. This is important variation in search of an explanation.

I modify existing data on a particular subset of U.S. trade policies, antidumping (AD) petitions and countervailing duties (CVD's), to test the predictions derived from informational theories of dispute settlement. AD petitions and CVD's often result in tariffs on another country's exports to the United States and are often considered potential violations that other member states could choose to dispute under the DSU. Trade barriers like AD petitions and CVD's have been the targets of a large portion of the WTO's caseload Bown (2004). The timing of WTO challenges to AD and CVD measures is consistent with the above predictions. The United States is more likely to be targeted by WTO disputes when national elections are approaching, e.g. when the government is most sensitive to the preferences of the public. Disputes are also more likely when macroeconomic indicators correspond with support for free trade, e.g. when the public supports trade policies that are in line with the WTO's obligations. I also find support for a conditional version of these hypotheses- disputes are most likely when the two conditions are jointly met, e.g. when elections are near and unemployment is low.

These findings have implications for studies of the WTO and the DSU, and also for theories of IO's more broadly. Existing work focuses on the debate over whether or not IO's affect member

state behavior, (see Simmons (2000) and Von Stein (2005) for example), but less attention has been paid to theorizing and testing the specific ways in which they might matter. Many empirical studies examine whether or not a particular IO affects member state behavior and then hypothesize, *ex post*, about particular mechanisms which may have been at work. This paper hypothesizes a specific mechanism, that of information transmission that allows a principal to hold their government accountable, and tests its specific predictions. Theorizing and empirically testing the specific mechanisms by which IO's affect member state behavior is a task that is equally important to, if not prior to, determining whether or not they affect behavior. The role of international institutions in transmitting information about member state behavior can affect cooperation, and this force may work alongside the threat of member state retaliation. For the WTO specifically, these findings suggest that the role of the DSU in transmitting information to audiences within the defendant's state can affect the pattern of trade disputes, and therefore, international trade policy.

The next section describes theories of dispute settlement as information transmission mechanisms and derives predictions about the timing of disputes from these theories. The third section describes the dataset used to test these predictions. The fourth section describes a series of models used to analyze the data and test the predictions derived from the theory. The final section concludes.

Theories of Information Transmission and Dispute Settlement

International institutions, like the WTO, and their accompanying treaties govern a wide range of activities conducted by a diverse group of sovereign governments. The existence of international institutions at least appears to induce member states to behave in ways that they would not otherwise behave in the absence of a treaty. This phenomenon has prompted a rich empirical debate about whether or not treaties actually cause member states to behave differently (Chayes and Chayes (1993) Downs, Rocke and Barsoom (1996), Simmons (2000), Von Stein (2005)). Concurrent to this debate, there has been extensive theorizing about the exact mechanisms by which international institutions change member state behavior.

One theoretical answer to the question, "how do international institutions affect member state

behavior?” is that IO’s transmit information to particular audiences, who can punish their leaders for defections. A politician, national leader, or policymaker, might want to violate the terms of an agreement or commitment, and subnational actors like the voting public do not know exactly whether or not their government is abiding by its obligations. Daniel Y. Kono (2006) succinctly describes one problem with these theories, noting that “[these arguments] assume that voters-as-principals have sufficient information to discipline politicians-as-agents” (369). Recent theories argue that a treaty’s dispute settlement mechanisms often acts as an information transmission mechanism (Dai (2002), Dai (2007); Fang (2008); Mansfield, Milner and Rosendorff (2002)). When a government violates the treaty, the institution sounds the alarm and alerts everyone else that a violation has occurred.¹ If a government defects from its obligations, the IO will notify certain audiences, and they will suffer “the surge in disapproval that would occur if a leader made commitments and did not follow through” (Tomz (2007), pg 823).²

Information is likely to play an important role regarding the trade policies of democratically accountable WTO members. The public may have some notion of whether or not their government supports free trade broadly, but the public likely cannot discern the effects of opaque trade policies like antidumping petitions and countervailing duties. Alexandra Guisinger (2009) argues that voters in congressional elections did not match their preferences with their voting patterns in regards to the Central American Free Trade Agreement. Daniel Kono (2006) provides a theoretical explanation for why democracies have an incentive to deliberately choose “optimal obfuscation” for their trade policies.³ Evidence on media coverage in the United States suggests that relatively obscure trade

¹To prevent confusion, I am not talking about signaling theories of IO’s. For example, in some models the IO sends a signal to the public about the likely quality of, or reaction to, a particular policy, like that in Chapman and Reiter (2004).

²For a list of works making this type of argument, see Tomz (2007) pg 822. These types of arguments are related to many of the more familiar arguments about “audience costs” in conflict and security studies. However, there is no need for a theory of endogenous information transmission because war is a public act. The audience automatically knows whether or not their leader followed through on a threat, because there is no hidden action problem. War is observable to all. In discussing exchange rate policies, Susanne Lohmann (January 2003) notes how if a government committed itself to a fixed exchange rate regime and then moved away from that regime “everybody who uses money to do business everybody, that is will notice and wonder what the government is up to.” (100) Similarly, in the literature on leader-specific punishment (McGillivray and Smith (2004), McGillivray and Smith (2006)), there is no need for an additional source of information. When the other country enacts their punishment strategy, the citizens are aware of this and can remove their leader accordingly.

³These arguments are also indirectly related to the literature on leader-specific punishment (LSP) and compliance (McGillivray and Smith (2006)). The LSP literature argues that countries can sanction one another and tie those sanctions to particular leaders, in order to induce citizens to remove their leader.

policies like antidumping petitions get very little media attention, even though these are important trade policy tools. A Lexis Nexis search of U.S. newspapers from February 1999 to February 2009 using the broader search terms of “antidumping’ within 100 words of ‘United States,” yields only 411 results.⁴

The World Trade Organization’s Dispute Settlement Understanding appears to play a large role in affecting member state behavior. In the WTO’s DSU process, one member state’s government, the plaintiff, identifies an objectionable practice of another member state’s government, the defendant. The complainant country formally requests consultations with the country of the alleged violation. The disputants attempt to negotiate a solution amongst themselves, but if they fail to reach a resolution, the plaintiff can request the establishment of a Dispute Resolution Panel. This independent panel hears the case and issues a ruling. If the defendant loses and does not bring their trade policy in line with the panel’s ruling, the panel approves some form of compensation for the plaintiff, usually allowing the plaintiff to raise their own trade barriers against the defendant.⁵ While the literature debates whether or not the WTO increases trade (see Rose (2004) and ensuing articles), member states take the DSU very seriously by initiating disputes and complying when they lose suits filed against them.

Two features of the WTO dispute process, litigation costs and the ability of the WTO to heighten awareness about violations, make it important for information transmission. In discussing the rationales of the various actors in a 1999 dispute between Chile and Argentina over tariffs on vegetable oils, Tussie and Delich (2005) write: “Although accessible only to highly profitable sectors because participation is too costly and time consuming, the WTO provides the intangible benefit of *exposure*. Pressure through exposure can help countries unable or unwilling to retaliate to obtain more favourable results than in bilateral or regional instances. In fact, WTO rulings act as a *magnifying glass* of countries’ (WTO-incompatible) trade policies” (23), emphasis added).⁶

⁴Search conducted in Lexis Nexis Academic using “U.S. Newspapers and Wires- Newspapers” and the terms “antidumping! w/100 united! state!” with or without the term “world! trad! organization!” on February 9, 2009.

⁵This is a slight simplification. There is also an Appellate Body and appeals process. Parties can request an appeal, and the Appellate Body can evaluate the actions of the original panel.

⁶The WTO publishes extensive reviews of particular cases in order to demonstrate concepts that it believed to be important in the WTO dispute settlement process. This excerpt is from one of those reviews. Interestingly, the two parties initially sought to address this dispute under the auspices of MERCOSUR. However, these efforts failed. While they do not explicitly attribute the failure of the MERCOSUR process to these reasons, Tussie and Delich

Litigation costs are important because they force potential plaintiffs to be strategic. Because DSU disputes consume immense amounts of resources, member states cannot simply initiate a dispute over every instance of protectionism by another member state.⁷ The significant litigation costs associated with WTO disputes make that act a costly signal of the plaintiff government's intent, which enhances the credibility of that signal.⁸

The WTO's DSU plays a role in transmitting information. A well-known issue in U.S. trade politics that played an important role in several high profile WTO disputes with the European Communities and others⁹ concerns the practice of "zeroing," which was employed by U.S. bureaucracies in calculating whether to impose tariffs on certain imports and how large those tariffs should be.¹⁰ The practice of zeroing had been used since long before any other countries challenged its legality at the WTO. Until other countries decided to object to zeroing using a formal WTO dispute, however, media coverage of this issue was virtually non-existent. Media coverage of the zeroing issue does not begin until June of 2003, shortly after the European Commission initiates legal WTO action against the United States over the process. After that, media coverage of zeroing increases sharply,

(2005) note that the MERCOSUR efforts were "out of the public eye and at the same time it was both fast and low-cost" (30). They later conclude: "Recourse to the WTO dispute settlement procedures is not for everyone, nor is it a routine action that can be undertaken lightly. It is costly and time-consuming and thus discriminates in favour of big business and countries. At the same time it has political repercussions, especially if used against a close partner. However, the Argentine experience indicates that the WTO does contribute to limit discretionary trade practices; it acts as an international magnifying glass held to countries' trade practices." (36).

⁷By one estimate, a typical WTO dispute costs the litigants one million dollars apiece, which is a nontrivial sum when considering the size of the bureaucracies charged with handling WTO litigation, especially in small countries. Litigating disputes also takes time, which entails an opportunity cost of using litigation resources for other potential violations Davis and Shirato (2007). For countries unfamiliar with the DSU process, gaining experience about this legal arena entails the start-up costs of learning to argue effectively in front of the DSU Davis and Bermeo (2009).

⁸This is similar to the arguments made by Christina Davis (ND) in discussing how governments often engage in WTO disputes as a costly way for the government to reassure domestic firms that the government is committed to defending the firms' interests. Counterintuitively, the fact that WTO disputes are expensive, and thus a more costly signal, may make them more credible information transmission mechanisms than other options. For instance, if an aggrieved country simply issued a press release bemoaning another country's trade policies, no one would pay attention because this action would be costless, and there are clear incentives to misrepresent.

