

LITIGATION FOR SALE:
Private Firms and WTO Dispute Escalation

Word count: 11,995

Ryan Brutger*

ABSTRACT: This paper presents a theory of lobbying by firms for trade liberalization, not through political contributions, but instead through contributions to the litigation process at the World Trade Organization. In this “litigation for sale” model, firms signal information about the strength and value of potential cases, and the government selects cases based on firms’ signals. Firms play a key role in monitoring and seeking enforcement of international trade law by signaling information and providing a bureaucratic subsidy, which increases a state’s ability to pursue the removal of trade barriers and helps explain the high success rate for WTO complainants. The theory’s implications are consistent with in-depth interviews with 38 trade experts and are tested through an analysis of WTO dispute initiation.

ACKNOWLEDGEMENTS: I have benefited from generous feedback from friends and colleagues throughout my work on this project. Special thanks goes to Christina Davis for sharing her data and many suggestions. I also benefited from feedback from Timm Betz, Marc Busch, Stephen Chaudoin, Jason Davis, Sean Gailmard, Joanne Gowa, Alexandra Guisinger, Raymond Hicks, Leslie Johns, Amanda Kennard, Andrew Little, Helen Milner, Julia Morse, Megumi Naoi, Amy Pond, Tyler Pratt, Kristopher Ramsay and those who provided feedback where earlier versions of this work were presented. I am also grateful to Marcus Albino for his work as a research assistant on this project.

*Assistant Professor, University of California, Berkeley, Travers Department of Political Science,
Email: brutger@berkeley.edu. Web: <https://sites.google.com/berkeley.edu/brutger/>.

Given the consensus among economists that free trade is welfare enhancing, domestic interest groups are often blamed for the persistence of trade barriers. Yet even though “protection for sale” arguments have significant support,² domestic firms also play a prominent role in maintaining the liberal trading system, monitoring states’ international trade policies, and increasing access to foreign markets. In contrast to a significant body of work that examines when and why trade barriers arise (Betz, 2017; Hosek and Peritz, 2022), this paper studies how firms and governments monitor trade barriers and select which barriers to contest. In doing so, this paper contributes to a growing body of scholarship that examines how private firms shape the development and enforcement of international law.

When it comes to understanding international law, the role of private firms is critical. Firms play an influential role from the creation of law itself to the monitoring and enforcement of international law. For example, Sell (2003, 8) emphasizes that state-centric “accounts of the Uruguay Round are at best incomplete, and at worst misleading” since they obscure the role of the private sector in establishing the agenda that led to the WTO agreements. Similarly, Perlman (2018) demonstrates that private firms can use their informational advantage to shape international standards.³ Given that private firms are influential in the creation of international law (Ginsburg and Shaffer, 2010), it should not be surprising that they also play an important role in monitoring and enforcing those laws. For example, private actors can contribute to what Morse (2019) refers to as “market-enforcement,” whereby private actors alter their behavior, effectively punishing states that don’t comply with international standards (Morse, 2022). When private firms engage in the monitoring and enforcement of international law, they also shape how the law is interpreted, which is especially influential at the World Trade Organization (WTO), where the need for consensus makes it challenging to alter the rules through negotiations (Shaffer, 2004). At a time when the WTO is in crisis over disagreements about its dispute settlement system, it is critical to understand how firms and states engage with the WTO, since “proposals for amending the WTO system are of little value if they are not grounded in a clear understanding of how the system now operates” (Shaffer, 2003, 6).

While no agreement or institution has done more to liberalize the rules of the trading system than the General Agreement on Tariffs and Trade (GATT) and subsequently the WTO, states regularly impose barriers that are in conflict with their WTO obligations. In the presence of a multitude

²See Goldberg and Maggi (2001); Grossman and Helpman (1994).

³Kennard (2020, 199) shows that firm contributions for environmental standards can influence international cooperation, noting that her model is consistent with lobbying as information provision.

of potentially noncompliant trade barriers, states must decide how best to allocate their resources to monitor and enforce trade agreements. Building from theories of informational lobbying and bureaucratic subsidies, this paper analyzes the interaction between firms and their government and finds that a type of “litigation for sale” occurs. Unlike traditional models of lobbying, where interest groups make campaign contributions, this paper identifies an alternative form of lobbying through litigation contributions – contributions to the fact-finding efforts, research costs, and litigation tasks – which play important roles by signaling the strength and value of potential trade disputes and mitigating bureaucracies’ resource constraints.

Although the WTO restricts dispute initiation to national governments, I show that private firms play a critical role in the dispute settlement process. The theory presented expands our understanding of firms’ liberalizing influence (Kim 2017; Osgood 2017), and also contributes to burgeoning literatures on transnational versus interstate dispute settlement. I argue that the formal rules of the WTO allow its members to benefit from increased monitoring and enforcement provided by informal private firm participation, without governments taking on the additional risk associated with transnational dispute settlement (Allee and Peinhardt 2010). Unlike their role in transnational dispute settlement mechanisms, where firms’ access to international arbitration is often viewed as eroding the sovereignty of the state (Brutger and Strezhnev, 2022), I show that the WTO rules allow governments to garner increased information and resources from firms, while preserving governments role as legal gatekeepers.

I show that private firms monitor WTO compliance and motivate states to seek enforcement of treaty obligations in two complementary ways. From a purely economic perspective, firms can contribute resources to support the litigation of WTO disputes, which reduces the cost of filing a complaint for the state and potentially increases the strength of the case. Firms are also positioned to signal information regarding the legal strength and value of potential cases, which allows the government to more accurately predict the probability of success. As the gatekeepers, governments select cases based on potential strength and value, which helps explain the nearly 90 percent success rate of WTO complainants (Davis 2012). I also examine firms’ incentives to monitor and seek enforcement of international legal obligations when firms within an industry have divergent valuations for initiating a WTO complaint. The implications of the theory are consistent with qualitative evidence from 38 author-interviews and statistical evidence of dispute initiations.

This paper makes a number of contributions, including demonstrating that private firms alter

the WTO dispute escalation process in at least four important ways. First, private firms' influence leads to cases being brought to the WTO that diverge from governments' priorities – product specific barriers are more likely to escalate than trade barriers with broader effects. Second, the number of cases initiated is higher with firms participating, as opposed to government-only models of dispute escalation, because firms mitigate the governments budget constraint, which helps both developing and developed countries challenge more trade barriers at the WTO. Third, the probability of the complainant winning increases, since firms signal information and the government screens cases based on the strength and value of the case. Finally, the quality and clarity of argumentation is improved with private firm participation. These mechanisms provide new insights into trade dispute escalation and whose voices are represented at the WTO.

Framing Dispute Settlement Participation

When a trade barrier is enacted, governments and firms have a multitude of potential responses. Many barriers are left uncontested, but those that cause significant distortion are likely to catch the attention of firms and governments. In many countries, when firms realize they are facing a trade barrier they can report it to their government. In the US this information is compiled in the National Trade Estimate (NTE) annual reports and for the EU in the Market Access Database. As an initial strategy, firms and governments will typically seek to have the trade barrier removed through bilateral negotiations with the country imposing the barrier. However, when the parties do not make progress through negotiations, they may escalate the dispute at the WTO, or through alternative pathways, as discussed in §15 of the appendix. Since only governments are allowed to file WTO complaints, they have the final say on whether to bring a case to the WTO, though firms have the ability to request government action through Section 301 petitions in the US or with the Trade Barrier Regulation (TBR) in the EU. Though there is notable variation across countries in how governments and firms engage with each other, there are also a common set of strategic incentives that are commonly considered when firms and governments evaluate whether to escalate a trade dispute.

Much of the existing discussion over dispute escalation at the WTO examines determinants of participation, which can be divided into research regarding which states choose to participate and which cases those states choose to bring to the WTO. It is generally agreed that countries engage in strategic decision making when considering whether to participate in WTO disputes (Betz and

Kerner 2016; Johns and Pelc 2016), and that they choose to initiate disputes when their expected benefits outweigh the expected costs (Bown 2005).

Significant research has focused on the costs of initiating a dispute. According to one trade official interviewed for this project, the average cost of litigation in most WTO cases is around one million dollars per year for the duration of the dispute (Trade Official 2014). In addition to the direct costs of disputes, Horn and Mavroidis (2011) note that indirect factors can play an important role, such as the threat of retaliation (Bown, 2005) and concerns about domestic political pressure (Betz and Kerner, 2016; Davis, 2012). Davis (2012, 2) argues that adjudication is a tool used to manage domestic political pressure and that domestic constraints make it more likely that executives will turn to the WTO to resolve disputes. Furthermore she finds that industries that exert significant pressure, measured by political contributions, are more likely to have barriers against them challenged at the WTO (Davis, 2012, 134). Davis rightly emphasizes the role of domestic influences on the dispute escalation process, but overlooks complementary mechanisms that firms use to seek enforcement of states' trade obligations, specifically litigation contributions and informational lobbying.

While much of the literature on WTO disputes focuses on the costs of disputes, it is also critical that governments have the necessary information to effectively advance their claim. However, most governments do not have the resources, or access, to gather the facts for a case, which is why litigation contributions from firms are so important. When firms provide information and assist in preparing the arguments for the case, they help alleviate capacity constraints of governments and provide information about the trade interest at stake and strength of the case. Shaffer (2006) argues that two important capacity constraints on WTO participation are a lack of legal expertise in WTO law and financial constraints to organizing effective representation in the WTO legal system. Yet even among the WTO members least constrained by legal knowledge and resources, such as the US and the EU,⁴ the private sector often plays a role in mitigating these constraints, while also signaling the strength of the potential case. For example, one expert involved in numerous disputes noted:

“There are two main reasons the government can't manage the facts [of a case]. First, they just don't have the facts... typically the data of what type of violation has taken place is proprietary. You need to have access to proprietary data, so you rely on private businesses to bring the data forward... Second, the costs and resources to put the facts together and process the dispute... Take the EC, they cannot afford to put someone on fact finding for a case full time. They don't have those positions and can't assign

⁴The EU is considered as a single entity because trade policy is centrally coordinated (Meunier 2005).

someone to do it, because there's no place in the budget for it" (International Trade Attorney 2021e).

Firms thus play a striking role in the dispute settlement process by mitigating resource constraints and providing information about the strength and value of potential complaints. In turn, this affects the types of disputes and arguments brought to the WTO, which Shaffer, Elsig, and Puig (2017, 292) argue affects the development of international law and "shape[s] the system, both substantively and procedurally."

An example of this type of public-private relationship occurred in a WTO dispute 291 over genetically modified foods between the EC and the US. Prior to the initiation of consultations, Monsanto, a producer of genetically modified foods, which had 15 products that had allegedly been adversely affected by the European Community's actions (World Trade Organization 2012), engaged the US government in an effort to ensure the case was brought. Although domestic pressure had been rising for years for the USTR to initiate a WTO dispute, the tipping point occurred when private firms signaled their beliefs about the case and contributed to the litigation process. According to a USTR official, the CEOs from the companies met with USTR officials and agreed to support the litigation effort (USTR Official 2009). To convince the government to bring the case, the firms funded and completed a "laundry list" of fact-finding and litigation assignments (USTR Official 2009). In response to the firms' contributions, the USTR moved forward with the case with greater confidence in the strength of the case and at a drastically reduced cost.

The Argument

Existing arguments regarding private firms' influence on dispute settlement participation are generally limited to firms' ability to define the trade agenda of states through traditional lobbying or government established mechanisms, such as Section 301 petitions in the United States (Bown and Hoekman 2005; Davis 2012). While firms also pursue alternative means of influence, such as bilateral consultations or domestic litigation, some firms contribute to the litigation process in an effort to increase the likelihood a case is brought to the WTO.

I argue that firms protect their interests through the dispute settlement process by contributing to the litigation costs of a WTO dispute, while governments use firm contributions to screen potential WTO complaints. Firms' contributions can take many forms, including conducting research, preparing legal briefs, and even litigating the case on behalf of the state. When a government is

unwilling to pursue a case due to high litigation costs or its belief that the case is weak, firms can step in to fill the gap between expected costs and expected profits and to signal the strength and value of the case. Importantly, governments retain control over the gatekeeping process, so if the diplomatic externalities of the case are too high, the government may choose not to bring the case, which is a key distinction between the legal procedures of the WTO and transnational dispute settlement mechanisms, such as Investor-State Dispute Settlement.

As the following sections discuss, firms' contributions must do at least one of the following to alter the case selection process of states. Litigation contributions can lead the government to update its beliefs about the strength or value of the case. This can occur due to the information signaled or by strengthening the case by providing improved argumentation, additional evidence, and expanding the total litigation budget. The firm's contributions may also lower the costs to the government, acting as a bureaucratic subsidy and mitigating the government's resource constraint. If litigation contributions either reduce the cost to the state or alter the state's beliefs about the strength or value, then firms can play a significant role in monitoring and seeking enforcement of international trade law at the WTO.

While firms have an incentive to signal the strength and value of cases to their government, the government's and firms' preferences are not necessarily aligned. Firms tend to have a relatively narrow focus on increasing market access by removing the trade barrier in question, which often comes with a desire to use an aggressive legal strategy (Shaffer, Elsig, and Puig, 2017, 295).⁵ For example, one expert noted that "Some firms push the envelope and try to bring more legal claims... Many governments are careful to avoid this, such as the USTR. They don't want to bring superfluous legal arguments." (International Trade Attorney, 2021b). By contrast, Bello (1996, 358) notes that governments tend to be "institutionally risk-averse." For example, in the case of the US, Shaffer (2003, 60) notes that there is a fundamental tension between firms and the government, which is caused by the fact that "the USTR represents the national interest, not the firm's interest. In particular, the USTR must consider that the United States may subsequently be on the defensive in a similar case." Similarly, the European Commission emphasizes their goal is to serve the "community interest" or "public interest" (Shaffer, 2003, 108), which manifests in a preference for challenging systemic trade barriers, as opposed to narrow barriers that may only affect a single product or firm.

⁵This is discussed further in appendix, §16.

Firms' Informational Advantage

I argue that firms have an informational advantage throughout the litigation process, given their position in perceiving and analyzing trade barriers. The unique position of firms can best be illustrated by considering their role in three phases of litigation known as “naming, blaming and claiming” (Felstiner, Abel, and Sarat 1981). The naming phase involves identifying an injury to one’s trading prospects (Shaffer 2006). The private industry has the greatest incentive and ability to identify an economic injury. In author-interviews, government officials repeatedly emphasized “we don’t find out about trade problems until the industry tells us, and we have to rely on market intelligence to tell us about the impact in the market and what they think is the problem” (Counsel for WTO Disputes 2021).

The “blaming” phase of a dispute determines who is responsible for the injury identified (Shaffer 2006). Once the injury is perceived, blaming can be relatively straightforward. If the lost profits are due to a trade disruption with a specific trading partner or to a flood of imports from a specific country, minimal costs should be associated with identifying who is to blame.

The most complex phase of dispute settlement is “claiming,” which consists of pursuing a claim through the WTO (Shaffer 2006), although much of the effort of claiming is done before the case is formally initiated. The information required for WTO disputes can be vast, and generally relies on the private information of firms affected by the trade barrier. A USTR official interviewed for this project estimates that half to three-quarters of the litigation expenses are devoted to the fact finding portion of claiming (USTR Official 2009). During this phase, firms quantify the value of lost revenue from trade, build the case connecting their losses to the barrier, and work with the government to formalize the complaint through the dispute settlement process.

As Shaffer (2003, 35) notes, private firms are often the “eyes” for government and the importance of firms’ information provision is increasing as WTO cases become more fact intensive. This leads to the expectation that firms should play an active role in providing information about the strength and value of potential cases in an effort to convince the government to challenge trade barriers at the WTO.⁶

My argument deliberately focuses on the strategic interaction between the firm(s) advocating to bring a case to the WTO and the government. A potential complication of the role of firms in

⁶Similarly, Mansfield, Milner, and Rosendorff (2002) argue that firms lobby for PTAs to reduce foreign governments’ opportunistic behavior.

the dispute escalation process would be the involvement of firms lobbying against dispute escalation. However, counter-lobbying is incredibly rare for a number of reasons, which I discuss in detail in §10 of the appendix. For example, one of the challenges is that firms that could be negatively affected by a dispute are often unaware that a dispute is escalating until after it's initiated. Trade lawyers emphasized this point, noting that they don't see counter-lobbying because the "process is so confidential that other firms may not know much prior to a request for consultations" (International Trade Lawyer, 2021b). The rarity of counter-lobbying was confirmed during the 38 expert interviews, with only one confirmed case of counter-lobbying identified, which is discussed in the appendix, §10.

Mechanisms of Influence

From the perspective of the government, private contributions are important for relaxing the government's budget constraint, since the contributions act as a bureaucratic subsidy. The budget constraint varies across countries, but even among the wealthiest members of the WTO, there are significant capacity constraints. For example, the USTR is responsible for initiating WTO complaints, but their total budget is only about \$47.5 million annually (Cook 2013). Within their budget, the executive's top priorities are negotiating trade agreements – not litigating existing agreements (USTR 2014). This creates a situation where, as the USTR's top litigator noted, budget concerns limit the ability to initiate legal complaints and seek enforcement of trade agreements (World Trade Online 2013). One attorney involved in numerous WTO disputes noted that there have been situations where governments were willing to file WTO disputes, but without litigation contributions from the firms, the government lacked the resources to move forward with the complaint (Associate Trade Attorney 2009).⁷ The importance of resource constraints was emphasized by a multitude of officials from a variety of countries, as the interview quotes in Figure 1 show, which is also discussed further in §11 and §13 of the appendix.

Firm contributions also play an informational role as a signal of the strength and value of the case, which is a key factor in determining whether the government challenges potential WTO violations. The importance of changing beliefs about the legal strength of cases was emphasized by trade attorneys, who noted that there have been numerous cases where the government did

⁷This situation illustrates that information provision and resource contributions are not necessarily substitutes. Even with sufficient information to believe a case is strong, some governments still require resource contributions to bring the case. Conversely, a government may have financial resources for a case, but not have sufficient information to believe they have a strong case.

Figure 1: Evidence of Resource Constraints Across Countries

<p>The USTR is the most resourced, and they can't staff cases, they don't have the resources. There is so much going on that they can't think about starting cases on their own... The US don't admit they don't have the resources, but they don't (International Trade Attorney, European Union, 2021).</p>	<p>There's a significant budget and resource constraint on governments. One of the important roles the trade agencies play is as a filter... Ironically, the USTR's budget is tiny relative to other countries...USTR views themselves as the marines, "the few the proud" (International Trade Attorney, China, 2021).</p>
<p>The ministry is always struggling how to allocate within the budget. I think some ministries try to get budget from industry, and request from industry to pay the fees. Basically, the budget of the ministry is very limited (Legal Advisor to Ministry of Finance, Japan, 2021).</p>	<p>Sometimes it's a resource constraint. Governments have to be putting out lots of fires, so it's hard to dedicate resources on a full time or focused basis to prepare for written submissions and complete that type of analysis (International Trade Lawyer, Colombia, 2021).</p>
<p>The cost of cases has been increasing year over year. In the early years of the WTO the reports were relatively short, but recently the cases are 100s of pages long. So I think the cost has been increasing. Government budget has increased, but industry has had to play a larger role (Ministry of Economy, Trade, and Industry Official, Japan, 2021).</p>	<p>There are times when the government says I can't do it myself because they don't have funds or don't have legal capacity... We can scale countries roughly based on GDP with larger countries being more sophisticated, and they will have more/stronger views about what is important and what is systemic. With smaller countries, the government tells industry it's fine to bring the case as long as they pay for it, and government just signs their name to it (International Trade Lawyer, United States, 2021).</p>
<p>With regard to budget constraints and legal knowledge, if we go back to Bananas and think of Ecuador. They weren't a rich country... Ecuador was not particularly well resourced... and they must have had assistance to mount that challenge... I think the gambling case in Antigua would be another such case (International Trade Lawyer, Hong Kong, 2021)</p>	<p>The budget constraint is very real. ... The steel industry for example. Government tells them to just pay for the case and lawyers (General Counsel, Ministry of Mexico, 2021).</p>

not believe there was a viable case, and only through private firms preparation of arguments and pitch to the government was the government convinced to bring the case (Associate Trade Attorney 2009). For example, in dispute DS524 concerning the importation of fresh avocados, the Mexican government did not initially believe there was a strong legal claim to bring the case and so they didn't want to initiate a dispute, but the firm gathered information and convinced the government there was a strong case, which was then brought to the WTO (General Counsel 2021).

Beliefs about the strength of the case are particularly important given governments' concern about losing WTO disputes. Two factors contribute to governments' heightened concerns, compared to firms. First, government officials responsible for selecting cases must choose from a broad set of potential cases and only initiate a select few. One official noted that in many countries "The people may lose their job if they lose, so the chance of success is very important" (International Trade Attorney 2021e). A European Commission official emphasized that the "strength of the legal issue" is of primary importance (European Commission Official, 2009), while a USTR official noted that they seek "slam dunk" cases (USTR Official, 2009). While firms also face resource constraints, each firm has a smaller set of potential disputes to choose from, and pursuing the firms' strongest case may still be somewhat of a gamble, whereas government officials have the opportunity to select

a pool of strong cases, and are best off choosing only the strongest. Additionally, when a government pursues and loses a WTO complaint, they not only face the losses from the dispute in question, but also a precedent where the issue in question is given a green light by the WTO.⁸ For example, if the US were to file and lose a complaint against China regarding currency manipulation, not only would China be able to continue their policies, but other countries would then be able to adopt similar policies without fear of legal challenges (Davis 2012, 165-168). Due to these risks, governments place significant weight on the strength of cases when evaluating whether to challenge potential WTO violations, and much of the information about the legal quality of the case comes from private firms.

Hypothesis-1: If firms have an information advantage compared to governments, then firms will provide trade barrier information to governments, increasing the probability a trade barrier will be challenged in a WTO dispute.

By theorizing the strategic incentives of the government and firms, we can generate additional empirical implications, which are formalized in §1 of the appendix. For example, we know that a case will not be initiated if the litigation cost for a case is greater than the combined expected payoff to the government and firm, which is formally proven in the appendix, §2.⁹ Such cases, by definition, are not profitable to pursue and so neither the firm nor the government would contribute to them. A further general result of the theory is that whenever the total litigation cost is less than the expected profit to the government, the case will be initiated. This means that the litigation cost of the case is low enough relative to the expected payoff that it is beneficial for the government to unilaterally initiate the case. Although rare, these types of cases would likely be brought when the precedent value of a case is high, which occurred in some of the early intellectual property rights disputes (USTR Official 2009).¹⁰

The most interesting results of the theory are from the set of cases where the government would be unwilling to initiate the case without a litigation contribution from the firm. The first set of such

⁸Divergent firm and government preferences are discussed further in appendix, §16.

⁹The expected payoffs are based on the probability of winning the case times the value of winning the case and are formally defined in §1 of the appendix.

¹⁰It is widely accepted that the *de facto* importance of precedent can be quite high in WTO disputes (Pelc 2014), and that case law matters at the WTO (Kucik, 2019).

cases are those where the expected profit to the government is less than the total litigation cost. In a unitary actor model, these cases would be viewed as unprofitable, however a firm's litigation contribution can alter the expected payoffs to the state by mitigating the resource constraint, making such cases profitable to the government. The logic leading to this implication is formalized in the appendix, §2.

Hypothesis-2: Ceteris paribus, firms litigation contributions mitigate the resource constraint, increasing the probability a trade barrier will be challenged in a WTO dispute.

A second, and potentially overlapping, group of cases are those where the government's prior belief regarding the strength of a case is sufficiently low that the government does not believe case initiation is profitable. In this group of cases, if the firm knows that the case is strong, it can credibly signal the strength of case to the government, thus altering the expected payoffs of the government and motivating the government to initiate the case. When a firm contributes more than it would expect to gain from a weak case, it signals that the firm believes the case is sufficiently strong and valuable — otherwise the contribution would have negative expected utility. This is formally proven in the appendix, §2.

For simplicity, I refer to contributing more than the firm would expect to gain from a weak case, as the firm meeting the “contribution threshold,” since this threshold provides a credible signal about the firms beliefs about the case. The existence of a contribution threshold helps explain the extremely high success rate of WTO complainants, given that governments are able to screen out cases that are not strong enough when working with private firms during the litigation process.¹¹ Although it is theoretically parsimonious to think of the existence of an easily observable threshold, in practice this threshold may be challenging to observe, in which case firms may have to go above and beyond to convince the government of the strength and value of their case. Shaffer (2003, 47) also recognizes that such a contribution threshold exists, noting that governments often require “industry to submit convincing factual and legal memoranda as a prerequisite to its filing of a WTO complaint,” which is consistent with the theory's implications under a broad set of beliefs, as

¹¹Some case selection models suggest defendants would anticipate this process and avoid trial when cases are strong, though Davis (2012, 88) explains the WTO's lack of retroactive punishment means states use litigation to delay removing non-compliant measures. Some defendants keep noncompliant measures due to domestic political concerns (Peritz, 2020).

discussed in §3 of the appendix.

Hypothesis-3: Ceteris paribus, when firms meet the contribution threshold, the government will update its beliefs, increasing the probability a trade barrier will be challenged in a WTO dispute.

A further implication of the theory is that a case will be more likely to be initiated when the trade distortion caused by a particular trade barrier is greater. A higher level of distortion means that a country will be forgoing relatively more trade, which increases the value of the case. Distortion also acts as a proxy for legal strength, given that proving economic harm can be an important facet of achieving compensation and securing a legal victory, and is indeed required for Article XXIII nullification or impairment complaints.¹² Distortion impacts the expected value and strength of the case, which means trade barriers with high levels of distortion should be contested in the WTO with a higher probability than similar barriers with lower levels of distortion.

Hypothesis-4: Ceteris paribus, trade barriers that cause high levels of distortion have a higher probability of being challenged in a WTO dispute.

Industry and Firm-Level Implications

Analyzing the interaction between a firm and the government provides a useful starting point for understanding WTO case initiation, but I now consider the incentives for an industry with multiple firms. I begin by considering the incentives of firms to contribute to the litigation process when multiple firms within an industry may be affected by a trade barrier and have heterogeneous preferences with regard to the potential dispute.

While firms still have better knowledge about the strength of a case, I now examine how uncertainty over the heterogeneous valuations of the firms affect the likelihood they contribute to the litigation process.¹³ If we assume that firms within an industry can coordinate their litigation contributions, then this interaction perfectly resembles a contribution game where private actors with incomplete information engage in a game to provide a discrete public good — in this case the public

¹²It has also been noted that high levels of distortion increase the likelihood of a violation ruling (Davis, 2012, 129).

¹³Since the expected payoffs to firms are a function of the strength and the valuation, all else equal, firms are still more likely to contribute when the case is strong.

good is the initiation of the case, where the benefit from the case accrues to the firms within a given industry.