⁹Argentina, Brazil, China, Taiwan, Hong Kong, India, Japan, South Korea, Mexico, Norway, Turkey and Canada were also involved in disputes with the United States over zeroing in some fashion, either as third parties or by challenging the practice of zeroing in other DSU disputes. Zeroing became an important issue especially in Canadian complaints against U.S. tariffs on imports of Canadian lumber.

¹⁰When U.S. bureaucracies investigate whether or not another country has sold goods on the U.S. market at below market price (ie dumping), they have to calculate the dumping margins, or the amount below fair market price that the goods are being sold, across different companies and countries. When a particular firm is actually selling the goods at above market price, which would result in a negative dumping margin, the U.S. employed an accounting rule called "zeroing" whereby all negative dumping margins were rounded up to zero. In effect, this artificially inflated the amount of dumping that was occurring. For a more extensive review of the zeroing issue, see: Alford (2006).

with coverage even reaching the pages of such well known publications as the New York Times and Washington Post.¹¹ While zeroing was a particular trade issue that attracted international attention, the same pattern holds when looking at other trade policies. The number of hits for the Lexis Nexis search described above decreases from 411 to 203 when the term “World Trade Organization” is excluded. About half of the coverage of antidumping petitions includes some reference to the WTO. The additional exposure resulting from WTO disputes is a potentially important information transmission mechanism. Chang, Golden and Hill (2010) argue that increased media coverage of the behavior of politicians goes a long way towards helping the electorate hold politicians accountable. Busch and Reinhardt (2000) study the phenomenon of early settlement of WTO disputes, and argue that “Even without a credible threat by a complainant to seek authorization to retaliate, a definitive legal opinion from the institution may empower groups in the defendant state who oppose the disputed measure” (165).

The Timing of Disputes

Existing theories of information transmission assume that the alarm sounds and information is transmitted after any and all violations of the agreement, and as a result, do not yield predictions about the timing of disputes. In a sense, they “hardwire in” the assumption that some audience will always be willing and able to punish a leader simply upon learning that their leader’s policy was not consistent with treaty obligations.¹² However, there is likely to be considerable variation in any particular audience’s inclination ability to punish its government, which we can leverage to derive predictions about the timing of disputes. I endogenize the occurrence of disputes by specifying the conditions under which one country would want to sound the alarm.¹³

¹¹The initial search used the terms “united states and dumping and zeroing and commerce” in Lexis Nexis Academic Universe, in US Newspapers and Wires and Major Newspapers, searched on 10/05/10. The two articles referenced are “A Trade Battle is Brewing Over U.S. Antidumping Fees,” *New York Times* 2/18/2004 and “Jumbo Shrimp Follies,” *The Washington Post* 11/15/2004. There are over 100 hits using those search terms that occur after June 2003. The first mention of zeroing is in “European Commission Protests US Method Of Calculating Anti-Dumping Fees,” *The White House Bulletin* 6/13/2003.

¹²In related work in conflict and security studies, Slantchev (2006) and Ramsay and Ashworth (ND) have criticized the tendency to simply assign “-c” to the utility of players at nodes where some sort of audience costs are applied.

¹³For other work on the endogenous initiation of disputes, see Fang (Forthcoming). She models two countries who disagree over an issue and examines how the features of a dispute settlement body influence negotiations over the issue and whether or not to take the issue to a dispute settlement body.

Most existing studies leverage cross-national variation. For example, James Fearon’s original argument about audience costs (Fearon (1994)) is cross-national: democracies are more susceptible to audience costs than non-democratic regimes, and this affects crisis bargaining behavior. My argument is temporal: holding the level of democracy of the defendant constant, when will potential plaintiffs target them with litigation? Allee and Huth (2006) have found that democracies are more likely to use legal dispute settlement for territorial disagreements. Existing cross-national findings are broadly consistent with trends in WTO litigation. The three most popular targets, by far, for DSU litigation are all established democracies: the United States, EU, and Japan. As with cross-national variation in dispute patterns, examining when violations result in disputes is important variation in search of an explanation. Static explanations of disputes have leverage over the question of which violations of an international agreement are chosen for litigation, but if static explanations accounted for the entirety of litigation behavior, then we should expect to see immediate litigation. Presumably, a country would prefer to capture the benefits of litigation immediately rather than wait and capture them later.

Existing work argues that there is significant within-country variation in a leader’s sensitivity to the preferences of their constituents. During an election year in the United States, politicians are more sensitive to the general public. Similarly, Canes-Wrone and Marchi (2002) argue that United States presidents with “middling” approval ratings are more accountable to the general public. If Japan, for example, was a victim of a protectionist U.S. policy, then they have to decide whether or not to spend litigation resources to file a DSU suit. If the U.S. public has no way to punish its government, even if it learns that its government’s behavior does not match public preferences, then Japan gains less by filing litigation. Even if the U.S. government is protectionist in way that harms Japanese interests, Japan would not want to waste resources to transmit information to an impotent audience that cannot do anything to change its government’s behavior. The costs to a noncompliant government are highest when the audience can most strongly punish a noncompliant government. In the context of the WTO, plaintiffs should be more likely to file litigation when the defendant government is most sensitive to the preferences of its public.¹⁴

¹⁴A pair of 1998 disputes between the European Communities/Japan as the complainants and Canada as the respondent demonstrate the flip-side of this dynamic. The EC and Japan accused Canada of violating WTO rules

There is also significant variation in the audience's inclination to punish their leader for a violation. The sources of potential divergence between politicians and the public regarding international trade are not hard to imagine: a politician wants to cater to a specific constituency rather than the public at large (Grossman and Helpman (1994)) or a leader may want special interest groups' money, but also have ideological preferences over certain policies. Yet, existing arguments often do not discuss the preferences of the audience, or they treat them as monolithic and time-invariant. Some studies assume that the audience always wants their politician to abide by their obligations, so that punishment is a perpetual and ever-present force for compliance. In reality, the audience wants their politician to choose policies in line with an international agreement at some times and wants their government to defect at others.¹⁵

The WTO proscribes free trade; its "overriding objective is to help trade flow smoothly, freely, fairly and predictably."¹⁶ Yet the public rarely, if ever, supports zero protectionism. Public support for free trade may wax or wane, but the public almost always prefers a level of protectionism higher than that of the WTO's goal of zero protectionism. Continuing the Japan example, if the U.S. public supported protectionist barriers against Japanese imports, then the Japanese would not want to waste litigation resources to tell the U.S. public about its government's protectionist policies. The public would simply take this information, compliment its government for having policies consistent with public desires, and Japan would have wasted their time and resources pursuing litigation. When the public supports noncompliance with a particular treaty, there are no costs to the government even if the public learns about the government's behavior. To continue the U.S.-Japan hypothetical, if the U.S. public strongly supports free trade with Japan and does not know of their government's protectionist measures, then Japan has much to gain by informing the public and empowering them to punish their government. Costs to the government are higher when

with laws favoring their auto industry, and initiated a formal dispute. The Canadian public, however, was strongly in favor of the protectionist laws. The ensuing WTO dispute raised public awareness of the laws, and public resistance to efforts aimed at bringing Canadian law in line with WTO rules stiffened. Ironically, by inciting public opinion and increasing media attention to the issue, the EC and Japan dispute caused the Canadian government to raise tariffs. By not accounting for the preferences of the Canadian public, the EC and Japan transmitted information to a hostile audience who encouraged their government to be noncompliant. For a more extensive discussion of this case, see Krikorian (2005).

¹⁵For one notable exception, see Rickard (2010, forthcoming). She analyzes how different electoral systems amongst democracies and the preferences of their constituents affect compliance behavior.

¹⁶Quoted previously in Rose (2004), from <http://www.wto.org/english/rese/doloade/inbre.pdf>

the public supports compliance, so a potential plaintiff should be much more likely to decide that the benefits of litigation outweigh the costs under these circumstances. In the context of the WTO, plaintiffs should be more likely to file litigation when the public of the defendant more strongly supports free trade.

- Hypothesis 1: Potential plaintiffs should be more likely to file disputes when the target government is most sensitive to the preferences of the audience.
- Hypothesis 2: Potential plaintiffs should be more likely to file disputes when the audience of the target country supports free trade.

Information transmission is not the only potential reason for filing WTO disputes, and may not even be the primary reason. Many existing arguments resemble the intuition of international cooperation as a repeated iterated prisoners dilemma game. Member states would like defect and get the temptation prize in any one iteration, but the threat of punishment by the other member states if they defect keeps them cooperating on equilibrium path. Surveying the theoretical literature on the WTO specifically, Chad Bown (2004) observes that much work about the WTO and GATT treats DSU rulings as part of “a trigger strategy in an infinitely repeated, noncooperative, tariff-setting game between countries” (264).¹⁷ Modelers hypothesize about the conditions under which governments can sustain cooperation and compliance with the agreement given a particular punishment strategy McGillivray and Smith (2004). Countries declare that they will retaliate if another country deviates from their treaty obligations and this threat of retaliation ensures that rational countries will not defect from continued cooperation. Some previous works have used dispute settlement bodies and information transmission to explain member states’ compliance with DSU rulings, but because the DSU is only a monitoring body, these models use member state retaliation as the “terminal force” that induces compliance Maggi (1999), Furusawa (N.d.).¹⁸

If retaliation is the final mechanism that one country can use to punish another country’s violation of a treaty, then plaintiffs should be most likely to initiate DSU disputes when the defen-

¹⁷For other surveys of this part of the literature, see Staiger (1995) and Reinhardt (2001).

¹⁸Various objections to this explanation in the WTO context focus on the non-occurrence of trade disputes on equilibrium path, the inclusion of random occurrence of trade disputes, Bown (2004), Staiger (1995) or on the actual existence of “temptation prizes” in free trade games and the size of punishment Ethier (N.d.).

dant is most sensitive to direct punishment and when the plaintiff is most immune from “counter-retaliation.” In the context of trade, the plaintiff punishes the defendant with a reciprocal dose of protectionism, so this threat is more potent when the defendant exports more to the plaintiff. If the plaintiff imports nothing from the defendant then they have no plaintiff-exported goods to “hold hostage.” On the other hand, the models cited above also consider the possibility of disputes triggering retaliation and counter-retaliation cycles. The threat of a retaliatory trade war from the defendant is more acute when the plaintiff exports more to the defendant, but if the plaintiff does not rely at all on exports to the defendant, then the defendant has no “counter-threat” with which to deter litigation. Bown (2005) finds that retaliatory capacity is an important determinant for participation in WTO litigation, even when controlling for other important quantities like the amount of exports at stake.

There are other potential explanations for the timing of trade disputes. For example, Marc Busch (2007) argues that countries often can choose from overlapping institutions, and elect to initiate disputes in certain forums rather than others because of forward-looking calculations about the precedent setting effects of a dispute. Christina Davis (ND) focuses on how domestic political actors use disputes to reassure domestic firms and lobbying groups that they are committed to pursuing their interests abroad. While existing studies focus on whether or not particular issues are chosen for WTO disputes, I focus on the timing of WTO disputes. It is important to note that nothing about an informational argument is mutually exclusive with these other explanations. Some or all of these dynamics may be at work in motivating the timing and occurrence of WTO disputes. When deciding whether or not to initiate a WTO dispute, there are undoubtedly many factors influencing the calculations of both potential plaintiff and the country accused of violating WTO rules.

Dataset: The Lifespan of a Protectionist Barrier

Sample and Unit of Observation

This section describes the dataset and variables used to test predictions about the timing of disputes. To examine which trade barriers result in WTO challenges and when these challenges occur, I look at two important types of trade barriers: antidumping petitions and countervailing duties. In the United States, domestic producers can file petitions with particular federal bureaucracies when they suspect that foreign exporters are selling products in the United States at below market price, either because of predatory pricing or subsidization by the foreign government. U.S. firms can file petitions for antidumping (AD) and countervailing (CVD) duties with the International Trade Commission (ITC) and Department of Commerce (DOC) when they suspect that foreign firms are selling goods in the United States at below market price. Once a firm files a petition, the relevant bureaucracies issue preliminary rulings, which determine the duties, if any, to place on the foreign goods in question.¹⁹ After an affirmative preliminary ruling, preliminary tariffs are placed on the imports in question. With those duties in place, the bureaucracies enter into a lengthier evidence-gathering phase in order to make a final ruling. If they issue affirmative final rulings, the preliminary duties stay in place until they expire or are revoked when dumping is deemed to have ceased. In short, the AD and CVD processes often generate tariffs which many other nations consider inconsistent with WTO law. Disputes concerning AD and CVD petitions make up a large part of the DSU's caseload. And in every case concerning these type of tariffs, the WTO has ruled in favor of the plaintiff on at least one issue in the case (Bown 2005, 516-517). [XX] AD and CVD cases also account for a large proportion of the WTO litigation targeting the United States...

To construct the dataset of AD and CVD petitions, I first use Chad Bown's "Global Antidumping Database"²⁰ and extract the petitions filed by U.S. firms from April of 1994 to October of 2009.²¹

¹⁹The CVD process is slightly different from the AD process, but they are similar enough for the analysis here. The description here most closely describes the AD process. For more extensive analysis of this process and empirical analysis of the various stages, see: [XX]

²⁰The website for this data is http://people.brandeis.edu/~cbown/global_ad/

²¹In 1994, WTO members agreed to significant changes to the WTO's dispute settlement system at the Uruguay round. Specifically, they agreed that countries could not longer unilaterally block the establishment of a dispute settlement panel when disputes arose. For a more extensive discussion of these changes and their importance, see:

Each observation in the Bown dataset describes one particular petition and contains information on the time of its initiation, the target country, the products affected, the rulings of the relevant U.S. bureaucratic bodies at the various stages of the process, the dates of these rulings, and any resulting WTO litigation.²² I treat each instance of a U.S. petition as a potential violation of WTO law.²³

The unit of observation is the petition-month. I first begin observing a petition in the month that it receives the necessary affirmative preliminary rulings, and is awaiting a final ruling.²⁴ The petition can then experience one of three “terminating” events: another country challenges the petition at the WTO by requesting official consultations, a negative final ruling by the relevant bureaucratic bodies, or by revocation.²⁵ A petition can also experience no terminating events before October of 2009, the end of the observation window.²⁶ The dataset covers 334 AD and CVD petitions which combine for a total of 15,457 months worth of observation time. Of these 334 petitions, approximately 14% (48 petitions), resulted in the foreign country requesting WTO consultations (i.e. experienced a WTO failure event) before October of 2009. The average petition, including those still in effect in October 2009, survived for approximately 98 months.

Figure 1 depicts the potential paths a petition can take over the course of its lifespan, from its entry when a domestic firm files the petition, to its exit via one of the terminating events. Figure 1 also shows the number and percentage of petitions that follow each particular path. Of the 334

²²This is just part of the information contained in this extensive dataset. It covers many other countries as well as other trade policies like CVD’s or safeguard actions. Its scope, comprehensiveness, and public availability are impressive and appreciated.

²³Identifying the population of cases where a government violates WTO treaty law necessitates this assumption. Another innovative approach to this problem is from Davis and Shirato (2007) and Davis (2010) which examine lists of the policies of trading partners that the United States and Japan identify as potential candidates for WTO challenges.

²⁴Petitions that pass preliminary rulings often result in preliminary duties being applied to the imports in question until a final ruling, which makes them explicit barriers to trade. Petitions that do not pass the necessary preliminary rulings do not result in tariffs being applied.

²⁵I exclude petitions that were withdrawn by the petitioning firm. [XX] of petitions are withdrawn. It is unlikely that petitions are withdrawn non-randomly with regards to the probability of an ensuing WTO dispute. I focus on the factors that influence the probability of a WTO challenge. Because this requires WTO membership, the data are limited to petitions that targeted countries who were members of the WTO over the entire lifespan of the petition. In other words, the target of the petition had to be a WTO member at the time when the petition was initiated.

²⁶In the parlance of survival models, each petition is a particular subject. A subject is born in the month when the petition passes its preliminary rulings and is awaiting a final ruling. A subject dies or fails in the month that it experiences one of the three terminating events. Subjects that do not experience any terminating events before the end of the observation window can be thought of as right-censored. Each of the terminating events is a competing risk.

petitions, less than half (138) were still in force as of October 2009. The event I am most interested in occurs when another country chooses to initiate the WTO litigation process against a particular petition. This begins when another country formally requests consultations with the United States over the tariffs in question.²⁷ When this occurs, I say that the foreign government has chosen to initiate a WTO dispute. There is significant variation in the amount of time that ellapses between the approval of a petition and another country's decision to initiate WTO proceedings, alleging that the resulting tarriffs violate WTO rules. The length of time until a petition results in a WTO dispute varies greatly across cases, countries, and industries, which motivates the need for a dynamic explanation for the lifespans of petitions. The top pane of Figure 2 plots the distribution of the number of months that ellapse before a petition experiences a terminating event, for all petitions. The bottom pane of Figure 2 plots this distribution only for petitions that eventually resulted in WTO litigation. The figures show the wide distribution of times until a terminating event, in general, and until another country initiates a WTO dispute against that petition.²⁸

Dependent and Independent Variables

The dependent variable, y_{ij} , is an indicator variable describing the state of petition i in month j . The indicator variable can take on one of 4 distinct values, 1, 2, or 3 for each of the termination events, or zero if the petition did not experience a terminating event in that month.

To test the first hypothesis, that WTO disputes are more likely when the U.S. government is most sensitive to the preferences of its public, the data include a measure of the number of months until the next presidential election. The variable takes on a value of zero in November of every fourth year for presidential elections. Politicians should be more accountable to public preferences as elections approach, since their need for public support is highest, public interest in policy is at its most intense, and the threat of replacement by a challenger candidate is most real. Plaintiff governments should be more likely to file litigation as the election draws closer. A negative coefficient on this variable would be consistent with this prediction. As the election approaches,

²⁷For more extensive discussion of the WTO litigation process and empirical analysis, see: [XX].

²⁸The spike in the top pane that occurs around the 20 month mark corresponds with the usual bureaucratic review period. These are mainly observations that exit the dataset via a negative final ruling.

and the number of months until the next election decreases, disputes should become more likely.²⁹

Before looking at more complicated analysis, a simple plot of the data suggests that WTO disputes are more likely as elections approach. Figure 3 plots the distribution of the number of months until the next election at the time in which a subject failed due to a WTO challenge. The sample mean for the number of months until the next election for all subjects, unsurprisingly, is about 24, so the plot includes a vertical line at this point. Most WTO failures occur with less than 24 months until the next election, and all but three occurred within 25 months of the next election.³⁰ Without the more complex econometric machinery, it appears as though WTO disputes occur most frequently in the run-up to the next presidential election.

I use two macroeconomic variables to test the second hypothesis: a petition should be more likely to result in a WTO dispute when the U.S. public most strongly supports free trade. While there is much debate about public preferences over trade policy, unemployment and economic growth are two of the “usual macroeconomic suspects” associated with preferences over trade policy. Bergsten and Cline (1983) describe how “conventional wisdom suggests that high levels of unemployment are the single most important source of protectionist pressure.” Mansfield and Busch (1995) find that higher unemployment is associated with increased non-tariff barriers since unemployment creates demands for protection. The unemployment variable is a twelve month moving average of the monthly, seasonally adjusted percentage unemployed for people age 16 and over in the United States.³¹ If the first prediction finds support, then unemployment should be negatively correlated with the probability that WTO litigation occurs against a petition. High unemployment means that the U.S. public more likely supports protectionism, so other countries would not want to waste litigation resources to inform the public of their government’s protectionist policies via a

²⁹[XX] Results do not change when using midterm elections as well as presidential elections.

³⁰Once a government requests consultations over a trade barrier, the two countries enter into a negotiation phase. If they cannot bilaterally compromise, then a formal WTO panel is established to adjudicate. The length of time between the formal request for consultations and the establishment of a WTO panel is approximately 8-12 months. Looking at the plot, there is a cluster of disputes initiated approximately 12-16 months before the next election. This could potentially coincide with the foreign government’s desire to have the actual WTO panel established at politically sensitive times, though formally testing these arguments is beyond the scope of this paper. In the above discussion of media coverage of the zeroing issue, media coverage begins when an official request for consultations is lodged with the DSU, but also increases significantly when an actual panel is established.

³¹Unemployment data are from the Bureau of Labor Statistics website, [http : //www.bls.gov/](http://www.bls.gov/), Series ID: LNS14000000, and were accessed on February 16, 2010. The moving average includes the current month and the eleven preceding months. I use moving averages to capture broader economic trends, rather than transitory shocks.

WTO dispute.