In such a contribution game, not all firms within an industry will benefit equally from a trade dispute, which is why firm-level valuations can be heterogeneous. A more complete discussion of such a game, which has been analyzed in different contexts by Menezes, Monteiro, and Temimi (2001), is provided in the appendix, §4. In the most simplistic version of the game, I consider firms strategies when the cost of contributing to the good is low enough such that a single firm can initiate the case. In this situation, a symmetric equilibrium always exists where a single firm will contribute enough to reach the contribution threshold and the good is provided (Menezes, Monteiro, and Temimi, 2001, 499), which means the government initiates the case.

The first implication to emerge from the game with incomplete information and heterogeneous firms and contributions is that industries with dominant firms will be more likely to initiate cases, since it is more likely that a dominant firm will be able to afford to pay the contribution threshold. This finding hinges on the fact that for an industry where a single firm has a relatively high expected payoff from a WTO case, there is a strictly greater probability of contributing to the litigation cost of a dispute than an industry where no single firm has an incentive to pay the contribution threshold, in which case the probability that a case is initiated is strictly less than one (unless the case is initiated unilaterally by the Government). Dominant firms will also be most likely to have the capacity to pay the contribution threshold.

Hypothesis-5a: Ceteris paribus, in industries where dominant firms have relatively high value and capacity to pay the litigation contribution threshold, it is more likely that trade barriers will be challenged through a WTO dispute.

Next, I consider the contribution game when no single firm can afford to pay the contribution threshold, and find that a coordination problem exists that eventually becomes great enough that a symmetric equilibrium resulting in case initiation is no longer possible. For a wide range of costs of a public good, the coordination problem prohibits provision of the good (Menezes, Monteiro, and Temimi 2001, 496). Of particular importance is the finding that if the cost of the public good is slightly above the aggregate mean of the valuations then the unique equilibrium of the contribution game is for each player to contribute zero no matter what its value is (Menezes, Monteiro, and

Temimi 2001, 502). This implies that even when an industry as a whole may stand to benefit from the initiation of a WTO dispute, if no single firm can afford to pay the necessary litigation cost to motivate the government to file and the average valuation by all firms within the industry is low enough, the case will not be initiated. From this, a second implication emerges – as the mean value and capacity for the industry increases, case initiation becomes more likely, since there is a greater chance that the mean value and capacity for the industry will exceed the cost of litigation, making it more likely firms will contribute to the litigation process.¹⁴

Hypothesis-5b: Ceteris paribus, as the mean value and capacity for an industry increases, it becomes more likely that trade barriers will be challenged through a WTO dispute.

The previous two hypotheses are derived from predictions regarding how firms within an industry overcome collective action problems when facing a trade barrier; however, other factors can also mitigate or remove collective action problems. Most importantly for an analysis of trade disputes is the specificity of the trade barrier in question — how many products within an industry are affected by the trade barrier — determines the extent of the coordination problem firms face. For example, a barrier that distorts trade for all firms within an industry will create a significant collective action problem, especially if the stakeholders are smaller (Shaffer, Elsig, and Puig, 2017, 294), whereas a barrier that only affects a specific product will have a more concentrated impact, thus reducing or eliminating the collective action problem. An expert interviewed for this project confirmed “The collective action problem is an important one. We see that right now in Europe with respect to half a dozen different sectors” where they are unable to come together to challenge trade barriers (Counsel for WTO Disputes 2021). In some cases, when a trade barrier has a large effect on a particular industry, the collective action problem may be overcome with the help of an association. For example, firms coordinated their efforts through the Coalition against Australian Leather Subsidies, pressuring the USTR to file a WTO complaint (Shaffer, 2003, 33). While industry associations can alleviate collective action problems, they are most likely to do so when a trade barrier has a specific-targeted effect on the industry, as opposed to a more diffuse trade barrier. However, when there is a product specific barrier “Normally there is one company that cares a lot and takes the

¹⁴There are other industry factors that may also influence case initiation, which I address in more detail in the empirical section.

lead” (International Trade Lawyer 2021c). In fact, numerous officials emphasized that for many industries firms and association don’t cooperate to initiate disputes. For example, one expert noted that “Firms work independently. They do not cooperate when asking for requests for consultations. Sharing information may result in conflicts of interest so they don’t work together” (METI Official 2021). This suggests that product-specific trade barriers should be more likely to be challenged, since they are least likely to generate collective action problems, as discussed further in §18 of the appendix.

Hypothesis-6: Ceteris paribus, product-specific trade barriers should have a higher probability of being challenged at the WTO than more diffuse trade barriers.

Hypothesis-6 also provides a useful comparison against alternative theories of dispute initiation. If governments *independently* evaluate whether to initiate a dispute at the WTO, then collective action problems at the industry level should not influence case selection. In fact, trade barriers that harm entire industries or multiple industries would be more likely to be challenged, since the government could help more firms with a single case. One official noted that the government prefers to pursue issues with horizontal effects, “the motivation is to go after structural and systemic issues. Typically these would be issues that affect multiple industries” (International Trade Attorney 2021a). Furthermore, an official familiar with USTR priorities noted that “An individual industry is almost always only concerned with the very narrow particular dispute or industry... The government wants to invest their resources in cases with broader impact” (International Trade Lawyer 2021c). Thus, if product-specific cases are more likely to be initiated, then the government is bringing cases that impact fewer firms, which is consistent with firms influencing the types of cases initiated and having to overcome collective action problems to do so, as opposed to the government initiating their preferred cases that affect broad issue areas.

Qualitative Evaluation of the Mechanisms and Theory

To examine whether the hypotheses and mechanisms put forth are consistent with dispute escalation patterns at the WTO, I conducted 38 in-depth interviews with trade experts from around the world. The interviews are especially helpful when evaluating hypotheses 1 through 3, which focus on the private actions of firms and governments. The selection of interviewees was guided

by a number of goals. First, interviewees must have had significant experience with international trade policy and disputes. Second, to capture variation in WTO participation across contexts, I sought interviewees from a range of countries from all levels of development and frequency of WTO participation. Third, the interviewees were selected to ensure that the perspectives of government, private industry firms, and law firms were represented. These goals led me to contact potential interviewees who worked for firms that were affected by trade barriers, government officials involved in trade policy and disputes, and lawyers who practice international trade law. The response rate was near 50 percent, and the resulting sample included individuals representing countries across Africa, Asia, Australia, Europe, South America, and North America.¹⁵

Figure 2: Trade Experts Interviewed by Author

1	Counsel for WTO Disputes, Canada	14	Legal Advisor to Ministry of Finance, Japan	27	International Trade Attorney, Korea
2	International Trade Attorney, Morocco	15	International Trade Attorney, United States	28	Assistant General Counsel, United States Trade Representative
3	International Trade Attorney, Australia	16	International Trade Attorney, Russia	29	International Trade Attorney, Belgium
4	International Trade Attorney, Brazil	17	International Trade Attorney, United States	30	Senior Official familiar with WTO and Airbus-Boeing Dispute
5	WTO Secretariate Attorney	18	International Trade Attorney, United States	31	Ministry of Economy, Trade, and Industry Official, Japan
6	US International Trade Commission Attorney	19	Assistant General Counsel, United States Trade Representative	32	Associate Trade Attorney
7	United States Trade Representative Official	20	General Counsel, Ministry of Mexico	33	Associate Trade Attorney
8	International Trade Attorney, United States	21	Ambassador, Brazil	34	Trade Official, European Commission
9	International Trade Attorney, European Union	22	Department of Commerce Official, United States	35	Trade Attorney
10	WTO Panelist	23	International Trade Attorney, Colombia	36	Trade Official
11	International Trade Attorney, Hong Kong	24	Trade Official, United States Trade Representative	37	General Counsel, United States Trade Representative
12	International Trade Attorney, Switzerland	25	WTO Adjudicator	38	Trade Official, United States Trade Representative
13	International Trade Attorney, Egypt	26	Assistant for WTO and Multicultural Affairs, United States Trade Representative		

Interviewees agreed to be interviewed anonymously, given that many are still involved in trade disputes. Participants agreed to be cited by either their *previous or current* professional position. The sample includes those who served as members of the WTO appellate body, United States Trade Representative, USTR General Counsel, ambassadors, in-house counsel for private firms, etc. Although many of the officials held very high-ranking positions, most opted to be cited by more generic titles, such as “International Trade Lawyer” to preserve their anonymity. A complete list of

¹⁵More on the interview process is included in §20 of the appendix.

interviewees is presented in Figure 2, which displays the title – as the subject chose to be cited – and primary country associated with each interviewee’s WTO experience, though most interviewees have experience working with and representing firms or governments from multiple countries.

I begin by considering Hypothesis-1, which argues that, if firms have an informational advantage, we should observe firms providing information to increase the likelihood a case is brought. An empirical challenge of examining litigation contributions, whether they be informational or financial, is that they are private activities that are not publicly known across a broad range of disputes. However, the interviews consistently showed that private firms play a critical informational role in the dispute escalation process.

Firms’ information provision typically begins when the firm brings a trade barrier to the government’s attention, as shown in Figure 3. Government officials said “The identification of the problem usually starts with the market operator who faces a problem... The first step of identifying the problem can only be done by big companies who have the resources” (International Trade Attorney 2021c). The former USTR General Counsel said the agency does not seek out potential complaints to pursue (USTR General Counsel 2009), which was confirmed by two more USTR officials (USTR General Counsel 2009; USTR Official 2009). One official summarized that the market actor “will go to the government and say ‘we’ve been screwed, here’s how we’ve been hurt, here’s our evaluation and assessment of what our prospects are for winning’” (International Trade Attorney 2021d). The qualitative evidence in Figure 3 further highlights the informational advantage of firms and the reliance of governments on firms’ information, as predicted by Hypothesis-1.

The information asymmetry was also emphasized by interviewees, who noted governments don’t have direct access to the market data needed to evaluate the case. A USTR official summarized this point saying “we need the firm to bring data to show the problem really exists, the magnitude of the problem... what we need is confidential and proprietary information” (Assistant for WTO and Multicultural Affairs 2021). The point was echoed by others in Figure 3, with numerous government officials noting that firms have better knowledge of the market. One official noted that the government has to “filter cases” since they can’t bring them all, so the firm must “say what’s the argument, what’s the damages, and what’s the prospect of winning the case” (International Trade Attorney 2021d).

Firm contributions also alter the dispute settlement process by mitigating the resource constraint, as predicted in Hypothesis-2. As noted in Figure 1, the interviewees emphasized the impor-

Figure 3: Evidence of Private Firms Identifying Trade Barriers

<p>Market operators are always a reality check because they face the day to day business... Governments generally don't systematically monitor what other governments are doing. Maybe USTR and maybe the EC does so to some extent, but that radar screen still has problems... Sometimes the actions aren't detectable, except by those actors directly facing the measure (International Trade Attorney, Egypt, 2021).</p>	<p>We need to hear from industry to know there's a problem. We have the National Trade Estimates Report, which is a mix of things we've heard from industry and also things we've been monitoring... USTR will sometimes have companies come to them, and we need the firm to bring data to show the problem really exists, the magnitude of the problem (Assistant for WTO and Multicultural Affairs, United States Trade Representative, 2021).</p>
<p>The government would rely on the industry or commercial entity to complain to it, so I think the private sector involvement is absolutely basic to the whole system (International Trade Attorney, Hong Kong, 2021).</p>	<p>Private companies are involved because they know the market. The government doesn't know what happens. For TRIMS and TRIPS measures, the private firms are always involved and generally pay part or all of the lawyers fees (International Trade Attorney, Belgium, 2021).</p>
<p>If you're a poor and understaffed country, you don't even know if you're facing barriers hurting your firms (US International Trade Commission Attorney, 2021).</p>	<p>What happens in the majority of cases, maybe not all but certainly in the great majority, the commercial entity feels it's not getting a fair deal and presents its complaints to its own government (International Trade Attorney, Egypt, 2021).</p>
<p>Outside of the US and Europe everyone relies on the private sector to bring information about the case... But generally, even in Europe, the law firm is supposed to bring the facts to the European Commission (International Trade Attorney, Russia, 2021)</p>	<p>It's not uncommon for a company, especially very large companies, to approach the law firm and say "were having this issue in this market, can we do something about it" and then approach USTR to address the trade barrier (International Trade Attorney, Brazil, 2021).</p>

tance of resource constraints and the critical role of private firm contributions in mitigating those constraints. One official familiar with the USTR's cases noted, "The AB has encouraged everybody to drill down and write 400-500 pages, and its very possible that USTR is literally swamped. They literally need help" (International Trade Lawyer 2021d). Similarly an EC official said that the EC is ill equipped to independently evaluate and pursue fact intensive cases (European Commission Official 2009). Consistent with Hypothesis-2, interviewees confirmed that in numerous cases litigation contributions were pivotal in the government's decision to initiate a dispute, because the government simply didn't have the resources to pursue the case (Associate Trade Attorney, 2009). As shown in the qualitative evidence in Figure 4, governments are often aware that they don't have the resources to pursue a dispute, and so they rely on the firms to mitigate the resource constraint.

The nature of the resource constraint and importance of firm contributions does vary across contexts. For example, according to a partner at a firm involved with a WTO case involving Brazil (Embraer) and Canada (Bombardier), the government contributed a mere five percent of the total costs, while the private companies paid the remaining 95 percent (Trade Attorney 2009). The same partner estimated that the average cost breakdown across WTO disputes would be distributed 20 percent to the government and 80 percent paid by private parties. For Japan, the typical breakdown of costs is 70 percent paid by the firm and the remaining costs by the government (METI Official 2021).

Figure 4: Evidence of Litigation Contributions Mitigating the Resource Constraint

<p>The first thing is they [the government] will ask the firm to come up with evidence, the facts, and all those sorts of things. And that is a very normal thing for governments to do even before they decide whether to file a request for consultations (International Trade Lawyer, Switzerland, 2021).</p>	<p>First question is always “who is going to pay for this litigation?” In every case I know of, Industry pays (Senior Official familiar with WTO and Airbus-Boeing Dispute, 2021).</p>
<p>The government always tells the industry they have to take care of experts. The industry has more flexibility for arranging contracts, so for government it just takes too long with their procurement processes. The government can’t get approval to hire the experts (International Trade Lawyer, United States, 2021).</p>	<p>The government often says yes this is fine, but I don’t have the money to pursue it, so they need industry to pay. The government may also say they don’t care about it commercially, so the government doesn’t want to put money into it, and thus industry has to pay... There are times when the government says I can’t do it myself because they don’t have funds or don’t have legal capacity (International Trade Lawyer, United States, 2021).</p>
<p>Usually we [the government] pay 30% and the rest, 70% is usually paid by industry. This 30/70 is a basic formula, but it depends on the case (Ministry of Economy, Trade, and Industry Official, Japan, 2021).</p>	<p>Private lawyers were paid by private companies, and in the Banana case everything was privately funded by Naboa... The complaint from developing countries, they always say we don’t have the money.</p>
<p>In the [redacted] case, there was one major company... It was expected that they hired expert counsel throughout the case, and came to a special arrangement, and essentially got them to pay for the lawyers (Counsel for WTO Disputes, Canada, 2021)</p>	<p>The ministry is always struggling how to allocate within the budget. I think some ministries try to get budget from industry, and request from industry to pay the fees. Basically, the budget of the ministry is very limited (Legal Advisor to Ministry of Finance, Japan, 2021).</p>
<p>Then they [the private firm] take it to government and say this is an intergovernmental treaty and were the beneficiaries. Since the government holds the legal right, we ask them to bring the case. In many instances the company would say, you litigate this on our behalf because we don’t have legal standing, but we will hire the law firm and pay the fees (International Trade Lawyer, Egypt, 2021).</p>	<p>Certainly when we need more, we’re not shy about asking for the info, which is mostly technical information and market information. We can get high level information from industry associations, but we really need to talk with individual companies because what we need is confidential and proprietary information (Assistant for WTO and Multicultural Affairs, United States Trade Representative, 2021).</p>

There is also evidence of change over time across countries. Some countries, such as China, have proactively sought to overcome their capacity constraints and empower firms to engage in WTO support.¹⁶ For example, firms are playing a larger role in alleviating the governments resource constraints in Brazil (Shaffer, Sanchez, and Rosenberg, 2008) and the EU. Shaffer (2003) found that in the early years of the WTO, the US had closer ties to private firms, but overtime other countries have been catching up. An official with the European Commission emphasized that in the GATT and early years of the WTO, European firms believed it was the government’s responsibility to manage trade disputes (European Commission Official, 2009). However, over time expectations shifted, with the same official noting that European firms learned to play a more active role in the fact finding and legal preparation, since the government was unable to handle the increasingly fact-intensive and complex cases. In aggregate, the role of firms in mitigating the resource constraints across countries strongly supports Hypothesis-2.

If the theory is correct, we should also find evidence that firms’ information provision and signaling leads the government to update its beliefs about the strength or value of the case, as

¹⁶For more on how the litigation process varies across contexts, see §17 of the appendix.

predicted in Hypothesis-3. For many governments with fewer resources, they are simply ill-equipped to evaluate the strength of the case on their own. As noted above, Mexico did not believe it had a strong case to challenge the rules affecting fresh avocados, but after firms provided information the government was convinced to initiate the dispute (DS524). Even in better resourced countries, such as Japan, government officials expect the firm to show the case is strong; “METI asks a lot of industry. There is a burden of proof and industry has to prove it’s a serious issue, the damage is quite high, and if we request a consultation, we are probably going to win. They have to convince METI or else they wont move” (METI Official 2021). Similarly, a Mexican official affirmed that it’s up to the firm to make the government “believe the industry really has a good case. We need to have some certainty of winning the case” (General Counsel 2021). In order to convince the government the case is strong, firms generally engage in extensive fact finding, drafting of legal arguments, and information provision to the government, as is shown in Figure 5.

Figure 5: Evidence of Private Firms Information Signaling and Fact Finding

<p>Generally it’s up to the commercial entity to persuade the government it has the case, and it has to present some facts to back up its claim. It’s not essential in all WTO cases to show adverse effects, but in some cases its important to present the adverse trade effects (International Trade Attorney, Hong Kong, 2021).</p>	<p>In the avocado case against Costa Rica, the government didn’t want to start the case against Costa Rica. The government thought the case wouldn’t meet the minimum standard of prima facie. So [redacted] had to write a memo to explain that [redacted] would gather all the information later. The industry retained outside council to start the case, and it is now ongoing (General Counsel, Ministry of Mexico, 2021).</p>
<p>Whether the EC, or member states, or the UK, they frankly do not have the expertise, the man power, or the technical expertise on cotton, tires, aircraft, etc. So you need to have that very close cooperation. We have been educating the Europeans on aircraft over 15 years. What are the models, the number of seats, how are they financed, the R&D, the lead times for R&D, etc. You cannot expect the government to know these details (Senior Official familiar with WTO and Airbus-Boeing Dispute, 2021).</p>	<p>It’s very difficult for a government lawyer to become educated and it takes a long learning curve and it would be a waste of resources to have the government lawyers dealing with it. Government lawyers may be better on the legal theories and institutions, but not the facts of the case... When it comes to market data, then the private companies and their associations are the ones who the government has to rely on. The EC was calling more than once to the private firms, to get information about market share and consumption information... Anything that has to do with the market and/or micro indicators, the private sector is better. (International Trade Attorney, Belgium, 2021).</p>
<p>Industry helps with the fact finding and resources for the case. Sometimes, the governments only job is to be present at the meetings, and the attorneys paid for by the industry do all the speaking (Ambassador, Brazil, 2021).</p>	<p>When fact finding is needed and experts are needed, then it is much more complicated. Industry will be involved in assisting in picking the consultants, working with the consultants, etcetera, who then submit the expert reports (International Trade Attorney, China, 2021).</p>
<p>One of Private industry/s main contributions is financial resources and product specific knowledge. Say you have a relatively simple case on national treatment, you still need lots of specific knowledge and private industry is best placed to have that info, and can be very helpful in developing the factual record (International Trade Attorney, Brazil, 2021).</p>	<p>For USTR, more often providing technical information is the most important... USTR can often handle the legal case, but they rely on the technical information about how the market works, and support and partnership [from private firms] in developing arguments (Assistant General Counsel, United States Trade Representative, 2021).</p>
<p>Governments tend to look for expertise from private firms. We interact very early with our clients, and government may request early memos on market access issues. They might ask for help collecting information about the measure itself, the legislation or regulation. It may involve working with local counsel to understand the domestic regime (International Trade Lawyer, Colombia, 2021).</p>	<p>Certainly when we need more, we’re not shy about asking for the info, which is mostly technical information and market information. We can get high level information from industry associations, but we really need to talk with individual companies because what we need is confidential and proprietary information (Assistant for WTO and Multicultural Affairs, United States Trade Representative, 2021).</p>

Although the consensus amongst those interviewed is that private firms play a critical role providing information to governments, it was also noted that different cases and countries yield different styles of government-firm interactions. This is consistent with Sandholtz and Whytock (2017), who argue that different governance systems will yield different interactions between the law and politics. For example, the United States and European Commission are sometimes better positioned than other countries to identify trade barriers, with one expert noting that “Generally outside of the US and Europe everyone relies on the private sector to bring information about the case” (International Trade Attorney 2021e). However, even for the US and EC it was emphasized that “the radar screen still has problems... Sometimes the actions aren’t detectable, except by the actors directly facing the problem” (International Trade Attorney 2021c). For cases addressing systemic issues, the fact finding is often at a higher level and less intensive, which somewhat reduces the information asymmetry; “We can get high level information from industry associations, but we really need to talk with individual companies because what we need is confidential and proprietary information” (Assistant for WTO and Multicultural Affairs 2021). Another official confirmed, “When it comes to market data, then the private companies and their associations are the ones who the government has to rely on... Anything that has to do with the market and/or micro indicators, the private sector is better” (International Trade Lawyer 2021a). By contrast, when a trade barrier harms a State Owned Enterprise, which has occurred most prominently in China and Russia, there is less of an information asymmetry (International Trade Attorney 2021e).

The interviews illuminate the mechanisms of WTO case selection, especially those components not readily measurable across a broad set of cases and is consistent with hypotheses 1, 2, and 3. . Governments don’t have the capacity to comprehensively monitor trade barriers, and thus firms are better positioned to identify trade barriers and know how significant they are. Second, due to resource limitations and regular staff turnover in many countries, government officials don’t have the expertise or time to gather and process the necessary information for WTO cases (International Trade Attorney 2021a, International Trade Lawyer 2021e).¹⁷ Finally, much of the information needed to build a WTO case involves proprietary firm-level data and market data, and thus the government is reliant on firms to provide this information, which is essential for assessing the strength and value of cases. Taken together, the interviews point to prominent informational and resource roles for private firms in the dispute escalation process.

¹⁷See appendix, §12 for more on the constraints caused by staff turnover.

Dispute Escalation Analysis

To further test the implications of the theory, I use firm-level data gathered from Compustat in conjunction with the Foreign Trade Barrier Dataset (FTBD), which allows me to test the effect of trade barrier-specificity, firms' litigation capacity, the level of trade barrier distortion, and competing theories on the probability of dispute initiation from a set of potential WTO cases. The FTBD is comprised of a set of potential disputes, which are defined as harmful trade barriers to US exports identified in the National Trade Estimate (NTE) annual reports (Davis 2012). The NTE is compiled annually by the USTR and lists trade barriers that are implemented by US trade partners that are harmful to US exporters. This dataset has a unique advantage over previous datasets that examined exclusively antidumping measures or self-reported trade barriers. Unlike previous datasets, the FTBD encompasses non-tariff barriers and regulations that affect a range of industries, investment policies, and trade standards as perceived by the "victim," the US, between 1995 - 2004. This means that the FTBD provides a much more comprehensive set of *potential* disputes than previous studies, which can be used to analyze dispute escalation patterns. The data allow me to test hypotheses 4 through 6 within a subset of potential trade barriers that have met a minimum threshold to be recognized by the government. Although the selection process may result in some barriers being omitted from the dataset if they have not been raised in the NTE, any such omission would bias against my findings, since the most likely cases to be omitted would be those with low levels of distortion and a low chance of escalation, as discussed in appendix, §14. Furthermore, the data are restricted to trade barriers against the US, which has the advantage of holding the initiating country constant, which controls for a multitude of potential covariates.

Focusing on US dispute initiation during the first ten years of the WTO has advantages and limitations. On one hand the US is one of the most well-resourced countries, with an experienced set of personnel at the USTR, which would make the US less likely to be reliant on private firms than other countries. Furthermore, the complexity of cases at the WTO — and therefore governments reliance on private firms — has increased over time, making the first ten years of the WTO a relatively hard test of the theory.¹⁸ On the other hand, the US has a history of firms having direct contacts with government officials (Shaffer, 2003), making the US a more likely case to observe firms influencing dispute escalation. Although focusing on the US has some limitations, using the FTBD

¹⁸This point is developed in appendix, §13.

complements the cross-national interviews, by providing a rigorous empirical analysis for the most frequent user of the WTO's dispute settlement system.

The unit of analysis is the trade barrier, with an observation included for every year the NTE mentions the barrier in their report.¹⁹ Focusing on the trade barrier allows me to directly test Hypothesis-4, testing the effect of distortion caused by a trade barrier on the probability that the trade barrier is challenged in the WTO. While each barrier in the dataset is assumed to cause some level of distortion, the hypothesis focuses on the relative difference between low and high distortion barriers. The *Distortion* variable for each trade barrier is coded as an indicator variable that identifies cases with significant market closure that are highly distorting. Significant market closure is defined as resulting from a ban, quota, or increase of tariff/duty of more than 10 percent, standards or rules of origin that create a de facto ban on imports, violation of intellectual property rights, or subsidies to competitors (Davis 2012). The expectation for distortion is positive, as the variable directly increases the payoff from the case and the expected legal strength.

To test Hypotheses 5a and 5b, which focus on the connection between firms' capacity to contribute to the litigation process and dispute initiation, I compiled firm-level data using the Compustat database. I test Hypothesis-5a, using *Dominant Firm Capacity*, measured as the log of the earnings in a given year for the top earning firm in an industry.²⁰ This measure acts as a proxy for the firm's ability to pay the contribution threshold necessary to signal information and the firm's ability to mitigate the bureaucracy's resource constraint. I also test Hypothesis 5b using the *Average Firm Capacity* for each industry, which measures the average earnings of firms for each industry in a given year.

Next I examine Hypothesis-6, which says that product-specific trade barriers should have a higher probability of being challenged than more diffuse trade barriers. The FTBD codes the specificity of each trade barrier by identifying the industry and product affected by the particular barrier. The industry affected by the trade barrier is coded at the level of the ISIC3 4 digit classification.²¹ Of the 1635 trade-barrier-years analyzed in the data, 23 percent are product-specific. Product-specific barriers are coded as those where the policy affects a single product within the industry. An example of a product specific barrier was Canada's import restrictions placed on periodicals. Canada implemented Tariff Code 9958, which prohibited imports of "special edition" periodicals

¹⁹I analyze the data with a single observation for each trade barrier, in appendix, §8.

²⁰The earnings are defined as "retained earnings."

²¹This classification is consistent with Davis (2012) and facilitates a comparison of results.

(World Trade Organization 2010). Such a specific barrier did not impact the media industry as a whole, or even the entire print-media, and thus its specificity reduced the collective action challenge faced by the affected firms. In response to the trade barrier, the United States escalated the dispute in 1997, which became DS31.