The data also include a variable for United States gross domestic product (GDP). The GDP variable is the percent change in the quarterly, seasonally adjusted GDP of the United States in billions of 2005 dollars.³² If low economic growth makes the public more supportive of protectionism, then this variable should be positively correlated with the probability of WTO litigation. As the economy improves, the public becomes more amenable to free trade, and WTO disputes become more likely.

The two macroeconomic variables focus on broad trends in public opinion over protectionism, but more concentrated actors like firms or interest groups could also be important. One indicator for their preferences over protectionism is the number of AD and CVD petitions that they file. As their desire for protection increases, they accordingly file more petitions. I constructed a variable that is a twelve month moving average of the number of new petitions filed.³³

To test retaliation theories, the data include measures of U.S. export penetration into the foreign market and the foreign country's import penetration into the United States. The exports variable is a twelve month moving average of the monthly percentage of U.S. exports that go to the country targeted by a particular petition. For instance, if the petition targets U.S. imports from Japan, then the variable measures the dollar value of U.S. exports to Japan divided by the dollar value of total U.S. exports. This measures the foreign country's capacity to retaliate against the United States. If the United States exports a large percentage of its export capacity to the target of the petition, then the United States is more vulnerable to retaliatory protectionism from the target country. If the United States does not export to the target country, then it is more immune to threats of protectionist retaliation. Since unilateral retaliation is the most frequent compensation for a plaintiff as a result of WTO litigation, the exports variable should be positively correlated

³²Since the data are measured quarterly, I expanded them to monthly data so the entry for each month is equal to the entry for that quarter. GDP data comes from the Bureau of Economic Analysis' website, [http : //www.bea.gov/national/](http://www.bea.gov/national/) which was accessed February 19, 2010.

³³This variable is not a "pure" moving average. If there was a discontinuity in the data where a month went by without the filing of any petitions, then it does not enter into the moving average. This variable is technically a moving average over the preceding 12 month periods in which there were actually petitions filed. Discontinuities are likely to be very uncommon in this data set, if they even exist at all, because the dataset includes over three hundred petitions that occur over a period of only 180 months. I haven't checked yet, but I am fairly confident that this actually doesn't ever occur, so it's highly unlikely that this affects results.

with the probability of litigation. The imports variable measures the monthly percentage of the value total U.S. imports that come from the country targeted by the antidumping petition. If the United States imports a large amount from the target, the target may be less willing to retaliate against United States protectionism for fear that a trade war might endanger other exports as well. Conversely to the measure of U.S. exports, this variable should be negatively correlated with the probability of litigation. Finally, I include a proxy for a country's legal capacity to pursue WTO disputes. I include a counter of the number of WTO disputes that the plaintiff has been involved with up until that point, either as a plaintiff or a defendant.³⁴ Table 1 shows summary statistics for each of the independent variables.

Empirical Analysis

This section tests information transmission arguments with two models. The first model considers the effect of each independent variable on the probability of a particular terminating event occurring. The dependent variable for a particular observation equals zero if the observation did not experience any failure event in a particular month. If the observation failed, then the dependent variable is coded with a value that is distinct to that particular failure type. This setup allows the independent variables to have different effects on each type of failure. These models demonstrate how certain variables predict the occurrence of a WTO dispute, and, by extension, the particular ways in which DSU litigation affects cooperation.

The second model accounts for the potentially conditional nature of the information transmission hypotheses. It is possible that the principals/audience must have *both* the inclination and ability to punish their agents in government. This model includes an interaction term that interacts the electoral proximity and unemployment variables. I chose the electoral proximity and unemployment variables because they were the most theoretically straightforward proxies from each of the two hypotheses. The second model demonstrates how the likelihood of exit via a WTO challenge is highest when an election is near *and* unemployment is highest.

³⁴The target country's per capita GDP has been suggested as a way of measuring their legal capacity and litigation costs for WTO disputes (fill in cite, Reinhardt). There is not reliable data for all of the observations, so I estimate models both with and without this variable. There are no significant differences.

Competing Risks Models without Interactions

I use a Bayesian multinomial probit model to estimate the effects of the independent variables on the probability of each terminating event.³⁵ I set the base category to 0 which indicates that an observation did not fail in that month, or that the observation was right-censored for that interval. This makes interpreting the results more familiar: A positive coefficient indicates that an increase in that variables corresponds to an increase in the probability of failure due to that risk, relative to the probability to continuing to live for another month. The interpretation is thus very similar to the interpretation of a coefficient in the Cox proportional hazards model, where a positive coefficient indicates that an increase in that variable increases the hazard rate. Since the models are Bayesian, I report the mean of the posterior distribution of each coefficient and the values for the 2.5% and 97.5% bounds of the distribution.³⁶

The first competing risks model, Model 1, includes all of the independent variables described above. The regression also includes two distinct time trends in the regressions. The first is a third degree “Age” polynomial. The *Age* variable measures the number of months that a particular observation has been alive. Age^2 and Age^3 are also included. These variables thus act similarly

³⁵This approach is conceptually similar to analyzing competing risks in continuous time, single failure data. There are several interrelated reasons why this model is an appropriate choice. An important assumption in some analyses of competing risks in continuous time is that the competing risks are independent. In the latent failure time approach to duration analysis, each observation has a latent failure time, T_j , for each of the j competing risks. We only observe the first failure, $\min(T_1, T_2, \dots, T - j)$, or failure due to the risk for which the latent failure time is the quickest. The independence assumption says that these latent failure times, the T_j 's are conditionally independent of one another. For this application, this assumption would be akin to saying that there is no unobserved heterogeneity that differs in its influence on one risk relative to another. This assumption is untestable with single-failure duration data. For the data at hand, it is unlikely that the different risks are independent from one another, and when looking at the covariance matrix estimated from the multinomial probit model (not reported), this cannot be ruled out. If the competing risks were independent of one another, the solution to modeling this problem would be simple: we could estimate separate Cox models for each risk individually, treating failure due to other risks as instances of random right-censoring (See: Sueyoshi 1994, 30). The non-independence of competing risks also means that other commonly used models of discrete time failure are inappropriate: in the more commonly used multinomial logit model, a violation of the non-independence of risks is akin to a violation of the Independence of Irrelevant Alternatives assumption. The multinomial probit (MNP) model does not require the IIA assumption, and can be used to analyze the probability of competing events occurring. The maximum likelihood estimator for the MNP is notoriously difficult to compute, and calculating the substantive effects of the independent variables adds another layer of difficulty. The Bayesian MNP model avoids these problems, while retaining the ability to analyze competing risks even if the risks are non-independent. For a description of the model and package used, see Imai and van Dyk (2005a) and Imai and van Dyk (2005b).

³⁶For each regression, I used a burn in period of [XX] draws and then sampled [XX] times from the posterior distribution. The MNP package in R uses Gibbs sampling and I used prior distributions for the coefficients that have mean [XX] and [XX] prior variance.

to the baseline hazard rate in the Cox proportional hazards set up.³⁷ The second time trend I consider is a third degree “Calendar Month” polynomial. *Month* measures the calendar month of a particular observation, across years. For instance, the *Month* variable equals 1 for observations alive in the very first month of my overall observation window, April 1994, and equals 176 for the final month of the observation window, October 2009. These variables capture any trending due to changes over calendar time.

Table 2 presents summary statistics of the posterior distributions for the coefficients from Model 1. These tables list the mean of the posterior distributions of the coefficients, the standard deviation of those distributions, and the values of the variables for which 2.5% of the posterior distribution is above that value and the value for which 97.5% of the posterior distribution is below that value. The multinomial probit model yields coefficients for each variable for each risk. The summary statistics of the posterior distributions are only for the coefficients when considering the WTO exit type, with no exit as the base category. The results for the coefficients on the variables for the other two risks are omitted. A positive value of the coefficient means that the variable is positively correlated with a higher probability of exit via a WTO dispute relative to the probability of no exit. I also plot the posterior distributions of the main explanatory variables and the control variables in Figure 4 and Figure 5.

The information transmission hypotheses gain much stronger support when considering exit via a WTO dispute. The strongest support comes for the first hypothesis, with the electoral variable. As elections approach, subjects become more likely to die via a WTO dispute. Figure 6 plots the predicted probabilities of each type of exit as the months until the next election varies across its sample maximum and minimum.³⁸ The top pane shows the effects of changes in the probability of an exit via a WTO dispute. When elections are furthest away, the probability of a WTO dispute is minimal, near zero. However, when the next election is very close, the probability rises substantially to the 10% range. The middle and bottom panes plot the substantive effects of changes in the number of months until the next election on the probability of exit via a negative ruling or

³⁷I chose to use a third degree Age polynomial because of the time trends that arise because of the structure of the AD and CVD review processes. Since there are specific time horizons and schedules used for the AD and CVD review process, these variables account for this as a source of time trending.

³⁸These plots use the results from Model 1.

revocation. These two plots are an interesting, though informal, type of placebo test. The effect of electoral proximity on the death of AD and CVD petitions is only through the risk of a WTO dispute. The other two risks are theoretically unrelated to electoral proximity and empirically, they appear to be unrelated as well.³⁹

The second hypothesis receives support, as well. The mean of the posterior distribution for unemployment, and over 95% of its probability mass, is negative. The same is true for the number of new petitions. The mean of the distribution for the GDP variable is positive, as predicted, though 5% of its probability mass is below the value -0.01. Figure 7 plots the substantive effects of changes in unemployment on the different probabilities. As the posterior distribution for the coefficient on unemployment suggests, as unemployment increases, the probability of a WTO dispute decreases. For periods with an average preceding unemployment of 8%, the probability of a WTO dispute is approximately 4% lower per month. Unemployment has little effect on the probability of revocation, and a weakly positive effect on the probability of a negative final ruling.

The retaliation variables perform as expected and their results are consistent with existing work. The mean of the posterior for the exports variable is positive, as expected, and most of its probability mass is associated with positive values. The mean of the posterior distribution of the coefficient for imports is still negative, but not as much of its probability mass is associated with negative values. The differences between the effects of retaliation and trade leverage compared to the effects of the information transmission variables becomes clearer looking at the substantive effects of changes in exports and imports. Figure 8 and Figure 9 plots the effects of changes in exports and imports on the probability of the different exits. Trade leverage has a uniform effect on each of the three exit types. Increased exports increases the probability of each of the three risks. Increased imports decreases the probability of each of the three risks, though the effect is weaker and unclear for revocation.⁴⁰

The contrast between the effect of the retaliation variables and the effects of the information

³⁹These plots use the results from Model 1.