To account for other trade barrier-specific factors, I include a range of controls. First, I examine whether progress has been made in negotiating the removal of the trade barrier. *Progress* is coded on a four point scale indicating the level of progress toward resolving the disputed trade barrier (Davis 2012). In the FTBD, progress receives its lowest value if the NTE reports that there has been negative or insufficient steps to resolve the barrier. Progress is coded as high if the NTE reports that considerable progress has been made to resolve the issue. Because a WTO dispute is a costly means of removing a trade barrier, I expect that if progress is being made through other means a WTO complaint will be less likely. I also control for the length of time, *Duration*, the trade barrier has been reported in the NTE. The expected sign for duration is negative, as barriers that have been constant over time are less likely to be challenged than new barriers that suddenly disrupt trade flows.

Using the variables described, I test their impact on whether a trade barrier escalates to a complaint being filed at the WTO. Because the dependent variable of interest is a dichotomous decision whether or not to file a WTO complaint for a particular trade barrier in a given year, I use a logistic regression. Since there could be industry-specific factors that impact dispute escalation, and because a number of the variables occur at the industry level, I employ a multilevel random effects model.²² This model identifies intercepts for each industry, while allowing for the effects of the key variables of interest to be analyzed across the dataset.²³ The results are also robust to alternative fixed effects and ordinary least squares models, which are shown and discussed in the appendix, §6 and 7.

The results of the baseline model are reported in Table 1, Model 1. Hypothesis-4 receives strong support, shown by the positive relationship between the trade barrier's level of distortion and the likelihood a dispute is initiated. There is also support for Hypothesis-5a, which states that industries with a dominant firm with high capacity will be more likely to have their cases brought to

²²Using the Hausman test, I compared the random effects model to a fixed effects model (Hausman 1978), with both at the ISIC3 4-digit level, and found that the null hypothesis – that the random effects model is consistent – cannot be rejected ($\text{prob} > \chi^2 = 0.29$).

²³The results are robust to grouping on trade barrier as Davis (2012) does.

the WTO. The dominant firm capacity variable is highly significant and positively signed, showing that dominant firm capacity is associated with increased dispute initiation. The additional controls of Progress and Duration both perform as expected.

Perhaps most interesting, Hypothesis-6 receives strong support, with the results showing that product-specific barriers are much more likely to be challenged than their diffuse counterparts. This result is in stark contrast to theories where the government independently evaluates the value and strength of cases, since the government alone would prefer to challenge broader cases that benefit more firms. This is consistent with the qualitative evidence emphasizing that firms' collective action problems inhibit dispute escalation (Counsel for WTO Disputes, 2021), and that product specific barriers help resolve them. It also supports the argument by Shaffer, Elsig, and Puig (2017) that private actors influence and shape how the trade system functions through their involvement in the dispute escalation process.

While the results in the baseline model are compelling, a broad range of competing theories could be driving the results, which I address in the remaining models. A plausible counter argument is that firms with high capacity are typically larger and are part of well-organized industries that could buy litigation through direct political lobbying such as campaign contributions. While this competing theory cannot explain the strong results for product-specific barriers, I test it in Model 2 by evaluating the effect of industries' political contributions. This variable is coded as the log of total political contributions in constant year 2000 dollars for each industry, as reported by the Center for Responsive Politics, which is taken directly from Davis' (2012) FTBD. In contrast to previous studies that found political contributions to have a strong positive effect on dispute initiation, I don't find there to be a significant relationship between the two. I also examine the possibility that the value of the industry might account for the significance of dominant firm capacity, which would occur if the presence of a high capacity dominant firm was highly correlated with the production value or employment of the industry. To evaluate whether industry size is driving the results, Model 2 tests how the value of production of the industry, measured as the log of its total production (Davis 2012), affects dispute initiation. The results show that dominant firm capacity and the key variables of interest are all robust to inclusion of industries' production value, suggesting that the size of the industry is not driving the results. I also re-tested Model 2 using the industry's employment share in the economy, and the firm-specific number of employees for the largest employer in the industry and

Table 1: Random Effects Logistic Regression of WTO Dispute Complaints

	Model 1	Model 2	Model 3	Model 4	Model 5
Product-Specific Barrier	1.531*** (0.52)	1.317** (0.57)	1.698*** (0.56)	1.460*** (0.52)	1.840*** (0.66)
Dominant Firm Capacity	0.330** (0.15)	0.331** (0.16)	0.334** (0.16)	0.343** (0.16)	0.320* (0.17)
Trade Barrier Distortion	2.234*** (0.77)	2.084*** (0.78)	2.048*** (0.78)	2.246*** (0.79)	1.914** (0.81)
Negotiation Progress	-1.185*** (0.45)	-0.980** (0.47)	-1.174*** (0.45)	-1.042** (0.45)	-0.922* (0.48)
Trade Barrier Duration	-0.227* (0.13)	-0.203 (0.14)	-0.227* (0.13)	-0.234* (0.14)	-0.0999 (0.16)
Industry Political Contributions		-0.0138 (0.29)			0.0249 (0.36)
Industry Production		-0.0111 (0.39)			0.165 (0.52)
US Exports to Trade Partner			0.183 (0.25)		-2.283* (1.38)
Active 301			1.966*** (0.66)		2.090** (1.06)
EU				0.870 (1.11)	1.849 (1.41)
Japan				0.659 (1.20)	0.468 (1.66)
Mexico				1.394 (1.31)	1.086 (2.08)
Korea				0.320 (1.26)	-3.650 (3.03)
NonOECD				-0.118 (1.18)	-5.407 (4.20)
Constant	-8.949*** (1.63)	-8.355* (4.42)	-13.72** (6.59)	-9.485*** (1.96)	46.45 (35.53)
Observations	1635	1407	1635	1635	1407

* $p < .1$, ** $p < .05$, *** $p < .01$

Random effect models calculated using xtlogit with STATA14. Random intercepts calculated for groups at the industry level, defined as the ISIC3 4 digit industry. Canada is the omitted comparison. P-values are calculated using a two-tailed test and standard errors are displayed in parenthesis.

found neither to be significant, and the main results all retained significance.²⁴ These tests show that the significance of product-specific barriers and dominant firm capacity are robust to measures of size and employment of the industry and firm and suggest that governments are not selecting cases to benefit the largest producers or the biggest employers.

The remaining models introduce variables addressing competing theories of case selection. I first include a measure of the log of *US Exports to Trade Partner*. This tests whether the main results are robust to controlling for the relative economic power between the parties. Model 3 shows that the main findings are all robust to the inclusion of the trade variable; however the US exports to the trade partner are only inconsistently significant across models. Model 3 also controls for whether there is an active Section 301 petition (*Active 301*), which is the case in four percent of the trade-barrier-years. An active 301 petition requires government attention and is expected to have a positive influence on the probability a case is initiated, which is the case in both models 3 and 5.

Model 4 controls for country specific effects among some of the primary trading partners of the US. This approach further addresses concerns that power relations with the trade partner, or the type of trade flows between countries, may be dominating the decision to file a WTO complaint. While such relationships likely matter between some countries, none of the country-dummies are significantly associated with dispute initiation for the trade barriers examined. Lastly, Model 5 uses all of the variables simultaneously and finds the results still hold. The results consistently support the hypotheses and illustrate a positive and significant effect of product-specific trade barriers, dominant firm capacity, and distortion on the probability a trade barrier is challenged.²⁵

To evaluate the substantive significance of the findings, I estimate the predicted probabilities of filing a WTO complaint given varying levels of product-specific barrier, dominant firm capacity, trade barrier distortion, and negotiation progress. I evaluate the change in the probability of dispute initiation for a shift from one standard deviation below the mean to one standard deviation above the mean for significant variables, or a shift from zero to one for indicator variables, which are reported in Table 2. The remaining variables are set to their mean, or a value of zero for indicator variables, except for the defendant country (Mexico) and distortion, which are each set to a value of one.²⁶

²⁴Results not shown here.

²⁵Due to data availability the number of observations fluctuates across models. In appendix, §5, all results are replicated using the same sample of 1407 observations.

²⁶Similar results are obtained when using other countries or a value of zero for distortion.

The predicted probability of filing a complaint with dominant firm capacity one standard deviation below the mean, when the hypothetical defendant is Mexico, is 0.06. The same probability with the dominant firm’s capacity one standard deviation above the mean is 0.17. Similarly, the predicted probability of case initiation for a trade barrier that is diffuse is only 0.10, but the probability of a WTO dispute jumps to 0.34 when it is a product-specific trade barrier. These examples highlight the importance of product-specific barriers and dominant firm capacity for overcoming the collective action problems faced by firms that are considering making litigation contributions, in addition to the significant effects of trade barrier distortion and negotiation progress, which are also displayed in Table 2.

To test Hypothesis-5b, which states that increases in the average value and capacity of firms within an industry will make dispute initiation more likely, I progress through the same model specifications as Table 1, but now include the variable for average firm capacity, as shown in appendix, §9. Average firm capacity has a strong positive effect on dispute initiation that is robust to the full range of controls for competing theories and country specific effects. The substantive influence of average firm capacity on the predicted probability of dispute initiation is about three-quarters of the effect of dominant firm capacity. This strong, but smaller effect than dominant firm capacity is consistent with the implications from the contribution game.

Table 2: Effect of Key Variables on the Probability of Dispute Initiation

	Model 1
Product-Specific Barrier	0.299 (0.40, 0.569)
Dominant Firm Capacity	0.239 (0.0006, 0.552)
Trade Barrier Distortion	0.243 (0.025, 0.530)
Negotiation Progress	-0.238 (-0.514, 0.019)

Change in predicted probability is calculated from Model 5 of Table 1. Estimates and 95 percent confidence intervals are calculated using a quasi-bayesian simulation that samples 2000 times from a distribution based on the coefficients and variance. Changes in predicted probabilities represents a shift from one standard deviation below the mean to one standard deviation above the mean of the variable, or a shift from 0 to 1 for distortion and product-specific barrier. All other variables are set to their mean, or a value of zero, except for the defendant country (Mexico) and distortion, which are each set to a value of one.

Taken together, the interviews and regression analysis are consistent with the theory of firms

using litigation contributions to influence the WTO dispute escalation process. While the statistical analysis alone cannot test the micro-level mechanisms of the theory, the results are remarkably consistent with the qualitative evidence where firms signal the strength and value of cases, where product-specific trade barriers that do not present collective action problems are most likely to be challenged, and where industries with high capacity dominant firms and high average capacity are most likely to make litigation contributions and seek dispute initiation. Although empirical analysis of the largely confidential trade dispute escalation process is inherently challenging, the consistent accounts of leading trade experts and government officials, provide strong support for the theory.

Conclusion

The theory and evidence presented in this paper has direct implications for our understanding of firms' roles in influencing trade policy and their ability to use litigation contributions to open foreign markets. The importance of private firms is highlighted when considering four ways in which WTO dispute escalation differs with firm contributions, as opposed to the counterfactual of governments acting alone. First, the types of cases brought to the WTO are substantively different given the divergent priorities of governments and firms – product specific barriers are more likely to escalate than trade barriers with diffuse effects. Second, the number of cases brought is higher with firm participation because the budget constraint is mitigated. Specifically, cases where costs are only slightly higher than expected profits would be deemed unprofitable under previous models, whereas the theory predicts that these cases are the most likely cases for firm participation. Third, the probability of winning is higher with firm participation, because the government can screen cases based on firms' signals about the strength and value of the case. Finally, the quality and clarity of argumentation is improved with private firm participation.²⁷

The model also suggests that the branches of literature that focus on compliance with international trade law and increasing access to the dispute settlement process for developing countries have overlooked one of the most important mechanisms to achieve their goals. Informal private firm contributions can enhance WTO participation by helping governments effectively select potential disputes and enforce WTO obligations. Some governments have worked to facilitate relationships between firms and the government, such as China who made substantial investments in developing both their government's capacity and also domestic firms' knowledge and capacity to pursue WTO

²⁷This point is elaborated upon in §16 of the appendix.

complaints. Shaffer and Gao (2018) detail the learning curve that China faced, noting that private firms and SOEs were taught about WTO law through an extensive series of seminars and outreach efforts so that they were better positioned to support WTO litigation.

However, even though firm participation helps states monitor and enforce WTO obligations, without facing the risks of formal access to private dispute initiation associated with transnational dispute settlement, it also raises new concerns about distributive consequences and the development of international law. For example, industries with dominant firms are more likely to overcome collective action challenges, making them more likely to have their interests represented at the WTO, whereas more diffuse industries may find it harder to have their voices represented. The ability of firms to help countries overcome resource constraints can somewhat level the playing field between developed and developing countries, but it further enhances the influence of large corporations. This typically means that large multinational corporations are going to be the most likely to have their voices represented at the WTO, giving them significant influence to shape the interpretation, use, and trajectory of international law (Shaffer, Elsig, and Puig, 2017). Understanding how firms engage with governments in the dispute settlement process is thus a critical component to evaluating the distributional consequences of international trade law and the potential effects of proposals to amend the WTO's dispute settlement system.

The theory presented here demonstrates the importance of understanding the role of firms for WTO participation and the enforcement of international trade law. While domestic interest groups are often blamed for trade protection, it is clear that private firms also promote trade liberalization by monitoring and enforcing international agreements. In a broader context, this paper contributes to the debate on the monitoring and enforcement of international law and the significance of formal and informal rules and procedures in international organizations. Even when formally denied access to dispute initiation, firms actively engage in the international legal system and play a defining role in how states respond to violations of international trade law and the types of cases brought to the WTO.