⁴⁰With regards to negative rulings, these results are consistent with existing work that suggests that bureaucracies make decisions about petitions with an eye on the broader trade relationship context in which they operate. Blonigen and Bown (2003) find that threat of retaliation and the potential for a WTO dispute deter firms from naming certain countries in their antidumping petitions and decrease the probability that the relevant U.S. bureaucracy will rule in favor of those petitions.

transmission variables tells an interesting story. The effects of information transmission variables are pronounced only for the risk that the foreign country chooses to initiate a WTO dispute, and they do not affect the risk that U.S. bureaucracies will issue negative rulings or revoke the petition. The variables accounting for information transmission mechanisms only have effects on the actors and risks for which information transmission matters. U.S. bureaucracies are not directly concerned with the reaction of the general public to their decisions, since they are politically insulated and their decisions receive very little attention. We should not expect them to behave as though they were concerned with information transmission, and the results are consistent with this. On the other hand, trade leverage variables, which capture the notion of cooperation via the threat of punishment or member state retaliation, universally affect how protectionist barriers “go away.” Regardless of the risk being considered, greater U.S. exports to the target country increase the probability that the trade barrier in question will be removed in some way, and vice versa for greater U.S. imports from the target country. These results suggest that multiple mechanisms are at work in shaping trade policy, which is discussed more in the conclusions section.

Interactive Models

Model 2 incorporates interactive effects. It is possible that the above hypotheses should be interpreted conditionally: litigation is most attractive to the foreign government if the audience has *both* the inclination and ability to punish their government.⁴¹ To explore these interactive effects, I re-estimate Model 1, but also include an interactive term between unemployment and the months until the election. The interpretation of the coefficients in these models is difficult, so Figure 10 presents a three dimensional plot of the predicted probability of a WTO dispute as the electoral months and unemployment variables vary across their sample minima and maxima, holding all other variables at their sample means.⁴²

⁴¹Since I do not formally/game-theoretically model this interaction here, it is valuable to explore these different interpretations of the hypotheses derived informally above. Concurrent work formally models this interaction and will allow for a more precise characterization of the hypotheses.

⁴²To generate these predicted probabilities, the MNP package samples from the posterior predictive distribution. The sampling algorithm samples from the posterior distribution for the coefficients and covariances generated, and samples the latent variable for the underlying latent choice model. For a more detailed description, see Imai and van Dyk (2005b), pg. 4. This plot uses Model 2.

First, note the lower left hand corner of the boxes, which is the area of the parameter space with low unemployment and fewer months until the next election. Consistent with the theoretical predictions, this area corresponds to the highest probability of a WTO dispute.⁴³ The plots also suggest that there may indeed be a conditional aspect to the two hypotheses. For instance, in the bottom right area of the box, with low unemployment and distant elections, there is a very low probability of a WTO dispute. This would support the interpretation that low unemployment alone is insufficient to trigger a dispute. On the other hand, as the next presidential election approaches (moving right to left in the box) the probability of a WTO dispute increases regardless of the level of unemployment.

Conclusion

International institutions have long been suspected of playing an important role in transmitting information to certain principals or audiences, who can use that information to hold policymakers accountable for their international commitments. Legalized dispute settlement has increasingly been linked with information transmission. This article derived specific predictions from these theories about the timing of international disputes and tested those theories using a dataset of United States trade policies and World Trade Organization disputes. If legalized dispute settlement is an important mechanism for transmitting information to an audience like the voting public about the policies of their government, then disputes should be more likely to arise when the public has both the ability and inclination to punish their government for policies that are inconsistent with international obligations. Statistical analysis of the timing of WTO disputes over United States trade barriers is consistent with these hypotheses. WTO disputes are more likely as national elections approach, i.e. when politicians are most sensitive to the preferences of the public, and when macroeconomic indicators suggest stronger public support for free trade. While existing work has theorized that information transmission is an important role of IO's and has provided survey-

⁴³The scale of the vertical axis appears low, with changes in the independent variables inducing approximately a 0.005% change in the probability of a WTO dispute. However, since the unit of analysis is the AD petition-month, this is a nontrivial amount. Aggregated over 12 months, this corresponds to approximately a 6% increase in the probability of a WTO dispute. Given the relative rarity of WTO disputes, this is an appreciable amount.

level evidence of the foundations of these arguments, this work is the first macro-level evidence of an information transmission mechanism at work. By better specifying theories of information transmission and deriving predictions about the endogenous occurrence of disputes, I am able to show that WTO members cooperate over trade policy in ways that are consistent with an information transmission mechanism.

More broadly, this work demonstrates the importance of theorizing and empirically testing specific mechanisms in which international institutions might influence cooperation. Rather than debating whether or not “institutions matter,” this paper tested specific ways in which forces like member state retaliation and information transmission affect cooperation in the realm of international trade. In debates about the effects of IO’s on member state behavior, there are numerous potential explanations for how an IO might affect cooperation. Some explanations focus on how one member state’s threat to defect from a cooperative equilibrium or retaliate against the defection of another member state keeps them both on the equilibrium path of mutual cooperation (Maggi (1999)). Other explanations focus on a particular role played by the institution, such as that of a negotiating forum, a credible commitment device (Simmons (2000)), a way to generate audience costs (Abbott and Snidal (1998)), or as an information transmission mechanism (see the more extensive review above).⁴⁴ In economics literature, some work has focused on power-based explanations for behavior compared to rules-based explanations (Bagwell and Staiger (1999), Jackson (1989)).

In the debate over whether or not IO’s influence member state behavior, there is a tendency to argue in favor of one singular explanation for member state behavior, either explicitly or implicitly arguing against other explanations. This is potentially a reaction to the incisive challenge of Downs, Rocke and Barsoom (1996) that cooperation under the auspices of IO’s may be endogenous to the factors that caused members to join the IO in the first place.⁴⁵ Scholars arguing in favor of explanations not based on mutual punishment want to defend against the counterpoint that evidence in favor of their explanation is an artifact of the endogeneity issues identified by Downs, Rocke and Barsoom (1996). The alignment of preferences in favor of cooperation and the

⁴⁴For a more extensive review of different roles that an IO can play and how this affects the design of institutions, see Koremenos, Lipson and Snidal (2001).

⁴⁵Koremenos, Lipson and Snidal (2001) note how some realists argue that “international institutions are little more than ciphers for state power” (762).

distribution of retaliatory capacity among potential members are often thought of as facilitating the establishment of and membership in an IO. Those arguing that the institution has an independent effect, outside of preference alignment and the threat of punishment, emphasize one of the other mechanisms for cooperation.

The results from my analysis show that this either/or approach is too stark, and that different mechanisms may be at work in different ways even when looking at the same institution or within same area of international cooperation. Retaliatory capacity, which is a crucial component of explanations for cooperation based on the mutual threat of punishment, affect on the decisions of both foreign and domestic actors, which in turn shape trade policy and overall trade cooperation among nations. Information transmission mechanisms also appear to be at work. Domestic political considerations shape the decisions of foreign actors, and influence whether or not foreign actors choose to use legalized dispute settlement to sound the alarm over violations of an agreement. The two mechanisms, retaliation and information transmission, both have discernable and substantively important effects on trade policy and cooperation. Each operates by affecting the behavior of different actors and under different conditions.

While this work focused on macro-level evidence of information transmission arguments, future work could focus on more micro-level evidence. Some work on audience costs has already been done along these lines, Tomz (2007), as described above. However, while the average voter may respond in a certain way when prompted with new information in a laboratory setting, it remains to be established how that same person gathers that information outside of the lab. I briefly analyzed changes in media coverage of trade barriers that resulted from WTO disputes. But if media coverage is an important component of the information transmission story, then how exactly does it change when disputes arise? Does coverage of obscure policies, like antidumping petitions, move from the pages of industry and trade magazines to more mainstream publications? Do opposition politicians point to international disputes as evidence of the misbehavior of the incumbents?

This research informally derived predictions based on a simple story where the voters were a monolithic principal and elected officials setting trade policy were their agent. As a result, I focused on highly aggregated measures of the preferences of this principal and their ability to

hold their political agents accountable. In reality, politicians are a common agent, shared among many principals like special interest groups or labor unions, in addition to the general public. The preferences of each of these principals may change over time, and their ability to influence government policy may also change. One of the most high profile and recent WTO disputes was over the United State's safeguards actions against steel imports. In their strategic response, the European Union used dispute settlement to very publicly target their punishment towards specific interest groups, like orange producers in the politically important state of Florida. The EU thus targeted specific principals, to whom they thought elected officials were particularly beholden, and used the threat of legalized dispute settlement to signal their resolve. More sophisticated analysis of the patterns of international disputes would theoretically and empirically take into account the common agency nature of these dynamics.

The observation that there are many potential principals makes analysis of the effects of IO's both more complicated and more simplified. It is more complicated, because there are different principals with different informational environments and varying ability to influence the agent. Yet this also shows how many of the seemingly different existing arguments about the role of IO's, like credible commitments or audience costs share a common underlying framework. In each of these stories, some group or actor wants policymakers to behave a certain way. In Beth Simmons' (2000) discussion of credible commitments with regards to the IMF and Article 8, investors are a principal who would like sovereign governments to refrain from capital account restrictions. In arguments about audience costs and compliance with IO's, some audience would like their politician to comply with their international obligations. The common thread in all of these arguments is that there is some principal, who may or may not know the behavior of their agent, and the IO helps them better hold the agent accountable by providing information. By uniting these seemingly disparate arguments under this framework, we can better specify who the principals are, what information they hold, how their interests relate to the interests of their agent, and how the IO affects this interaction. This yields more specific, and empirically testable, predictions for the conditions under which IO's will affect member state behavior, rather than being forced to argue whether or not IO's matter, *writ large*.