References

Allee, Todd, and Clint Peinhardt. 2010. "Delegating Differences: Bilateral Investment Treaties Over Dispute Resolution Provisions." *International Studies Quarterly* 54 (March): 1-26.

- Assistant for WTO and Multicultural Affairs, United States Trade Representative. 2021. Author Interview.
- Associate Trade Attorney. 2009. Author Interview. Washington, DC.
- Bello, Judith H. 1996. "Some Practical Observations About WTO Settlement of Intellectual Property Disputes." *Va. J. Int'l L.* 37: 357.
- Betz, Timm. 2017. "Trading interests: Domestic institutions, international negotiations, and the politics of trade." *The Journal of Politics* 79 (4): 1237–1252.
- Betz, Timm, and Andrew Kerner. 2016. "Real exchange rate overvaluation and WTO dispute initiation in developing countries." *International Organization* 70 (4): 797–821.
- Bown, Chad. 2005. "Trade Remedies and World Trade Organization Dispute Settlement: Why Are So Few Challenged?" *Journal of Legal Studies* 34 (2): 515-555.
- Bown, Chad, and Bernard Hoekman. 2005. "WTO Dispute Settlement and the Missing Developing Country Cases: Engaging the Private Sector." *Journal of International Economic Law* 8 (4): 861-890.
- Brutger, Ryan, and Anton Strezhnev. 2022. "International Investment Disputes, Media Coverage, and Backlash Against International Law." *Journal of Conflict Resolution*: 00220027221081925.
- Cook, David. 2013. "Sequester puts US at Disadvantage on Trade, Ambassador Says." *Christian Science Monitor*. September 26.
- Counsel for WTO Disputes, Canada. 2021. Author Interview.
- Davis, Christina. 2012. *Why Adjudicate? Enforcing Trade Rules in the WTO*. Princeton University Press.
- European Commission Official. 2009. Author Interview. Washington, DC.
- Felstiner, William, Richard Abel, and Austin Sarat. 1981. "The Emergence and Transformation of Disputes Naming, Blaming, Claiming." *Law and Society Review* 15 (3-4): 631-653.
- General Counsel, Ministry of Mexico. 2021. Author Interview.
- Ginsburg, Tom, and Gregory Shaffer. 2010. "How does international law work?".

- Goldberg, Kopujianou, and Giovanni Maggi. 2001. "Protection for Sale: An Empirical Investigation." *American Economic Review* 89 (5): 1135-1155.
- Grossman, Gene, and Elhanan Helpman. 1994. "Protection for Sale." *American Economic Review* 84 (4): 833-850.
- Hausman, Jerry A. 1978. "Specification tests in econometrics." *Econometrica: Journal of the Econometric Society*: 1251-1271.
- Horn, Henrik, and Petros Mavroidis. 2011. "A Survey of Literature on the WTO Dispute Settlement System." CFPR Discussion Paper No. 6020. <http://ssrn.com/abstract=984564>.
- Hosek, Adrienne, and Lauren Peritz. 2022. "Local Labor Markets and Party Elite: Crafting Trade Policy in the United States House of Representatives." *Quarterly Journal of Political Science* 17 (4): -.
- International Trade Attorney, Brazil. 2021a. Author Interview.
- International Trade Attorney, Colombia. 2021b. Author Interview.
- International Trade Attorney, Egypt. 2021c. Author Interview.
- International Trade Attorney, Korea. 2021d. Author Interview.
- International Trade Attorney, Russia. 2021e. Author Interview.
- International Trade Lawyer, Belgium. 2021a. Author Interview.
- International Trade Lawyer, Switzerland. 2021b. Author Interview.
- International Trade Lawyer, United States. 2021c. Author Interview.
- International Trade Lawyer, United States. 2021d. Author Interview.
- International Trade Lawyer, United States. 2021e. Author Interview.
- Johns, Leslie, and Krzysztof J Pelc. 2016. "Fear of Crowds in World Trade Organization Disputes: Why Dont More Countries Participate?" *The Journal of Politics* 78 (1): 88-104.
- Kennard, Amanda. 2020. "The enemy of my enemy: When firms support climate change regulation." *International Organization* 74 (2): 187-221.

- Kim, In Song. 2017. "Political cleavages within industry: firm-level lobbying for trade liberalization." *American Political Science Review* 111 (1): 1–20.
- Kucik, Jeffrey. 2019. "How do prior rulings affect future disputes?" *International Studies Quarterly* 63 (4): 1122–1132.
- Mansfield, Edward D, Helen V Milner, and B Peter Rosendorff. 2002. "Why democracies cooperate more: Electoral control and international trade agreements." *International Organization* 56 (3): 477–513.
- Menezes, Flavio, Paulo Monteiro, and Akram Temimi. 2001. "Private Provision of Discrete Public Goods with Incomplete Information." *Journal of Mathematical Economics* 35 (4): 493–514.
- METI Official, Japan. 2021. Author Interview.
- Meunir, Sophie. 2005. *Trading Voices: The European Union in International Commercial Negotiations*. Princeton, New Jersey: Princeton University Press.
- Morse, Julia C. 2019. "Blacklists, market enforcement, and the global regime to combat terrorist financing." *International Organization* 73 (3): 511–545.
- Morse, Julia C. 2022. *The Bankers' Blacklist: Unofficial Market Enforcement and the Global Fight against Illicit Financing*. Cornell University Press.
- Osgood, Iain. 2017. "The Breakdown of Industrial Opposition to Trade: Firms, Product Variety, and Reciprocal Liberalization." *World Politics* 69 (1): 184–231.
- Pelc, Krzysztof J. 2014. "The Politics of Precedent in International Law: A Social Network Application." *American Political Science Review* 108 (03): 547–564.
- Peritz, Lauren. 2020. "When are International Institutions Effective? The Impact of Domestic Veto Players on Compliance with WTO Rulings." *International Studies Quarterly* 64 (1): 220–234.
- Perlman, Rebecca. 2018. "Exerting Influence Through Information: How Private Actors Win Preferential Policies Internationally."
- Sandholtz, Wayne, and Christopher A Whytock. 2017. "The politics of international law." In *Research Handbook on the Politics of International Law*. Edward Elgar Publishing.

- Sell, Susan K. 2003. *Private power, public law: The globalization of intellectual property rights*. Vol. 88 Cambridge University Press.
- Shaffer, Gregory. 2003. *Defending Interests: Public-Private Partnerships in WTO Litigation*. Brookings Institution Press.
- Shaffer, Gregory. 2004. "Recognizing public goods in WTO dispute settlement: who participates? Who decides? The case of TRIPS and pharmaceutical patent protection." *Journal of International Economic Law* 7 (2): 459–482.
- Shaffer, Gregory. 2006. "The Challenges of WTO Law: Strategies for Developing Country Adaptation." *World Trade Review* 5 (2): 199-224.
- Shaffer, Gregory, and Henry Gao. 2018. "China's Rise: How It Took on the US at the WTO." *U. Ill. L. Rev.*: 115.
- Shaffer, Gregory, Manfred Elsig, and Sergio Puig. 2017. "The law and politics of WTO dispute settlement." In *Research Handbook on the Politics of International Law*. Edward Elgar Publishing.
- Shaffer, Gregory, Michelle Ratton Sanchez, and Barbara Rosenberg. 2008. "The trials of winning at the WTO: what lies behind Brazil's success." *Cornell Int'l LJ* 41: 383.
- Trade Attorney. 2009. Author Interview. Washington, DC.
- Trade Official. 2014. Author Correspondence. Washington, DC.
- USTR. 2014. "United States Trade Representative: Fiscal Year 2014 Budget." Congressional Budget Submission. <https://ustr.gov/sites/default/files/Final%20FY2014%20Congressional%20Budget%20Submission.pdf>.
- USTR General Counsel. 2009. Author Interview. Washington, DC.
- USTR Official. 2009. Author Interview. Washington, DC.
- World Trade Online. 2013. "Reif: Sequestration Could Hinder Litigation, Negotiating Efforts At USTR." insidetrade.com. February 28.
- World Trade Organization. 2010. "Canada Periodicals: Summary of Key Findings." https://www.wto.org/english/tratop_e/dispu_e/cases_e/1pagesum_e/ds31sum_e.pdf.

World Trade Organization. 2012. "DS291 Annex D: Replies By the Parties to Questions Posed by the Panel in the Context of the First Substantive Meeting." http://www.wto.org/english/tratop_e/dispu_e/291r_d_e.pdf.

LITIGATION FOR SALE:
Private Firms and WTO Dispute Escalation

Supplementary Online Appendix

Contents

1 Formalization of the Theory:	1
2 Equilibrium Solution	6
3 Alternative Beliefs and Refinements	15
4 Multiple Firms with Incomplete Information	17
5 Sample Variation in Empirical Models	20
6 Industry Level Fixed Effects	22
7 OLS Regression Analysis	24
8 Collapsed Model with one Observation per Trade Barrier	26
9 Average Firm Capacity	28
10 Potential Firm Counter-Lobbying	30
11 Resource Constraints	32
12 Staff Turnover	34
13 Increasing Complexity of WTO Litigation	34
14 The US Case and NTE Selection Effects	36

15 Alternative Paths to Dispute Settlement	38
16 Firm Influence on Argumentation Legal Strategy	40
17 Variation across Contexts	42
18 Product Specific Barriers and Collective Action	44
19 Discussion of Ethical and Human Subjects Principles	45
20 Qualitative Methods	45

1 Formalization of the Theory:

To examine the strategic interaction of firms and the government, I formalize the argument in a simplified game that demonstrates when and why firms' signals are credible. I begin with a basic form of the model with just two players, Firm and Government. The subscripts F and G are used to identify the actions of each respective player. The model shows that a contribution threshold exists, such that the signal is sufficiently costly so the government can infer the credibility of the message.

The model begins when the players are presented with a potential WTO dispute and nature determines whether the particular case is strong or weak, θ_S or θ_W .¹ The potential case is exogenously given, as is the total cost of litigation, the probability the case is won, and the value of winning the case. The players' priors over the strength of the case are that with probability P the case is strong and with probability $1 - P$ the case is weak, and the total litigation cost for the case is L . The trade value of winning a case is defined as the benefits from trade with the trade barrier removed minus the benefits from trade with the trade barrier in place, which is written as $\tau_j(0) - \tau_j(1)$, where $j \in \{F, G\}$. The value of a case will depend on the level of distortion caused by the trade barrier and magnitude of the affected trade flow, but for simplicity the payoffs can be normalized such that $\tau_j(1) = 0$ and $\tau_j(0) = 1$, so the trade gains for both players are 1 if the case is won. Additionally, the model allows for the possibility of externalities to the government, which can take many forms, such as restricted foreign aid or greater domestic political support for the government from appearing to stand strong with domestic industry, which can be incorporated in the externality term, E_G .

The model captures the information asymmetry between the firm and the government, with the firm receiving a message about the strength of the case, $m \in \{s, w\}$, but the government does not. The firm's private information means it has more accurate knowledge

¹A strong case is defined such that the probability of winning the case is uniformly distributed between 0.5 and 1.0. A weak case is defined such that the probability of winning the case is uniformly distributed between 0.0 and 0.5.

of the probability of winning a case than the government² Once the firm knows whether the case is strong or weak, the firm decides to contribute or not. If the firm contributes it pays a cost, $L_F > 0$. The firm selects the exact cost it pays, which is deducted from the total cost of litigation.

The firms contribution functions as a bureaucratic subsidy that reduces the litigation cost remaining to be paid by the government. This is captured in the model by the litigation cost function, where $L - L_F = L_G$, which states that as the firm pays more the government's share of the litigation cost is reduced.³

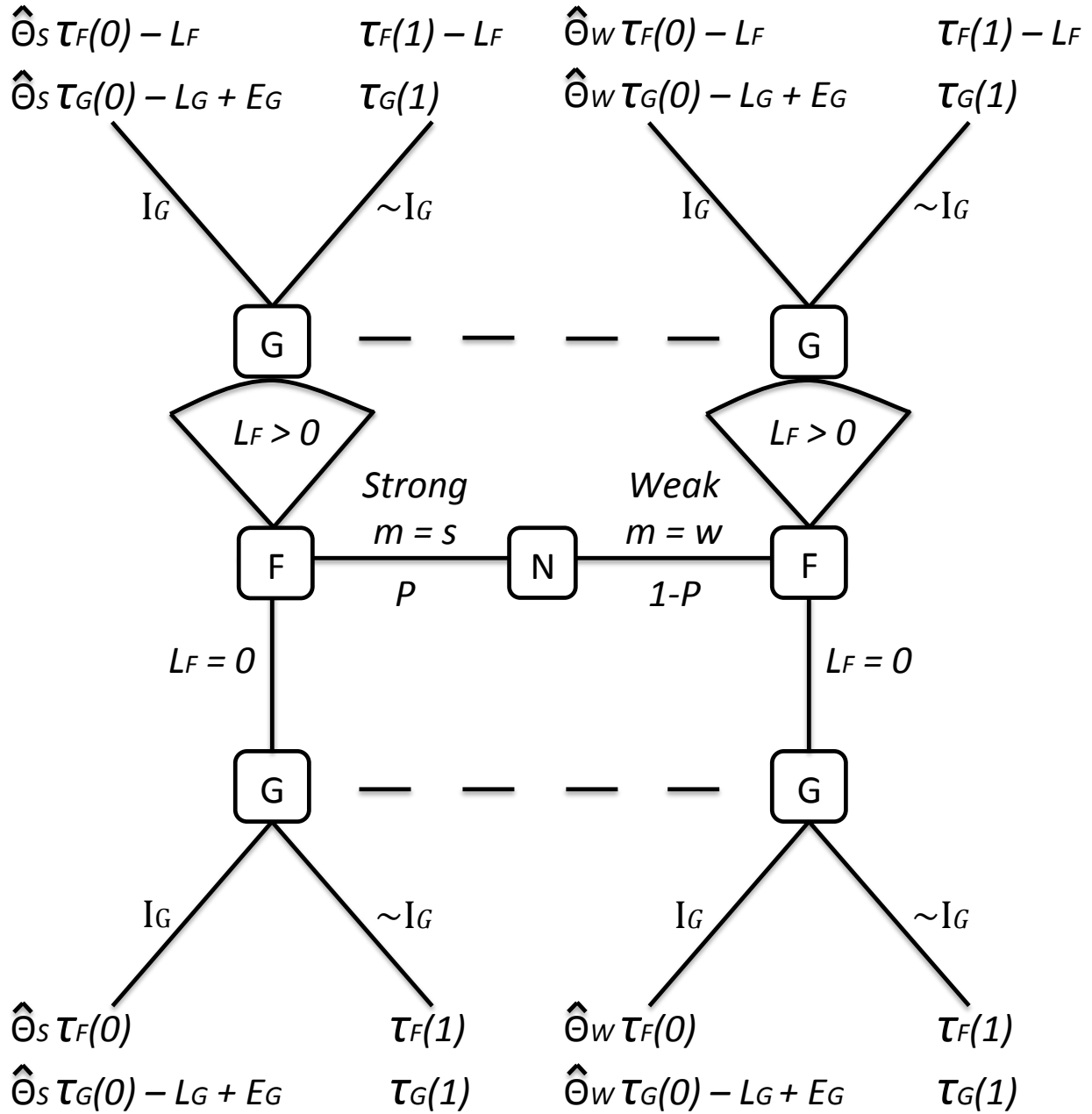
The sequencing of the model is shown in Figure 1, which proceeds with the following steps. After the firm decides how much to contribute, the government observes the firm's action and then the government is faced with the decision whether to initiate a WTO complaint or not, I_G or $\neg I_G$. If the government initiates it pays $L_G = L - L_F$, and has an expected payoff of $EU_G(I_G) = \widehat{\theta}_{W,S}(\tau_G(0)) - L_G + E_G$. If the government does not initiate it has an expected payoff of $EU_G(\neg I_G) = \tau_G(1)$. The payoffs capture two of the most important elements of the case selection process, the probability the case is won and the value of the case.

- I_G = Government initiates a WTO complaint.
- L = Total litigation cost for a case.
- L_j = Litigation cost paid by $j \in \{F, G\}$.
- $\tau_j(1)$ = Value of trade for j with the barrier in place.
- $\tau_j(0)$ = Value of trade for j with the barrier removed.
- θ_S : $Pr(\text{winning a strong case}) \sim U(0.5, 1.0)$, $\widehat{\theta}_S = 0.75$
- θ_W : $Pr(\text{winning a weak case}) \sim U(0.0, 0.5)$, $\widehat{\theta}_W = 0.25$
- E_G = Externalities to the government of bringing the case.

²The two-player version of the model focuses on asymmetric information about the strength of the case; however, a similar logic holds if the uncertainty is about the value.

³The total litigation cost is constant, which overlooks the possibility that a firm's contribution could expand the budget and increase the strength of the case. This means that the model is *underreporting* the influence of the firm.

Figure 1:
Extensive Form Signaling-Contribution Game



As is typical in signaling games, there are a broad range of potential equilibria if one allows the actors to have any off-the-path-beliefs, but the core insights of the model can be maintained if the beliefs are restricted to those that are intuitively reasonable.⁴ The most interesting results of the theory are from the set of cases where the government would be

⁴I discuss the off-the-path beliefs and the type of equilibrium that are sustained using the Intuitive Criterion in the appendix, section 3.

unwilling to initiate the case without a litigation contribution from the firm. The first set of such cases are those where the expected profit to the government is less than the total litigation cost. In a unitary actor model, these cases would be viewed as unprofitable, however the equilibrium result shows that the firm's litigation contribution can alter the expected payoffs to the state by mitigating the resource constraint, making such cases profitable to the government.⁵

A second, and potentially overlapping, group of cases are those where the government's prior belief regarding the strength of a case is sufficiently low that the government does not believe case initiation is profitable. In this group of cases, if the firm knows that the case is strong, it can credibly signal the strength of case to the government, thus altering the expected payoffs of the government and motivating the government to initiate the case. When $L_F \geq L - \widehat{\theta}_S(\tau_G(0)) - E_G$ and $L_F \geq \widehat{\theta}_W(\tau_F(0))$ the Firm has contributed a sufficient amount, such that the government now believes its expected payoff from case initiation is greater than or equal to zero and the government initiates the case. For simplicity, I will refer to this contribution threshold for the firm as L_F^* .

In order for the firm's signal to be credible, the equilibrium condition requires that the litigation contribution of the firm, L_F^* , must be greater than the firm's expected profit from a weak case. The litigation contribution threshold means that, on the path, the government does not believe the case is strong when the firm contributes less than L_F^* . This means there exists a separating equilibrium where firms will only contribute L_F^* when they know a case is strong.⁶

The equilibrium contribution levels for both the firm and government (for $P = .5$ and $E_G = 0$, and a given set of beliefs discussed in section 2 of the appendix) are shown in Figure 2. The figure shows that if the litigation cost is low enough ($L \leq .5$), then the firm pools on contributing nothing and the government pays the full amount and initiates on its own.⁷ In

⁵The proof is provided in the next section.

⁶Proof of the equilibrium is provided in the next section, and discussion of alternative equilibria and off-the-path belief structures is in section 3.

⁷The boundary between the low cost cases that the government will initiate on their own, and the next portion of the parameter space is dependent on the governments prior beliefs

the next portion of the parameter space ($.5 < L < .75$), the firm pools on contributing $L - .5$, which is just enough to make the government initiate the case, but does not convey a credible signal and thus the government does not update its beliefs about the strength of the case. In the next portion of the parameter space ($.75 \leq L \leq 1.5$), the firm strategies fully separate, with contributions equal to zero when the case is weak (right panel) and contributions equal to L_F^* if the case is strong (left panel). In this range of potential disputes, the firm's signal is informative and allows the government to only pursue cases that are strong. Lastly, once cases become prohibitively costly ($L > 1.5$), the firm again pools on contributing nothing and the government does not initiate.

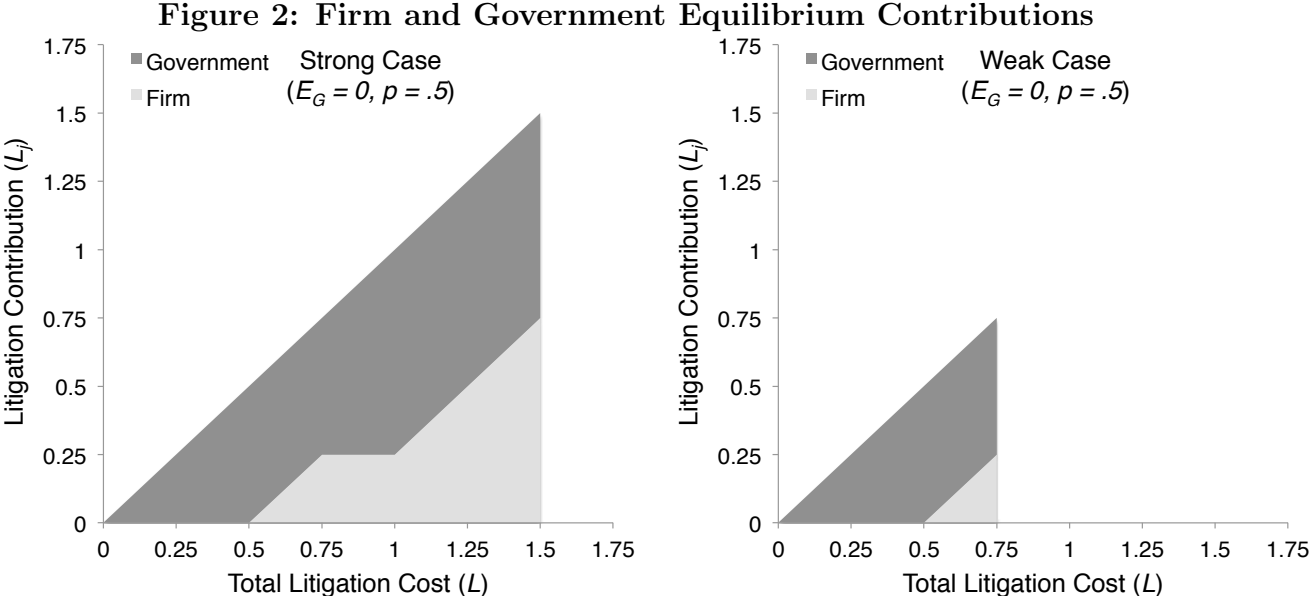


Figure 2 plots the equilibrium contributions for the firm and government over a range of total litigation costs (L), set values for P and E_G , and reasonable set of beliefs discussed in the following section. Comparing the left and right panels of the figure shows that for certain ranges in the parameter space firm strategies pool, but in the middle range of the parameter space ($.75 \leq L \leq 1.5$) the strategies fully separate based on the strength of the case. The litigation costs include all potential positive values, but for the selected parameters the firms and government pool on contributing nothing when $L > 1.5$.

about the strength of the case. The boundary shifts to the right as the government's prior belief that the case is strong increases.

2 Equilibrium Solution

Overview of equilibrium solution:

The main intuition of the model can be captured by considering equilibrium outcomes across the regions of the parameter space for a reasonable set of beliefs. In the next section of the appendix, I discuss the equilibria that exist with a broader set of beliefs and refinements, which further illustrate that the primary implications of the model hold when the Intuitive Criterion is applied.

The equilibrium consists of three regions of interest of the parameter space, which I define as the low cost, middle cost, and high cost cases:

For low cost cases, where $L < \max\{\widehat{\theta}_W(\tau_G(0)) + E_G + \widehat{\theta}_W(\tau_F(0)), .5p + .5\}$, the firm plays the same strategy regardless of whether the case is strong or weak and the case is initiated by the government.

In the middle parameter space, where $L \geq \max\{\widehat{\theta}_W(\tau_G(0)) + E_G + \widehat{\theta}_W(\tau_F(0)), .5p + .5\}$ and $L \leq \widehat{\theta}_S(\tau_G(0)) + E_G + \widehat{\theta}_S(\tau_F(0))$ the firm contributes if the case is strong, which leads to the government initiating the case, but will not contribute if the case is weak, in which case the government does not initiate.

Lastly, for high cost cases, where $L > \widehat{\theta}_S(\tau_G(0)) + E_G + \widehat{\theta}_S(\tau_F(0))$ the firm and government do not contribute and the case is not initiated, regardless of whether the case is strong or weak.

In the low and middle cost cases, if the firm chooses to contribute, it selects a litigation contribution from $L_F > 0$ that is the minimum amount to convince the government to initiate the case. The equilibrium contribution levels for both the firm and government for strong and weak cases (for $P = .5$ and $E_G = 0$), with the governments beliefs defined as

shown below, are presented in Figure 1 of the paper and are proven in the following pages.

Proof of equilibrium solution:

For simplicity, $\tau_j(0) = 1$, $\tau_j(1) = 0$, and $E_G = 0$ in the following proofs.

Low Cost Parameter Space: $L < \max\{\widehat{\theta}_W(\tau_G(0)) + E_G + \widehat{\theta}_W(\tau_F(0)), .5p + .25\}$

1. Firm's Strategy:

$$\sigma_F(m = s) = \sigma_F(m = w) : L_F = L - .5p - .25, \text{ if } L > .5p + .25$$

$$\sigma_F(m = s) = \sigma_F(m = w) : L_F = 0, \text{ if } L \leq .5p + .25$$

2. Government's Beliefs:

$$Pr(\theta_S) = p$$

Assume the government does not update its prior, since the firm is pooling and thus no information is conveyed. (Deviations from this set of beliefs are discussed in the next section.)

3. Government's Strategy: If $L_G \leq .5p + .25$ then:

$$\sigma_G = I_G, \text{ where } L_G = L - L_F$$

$$EU_G(I_G) = p(\widehat{\theta}_S(\tau_G(0)) - L_G) + (1 - p)(\widehat{\theta}_W(\tau_G(0)) - L_G) = .5p + .25 - L_G$$

$$EU_G(\neg I_G) = \widehat{\theta}_W(\tau_G(1)) = 0$$

If $L_G > .5p + .25$ then:

$$\sigma_G = \neg I_G$$

$$EU_G(I_G | L_G = L) = p(\widehat{\theta}_S(\tau_G(0)) - L_G) + (1 - p)(\widehat{\theta}_W(\tau_G(0)) - L_G) = .5p + .25 - L_G < 0$$

$$EU_G(\neg I_G) = \widehat{\theta}_W(\tau_G(1)) = 0$$

4. Sequential Rationality

We now consider whether the beliefs and strategies of the actors are sequentially rational.

If $L \leq .5p + .25$, the cost to initiate the case is low enough that the government initiates the case on its own and the firm has no incentive to deviate and contribute, since any additional contribution will be an unnecessary cost to the firm.

$$EU_F(L_F = 0) = 0.25 > EU_F(L_{F'} > 0) = .25 - L_{F'}$$

(No incentive for the firm to deviate by contributing.)