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Figures

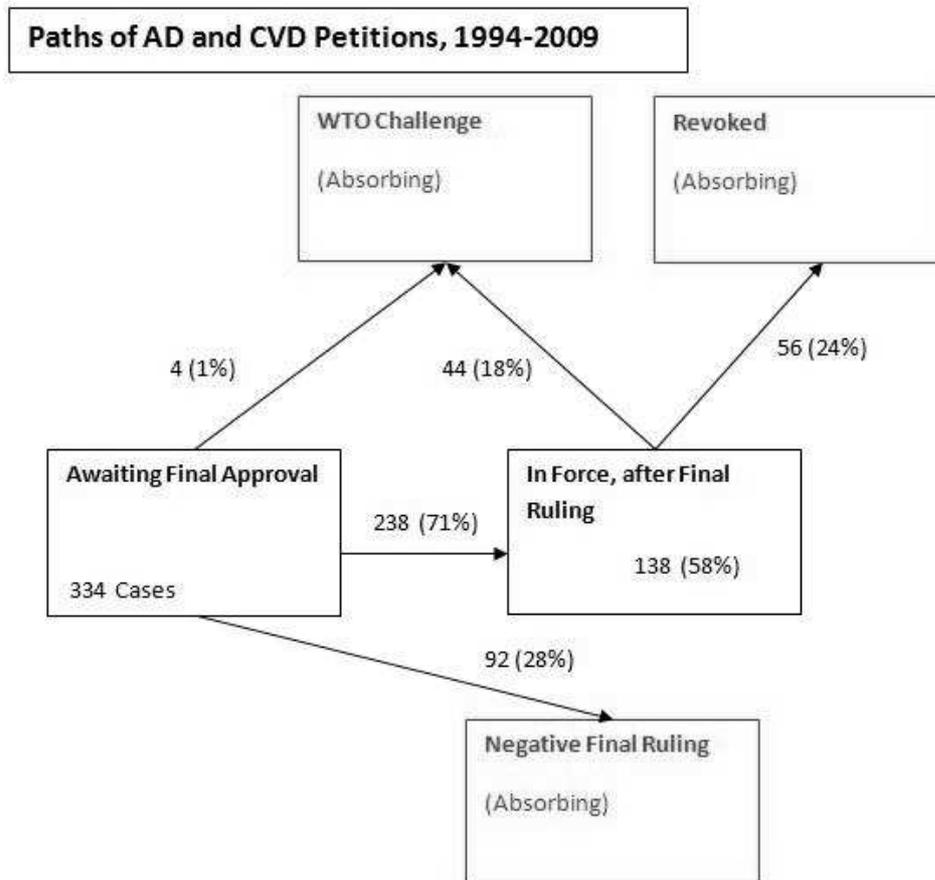


Figure 2:

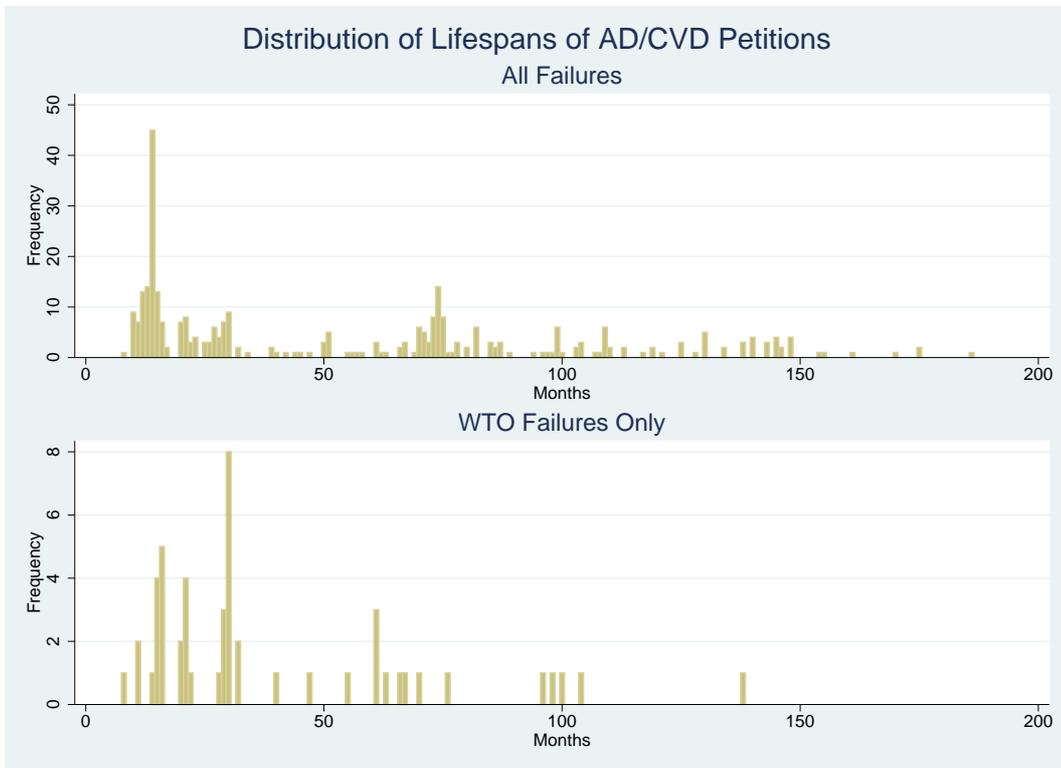


Figure 3:

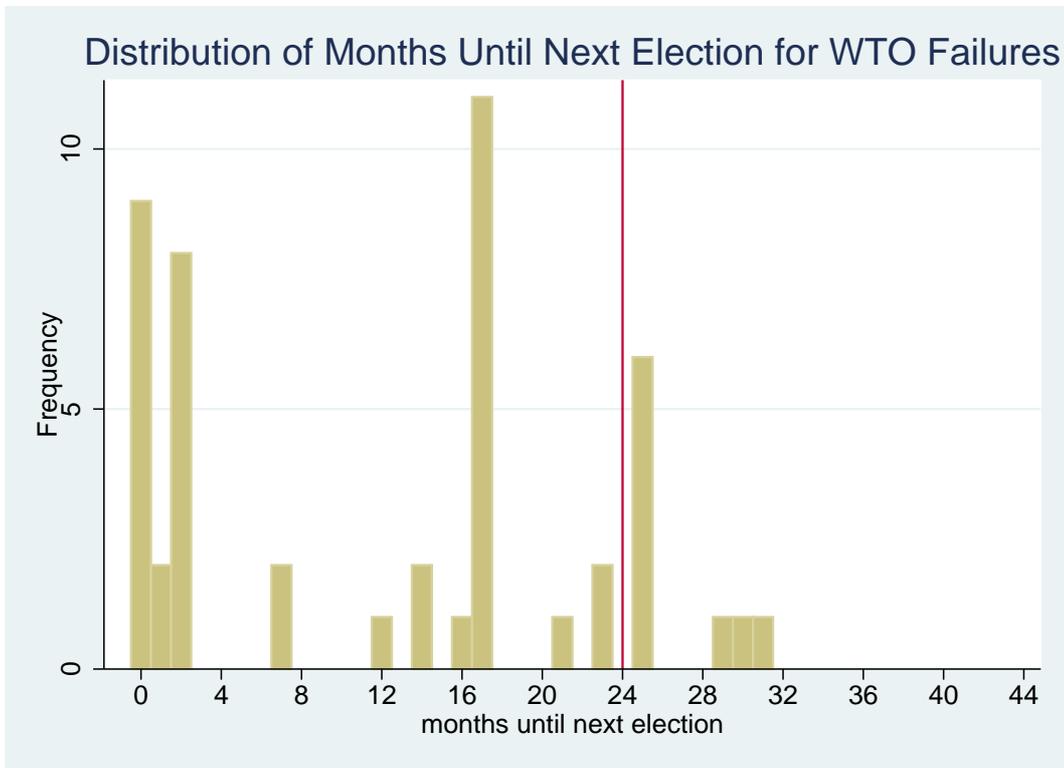


Figure 4:

Posterior Distributions of Coefficients for Information Transmission Variables, Model 1

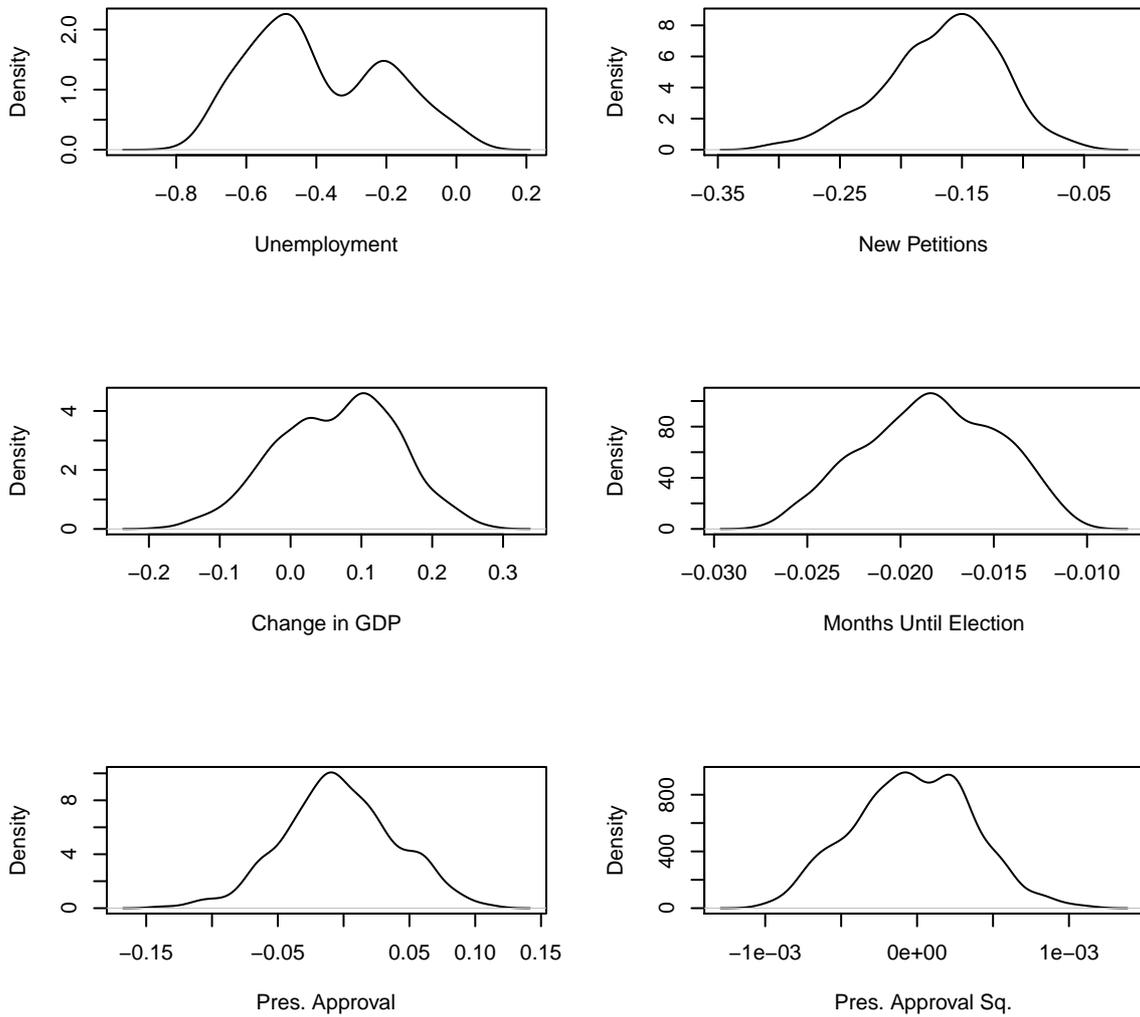


Figure 5:

Posterior Distributions of Coefficients for Control Variables, Model 1

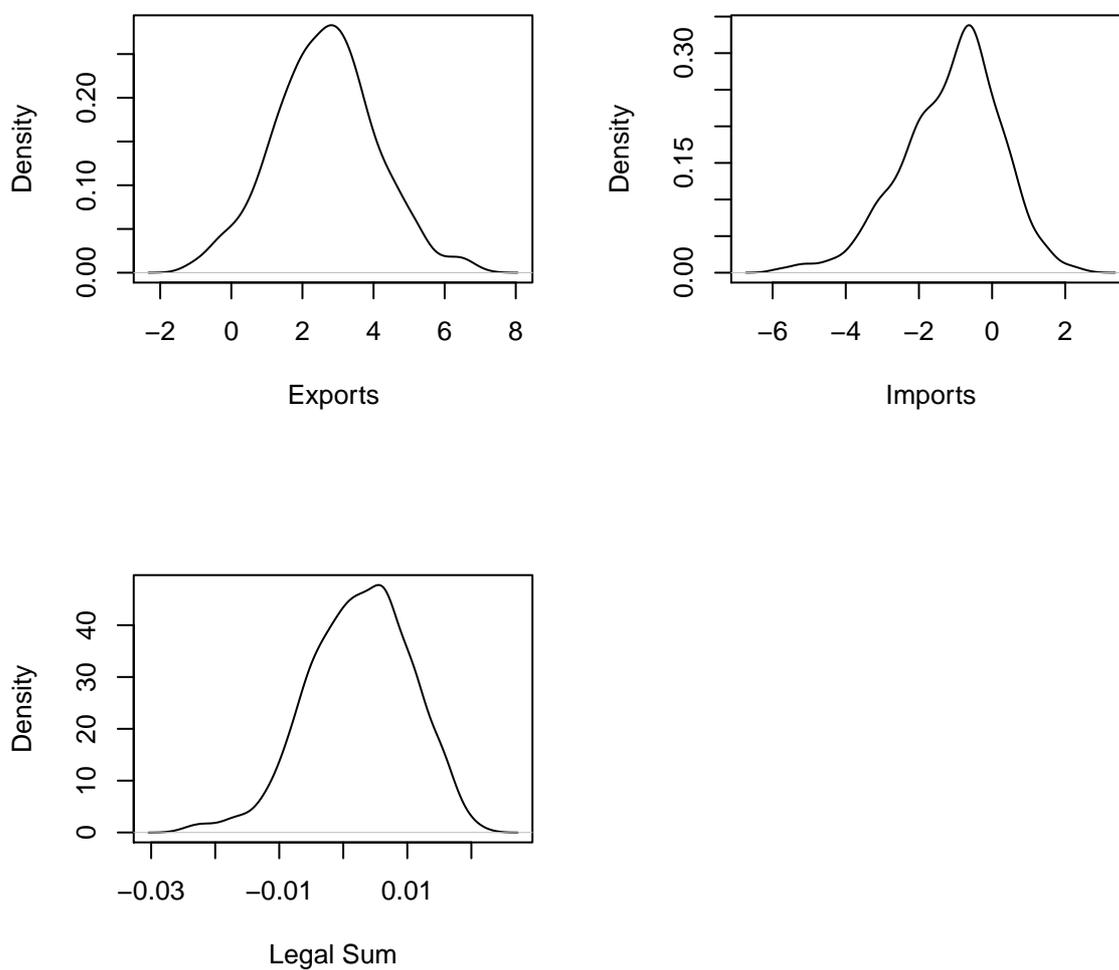


Figure 6:

Effects of Electoral Proximity on Probability of Failure, Model 1

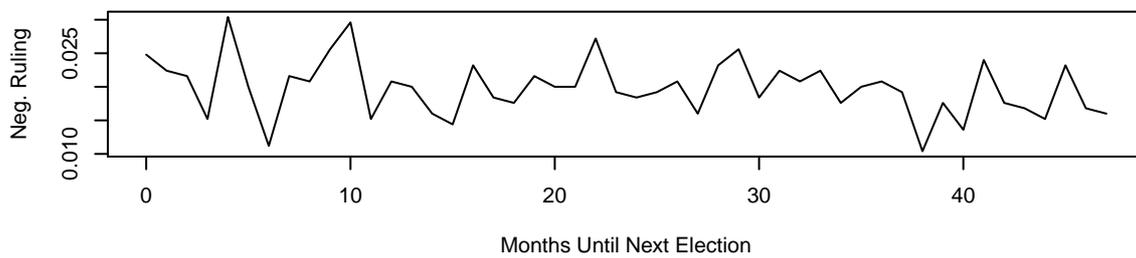
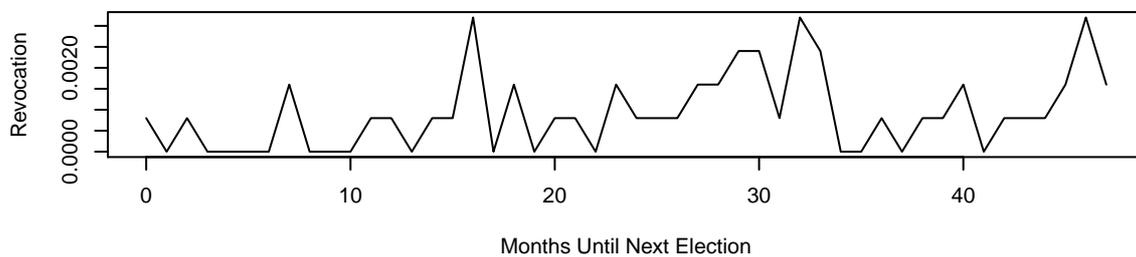
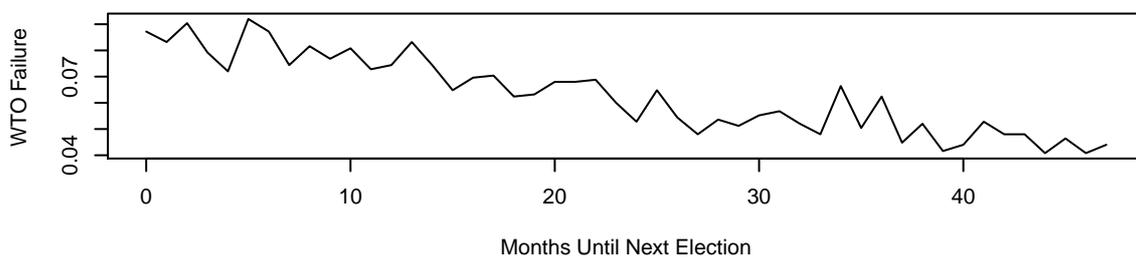


Figure 7:

Effects of Unemployment on Probability of Failure, Model 1

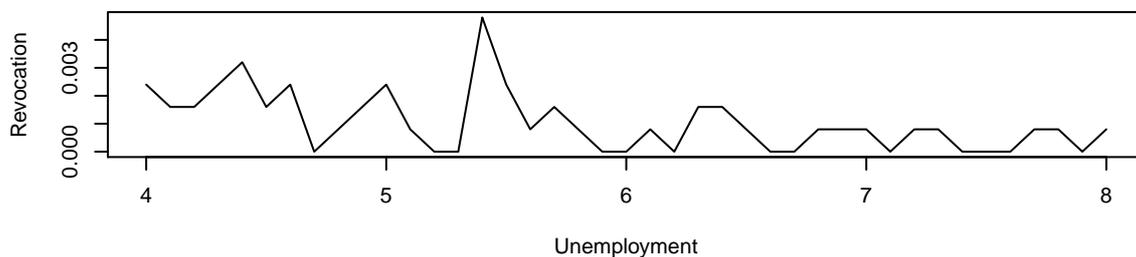


Figure 8:

Effects of Exports on Probability of Failure, Model 1

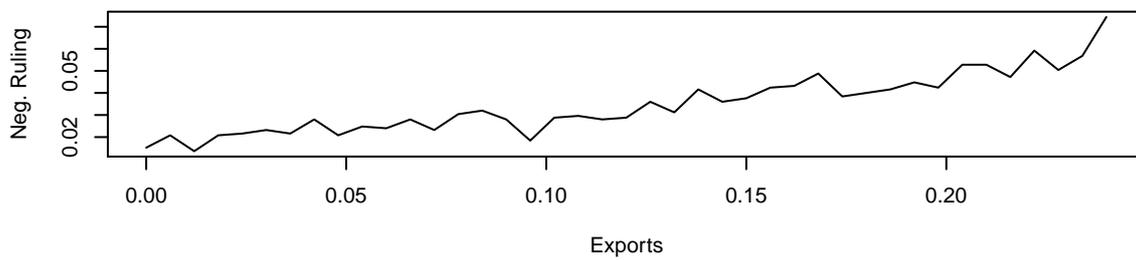
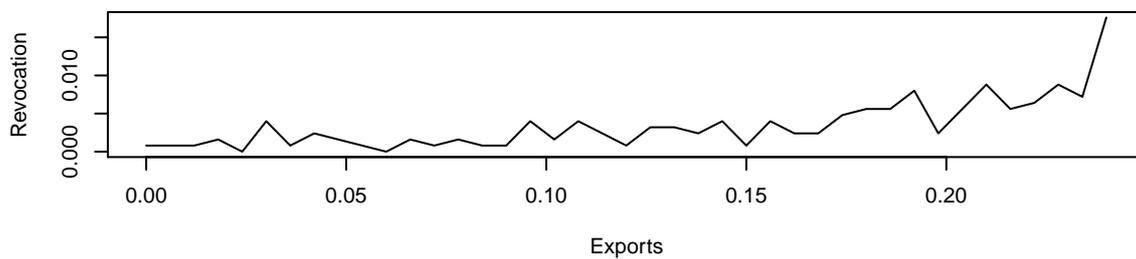
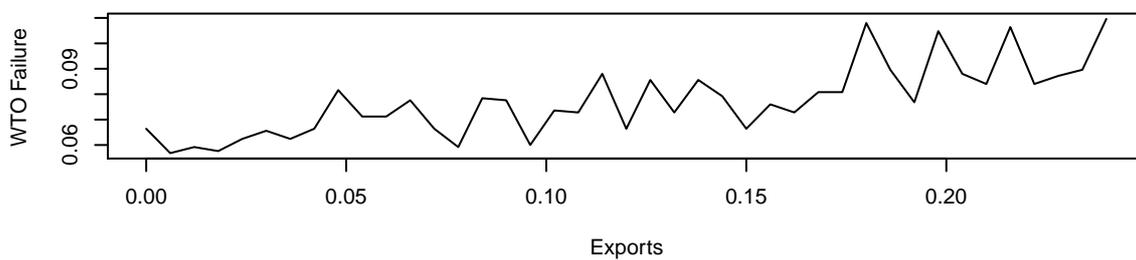


Figure 9:

Effects of Imports on Probability of Failure, Model 1

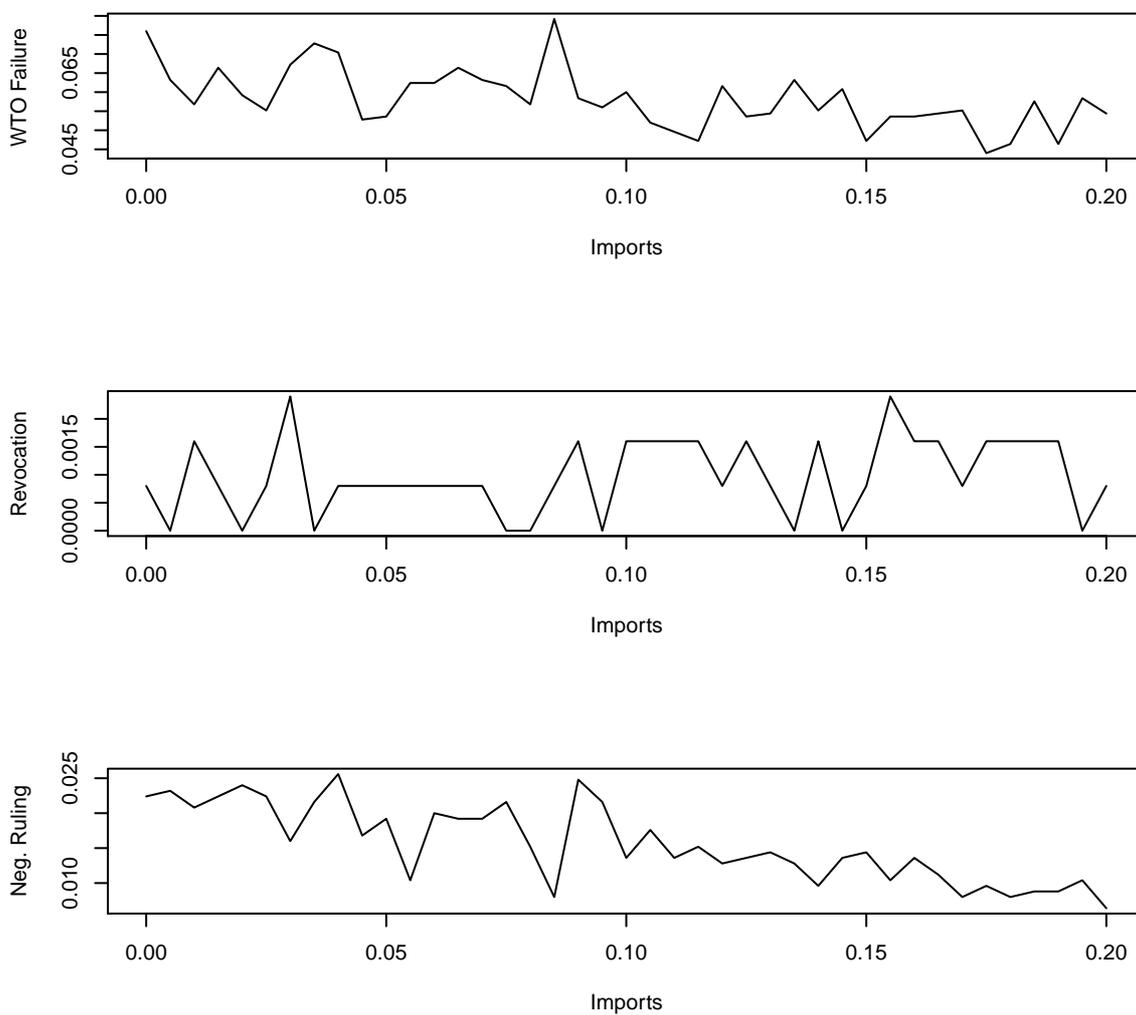
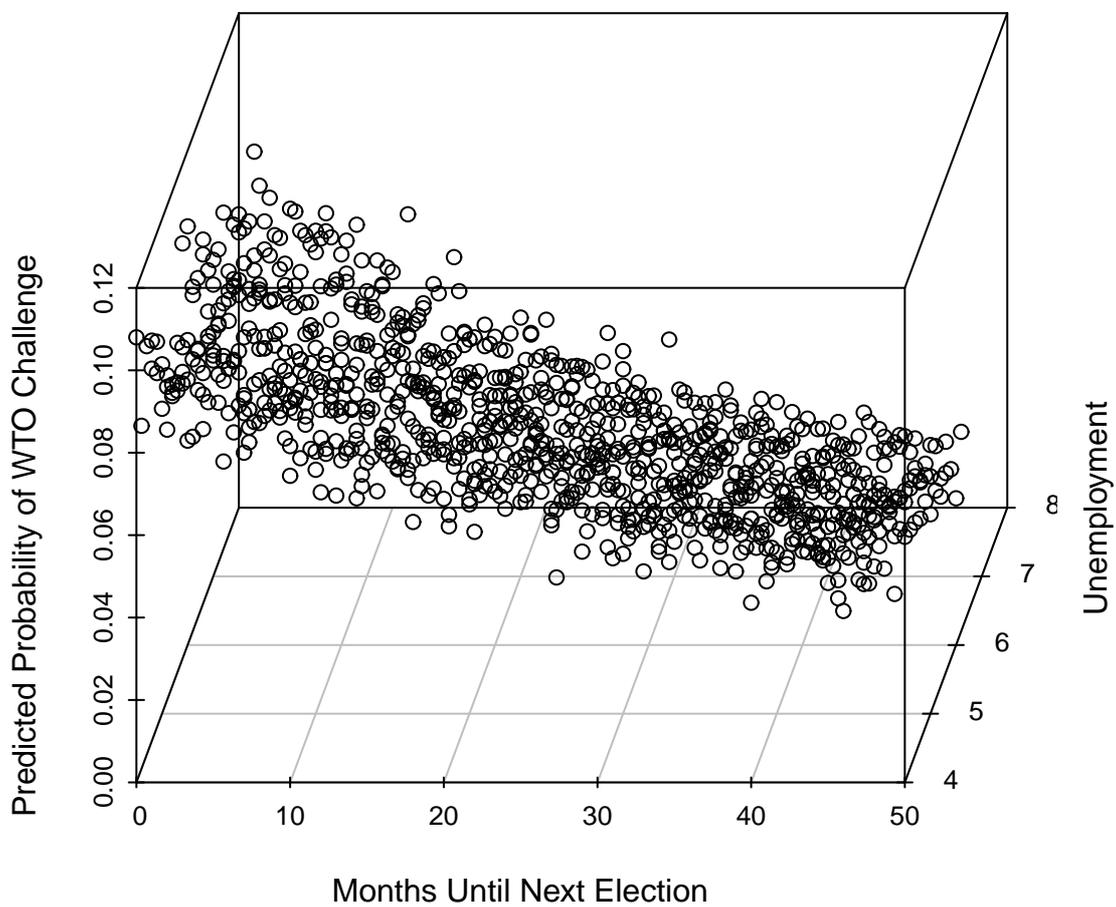


Figure 10:

Effects of Electoral Proximity and Unemployment, Model 2



Tables

Table 1: **Summary Statistics for Independent Variables**

Variable	Mean	Std. Dev.	Min	Max
Ability to Punish				
Months Until Election	23.24429	14.44846	0	47
Pres. Approval	50.4647	14.01703	24.78572	86.45
Inclination to Punish				
Unemployment	5.179219	0.762519	3.966667	7.908333
New Petitions	2.887883	1.877346	0.416667	8.416667
%Change in U.S. GDP	0.497084	0.703061	-1.6474	1.951463
Controls				
% U.S. Exports to Plaintiff	0.032564	0.039491	2.47E-05	0.237293
% U.S. Imports from Plaintiff	0.046742	0.055644	4.66E-06	0.196396
Legal Sum	3.734489	5.966372	0	26
Observations:	15,457			

Table 2: Posterior Summaries for Model 1: Bayesian Multinomial Probit

Exit Via WTO Challenge				
Variable	Mean of Posterior	(Std. Dev.)	2.5%	97.5%
“Ability to Punish” Variables				
Electoral Proximity	-0.02	(0.00)	-0.03	-0.01
Presidential Approval	-0.00	(0.04)	-0.08	0.08
Presidential Approval ²	0.00	(0.00)	-0.00	0.00
“Inclination to Punish” Variables				
Unemployment	-0.39	(0.20)	-0.70	-0.01
New AD and CVD’s	-0.16	(0.05)	-0.27	-0.08
Change in GDP	0.07	(0.08)	-0.10	0.22
Retaliation Variables				
U.S. Exports	2.64	(1.44)	-0.25	5.51
U.S. Imports	-1.11	(1.34)	-4.00	1.27
Other Controls				
Legal Sum	0.00	(0.0)	-0.01	0.02
Intercept	-8.73	(0.48)	-1.16	0.88