If $L > .5p + .25$ (but still in the “low cost” space), the government will not initiate on its own, so the firm has an incentive to pay just enough to convince the government to initiate the case, up to the expected profit of winning a weak case. (No signaling occurs in this equilibrium - just a cost sharing of the litigation expenses.) If the firm deviated and chose to contribute less, the government would not initiate and the firm would lose the expected utility of initiating the case. If the firm paid any more than $L_F = L - .5p - .25$ it would be over-contributing unnecessarily.

$$EU_F(L_{F'} < L - .5p - .25) = -L_{F'} \leq EU_F(L_F = L - .5p - .25) = .25 - L_F$$

(No incentive for the firm to deviate by contributing less.)

$$EU_F(L_{F'} > L_F = L - .5p - .25) = .25 - L_{F'} < EU_F(L_F = L - .5p - .25) = .25 - L_F$$

(No incentive for the firm to deviate by contributing more)

Middle Cost Parameter Space:

$$\max\{\widehat{\theta}_W(\tau_G(0)) + E_G + \widehat{\theta}_W(\tau_F(0)), .5p + .25\} \leq L \leq \widehat{\theta}_S(\tau_G(0)) + E_G + \widehat{\theta}_S(\tau_F(0))$$

1. Firm's Strategy:

$$\sigma_F(m = s) : L_F = \max\{\widehat{\theta}_W(\tau_F(0)), L - \widehat{\theta}_S(\tau_G(0))\}$$

$$\sigma_F(m = w) : L_F = 0$$

The specification of L_F for the strong case is the threshold requirement that the firm contributes at least as much as it could expect to gain from pursuing a weak case ($\widehat{\theta}_W(\tau_F(0))$), and thus the firm does not have an incentive to bluff with weak cases. The firm may contribute more than $\widehat{\theta}_W(\tau_F(0))$ when the total cost of initiating the case is higher, in which case the firm contributes $L - \widehat{\theta}_S(\tau_G(0))$.

2. Government's Beliefs: The government's beliefs about the case are that a case is strong if the firm contributes at least $\widehat{\theta}_W(\tau_F(0))$ and otherwise the government believes the case is weak. (Only this set of beliefs survives the Intuitive Criterion, as discussed in the next section.)

$$Pr(\theta_S | L_F \geq \widehat{\theta}_W(\tau_F(0))) = 1,$$

$$Pr(\theta_S | L_F < \widehat{\theta}_W(\tau_F(0))) = 0$$

3. Government Strategy: First we consider the government's strategy when the firm has contributed enough to meet the litigation threshold, $L_F \geq \widehat{\theta}_W(\tau_F(0))$.

$$\text{If } L_F \geq \widehat{\theta}_W(\tau_F(0)), \text{ then } Pr(\theta_S | L_F \geq \widehat{\theta}_W(\tau_F(0))) = 1$$

$$EU_G(I_G) = \widehat{\theta}_S(\tau_G(0)) - L_G + E_G$$

$$EU_G(\neg I_G) = \tau_G(1)$$

The government will initiate if the expected utility of initiating is greater than or equal to not initiating.

$$\Rightarrow I_G \text{ if: } \widehat{\theta}_S(\tau_G(0)) - L_G + E_G \geq \tau_G(1)$$

Substitute and rearrange using: $\tau_G(0) = 1$, $\tau_G(1) = 0$, $\widehat{\theta}_S = .75$, and $L_G = L - L_F$

$$\Rightarrow I_G \text{ if: } L_F \geq L - \widehat{\theta}_S - E_G$$

$$\Rightarrow I_G \text{ if: } .75 \geq L - L_F - E_G$$

$$\Rightarrow I_G \text{ if: } .75 \geq L_G - E_G, \text{ otherwise } \neg I_G$$

Next we consider the government's strategy when the firm has contributed, but not enough to meet the litigation threshold, $L_F \leq \widehat{\theta}_W(\tau_F(0))$.

$$\text{If } L_F < \widehat{\theta}_W(\tau_G(0)), \text{ then } Pr(\theta_S | L_F < \widehat{\theta}_W(\tau_F(0))) = 0$$

$$EU_G(I_G) = \widehat{\theta}_W(\tau_G(0)) - L_G + E_G$$

$$EU_G(\neg I_G) = \tau_G(1)$$

$$\Rightarrow I_G \text{ if: } \widehat{\theta}_W(\tau_G(0)) - L_G + E_G \geq \tau_G(1)$$

Substitute and rearrange using: $\tau_G(0) = 1$, $\tau_G(1) = 0$, $\theta_W = .25$, and $L_G = L - L_F$

$$\Rightarrow I_G \text{ if: } .25 \geq L - L_F - E_G$$

$$\Rightarrow I_G \text{ if: } .25 \geq L_G - E_G, \text{ otherwise } \neg I_G$$

Next we consider the government's strategy when the firm has not contributed ($L_F = 0$).

$$\text{If } L_F = 0, \text{ then } Pr(\theta_S | L_F < \widehat{\theta}_W(\tau_F(0))) = 0$$

$$EU_G(I_G) = \widehat{\theta}_W(\tau_G(0)) - L_G + E_G$$

$$EU_G(\neg I_G) = \tau_G(1)$$

$$\Rightarrow I_G \text{ if: } \widehat{\theta}_W(\tau_G(0)) - L_G + E_G \geq \tau_G(1)$$

Substitute and rearrange using: $\tau_G(0) = 1$, $\tau_G(1) = 0$, and $\widehat{\theta}_W = .25$

$$\Rightarrow I_G \text{ if: } .25 \geq L_G - E_G, \text{ otherwise } \neg I_G$$

4. Sequential Rationality

We now consider whether the beliefs and strategies of the actors are sequentially rational.

If the case is strong and the litigation cost is in the middle range, then the firm will contribute and the government will initiate in equilibrium:

$$EU_F = .75 - L_F, \text{ if } L_F \geq L - E_G - .75$$

$$\text{and } L_F = \max\{\widehat{\theta}_W(\tau_F(0)), L - \widehat{\theta}_S(\tau_G(0))\}$$

Payoff from deviation:

$$\text{If the case is strong and the firm deviated and played } L_{F'} < \max\{\widehat{\theta}_W(\tau_F(0)), L - \widehat{\theta}_S(\tau_G(0))\},$$

$$\text{then the government would play } \neg I_G \Rightarrow EU_F = -L_{F'}$$

$$\Rightarrow -L_{F'} \leq .75 - L_F \Rightarrow \text{Firm } \neq \text{ deviate.}$$

If the firm deviated and chose to contribute less than the contribution threshold (including $L_F = 0$), then the government would not initiate and the firm's expected utility would be $-L_{F'}$, which is weakly less than the expected utility of initiating ($0 \leq .75 - L_F$), so the firm will not deviate.

Furthermore, the firm would never pay more than the contribution threshold, since any additional expenditure cannot influence the government's decision to initiate (since

the government already chooses to initiate once the threshold is met), and thus any additional contribution only reduces the firm's expected payoff.

Next we consider whether there is an incentive to deviate from the equilibrium if the case is weak in the middle cost range.

If the case is weak and the litigation cost is in the middle range, then the firm will play $L_F = 0$ and the government will play $\neg I_G$:

$$L_F = 0 \Rightarrow \neg I_G \Rightarrow EU_F = 0$$

Payoff from deviation:

If the case is weak and the firm deviated and played $L_{F'} > 0$ and

$L_{F'} < \widehat{\theta}_W(\tau_F(0))$, then the government believes the case is weak and plays $\neg I_G$.

$$\Rightarrow EU_F = -L_{F'}$$

$$-L_{F'} < 0 \Rightarrow \text{Firm} \neq \text{deviate.}$$

If the firm deviated and contributed some amount that was less than the threshold, the government would not initiate the case, and the firm's expected utility would be $-L_{F'}$, which is less than 0, so the firm will not deviate.

If the case is weak and the firm deviated and played $L_{F'} \geq \widehat{\theta}_W(\tau_F(0))$,

then the government will believe the case is strong and play I_G .

$$\Rightarrow EU_F = \widehat{\theta}_W(\tau_F(0)) - L_{F'}$$

$$\widehat{\theta}_W(\tau_F(0)) - L_{F'} \leq 0 \Rightarrow \text{Firm} \neq \text{deviate.}$$

If the firm deviated and contributed at least the contribution threshold, the government would then initiate the case, and the firm's expected utility would be $\widehat{\theta}_W(\tau_F(0)) - L_F$, which is no better than the payoff for not contributing (0), so the firm will not deviate. This demonstrates that the firm does not have an incentive to bluff and try to convince the government to initiate weak cases.

High Cost Parameter Space: $L > \widehat{\theta}_S(\tau_G(0)) + E_G + \widehat{\theta}_S(\tau_F(0))$

1. Firm's Strategy:

$$\sigma_F(m = s) = \sigma_F(m = w) : L_F = 0$$

2. Government's Beliefs:

$$Pr(\theta_S) = p$$

Assume that on the path the government does not update its prior, since the firm is pooling and thus no information is conveyed. (I assume the government is agnostic off the equilibrium path, and explore other beliefs in the following section.)

3. Government's Strategy:

$$\sigma_G = \neg I_G$$

$$EU_G(\neg I_G) = (\tau_G(1)) = 0$$

4. Sequential Rationality

We now consider whether the beliefs and strategies of the actors are sequentially rational.

If the case is strong and the litigation cost is in the high cost range, then the firm will not contribute and the government will not initiate in equilibrium:

$$L_F = 0 \Rightarrow \neg I_G \Rightarrow EU_F = (\tau_F(1)) = 0$$

Payoff from deviation:

If the case is strong and the firm deviated and played $L_{F'} > 0$, let us consider the maximum amount the firm would ever contribute, $L_{F'} = \widehat{\theta}_S(\tau_F(0))$ (the most the firm would ever contribute, since it is the most it could ever expect to win from the case). Since we are off the path let's assume the most favorable beliefs of the government for the case, and thus the government believes the case is strong.

$$EU_G(I_G) = \widehat{\theta}_S(\tau_G(0)) - L_G, \text{ where } L_G = L - L_F$$

$$EU_G(\neg I_G) = \tau_G(1) = 0$$

Because it is a high cost case, $L_G > \widehat{\theta}_S(\tau_G(0))$

$$\Rightarrow \widehat{\theta}_S(\tau_G(0)) - L_G < 0 \Rightarrow \text{Firm} \neq \text{deviate.}$$

Given that the firm contribution, even when it is at the maximum where the firm could break-even, cannot convince the government to initiate the case in the high cost range, there is no incentive for the firm to deviate and contribute in any amount if the case is in the high cost range.

3 Alternative Beliefs and Refinements

The preceding section considered an equilibrium when the government's beliefs were restricted to reasonably assume the firm, as the first mover in the game, acts in an efficient manner and that the off-the-path beliefs were unsurprising. However, consistent with a general class of signaling models (Cho and Kreps, 1987), a broad range of equilibria exist given the range of potential beliefs. However, it can be shown that the substantive intuition of the model is maintained when the Intuitive Criterion is applied.

In this section I consider additional equilibria that may exist under different belief structures, and demonstrate that the key substantive implications of the model hold under a broad range of beliefs. I progress by considering each portion of the parameter space, using $E_G = 0$ and $p = 0.5$ as was done in the previous section. With regard to the Intuitive Criterion as applied to the game's setup, it is clear that a firm that knows the case is weak can never profitably deviate by paying $L_F > \widehat{\theta}_W(\tau_G(0))$. Therefore we can restrict the inferences drawn by the government when $L_F > \widehat{\theta}_W(\tau_G(0))$, such that the government will always believe the case is strong in such circumstances.

Within the lowest cost parameter space, when $L < \widehat{\theta}_W(\tau_G(0)) + E_G$ the Firm pools on $L_F = 0$ given that for any government beliefs, the government knows it is profitable for the government to unilaterally initiate the case.

However, in the upper portion of the low cost parameter space, where:

$$\widehat{\theta}_W(\tau_G(0)) + E_G < L < \max\{\widehat{\theta}_W(\tau_G(0)) + E_G + \widehat{\theta}_W(\tau_F(0)), .5p + .5\}$$

the government will always initiate the case, but there may be equilibrium where the Firm contributes $L_F > 0$. To demonstrate, we may consider the conjecture that $L = 0.45$ and $L_F^* = 0.1$. If the off-the-path beliefs of the government are such that if $L_F < 0.1$ the government believes the case is weak, then neither type has an incentive to deviate. If the firm deviated and contributed $L_F < 0.1$ the government would believe the case was weak and choose not to initiate, and the firm would end up losing their contribution. Thus neither side has an incentive to deviate. That said, the general intuition in this portion of the parameter space remains unchanged – the government will unilaterally initiate very inexpensive cases,

and those cases that are slightly more expensive will also be initiated, but potentially with some level of contribution by the firm. The only substantive difference is exactly when, and how much, the firm contributes, but the general process remains unchanged.

When considering the middle cost parameter space, numerous equilibria exist. First, we can consider a situation where the government only believes the case is strong for some $L_F^{**} > L_F^*$. So long as $L_F^{**} < \theta_S(\tau_F(0))$, it is profitable for the firm to contribute L_F^{**} when the case is strong and to contribute $L_F = 0$ when the case is weak. This equilibrium follows the same logic as that described in the low cost parameter space. Importantly, the substantive implication remains largely unchanged. In this middle cost parameter space, firms will contribute some threshold amount when they know the case is strong, though the exact threshold depends on the beliefs of the government. Just as described in the previous section of the appendix, the firm only contributes the threshold amount when they know the case is strong, so the government learns from the signal, while also benefiting from the litigation contribution that functions as both a signal and a bureaucratic subsidy.

Lastly, we can consider the high cost parameter space, where: $L > \hat{\theta}_S(\tau_G(0)) + E_G + \hat{\theta}_S(\tau_F(0))$. Given the cost of initiating the case, there are no beliefs that make it profitable for the firm to contribute, since the cost of litigation is greater than the total potential gain for the firm and government. Even if both the firm and government believed the case was strong, it would not be profitable to contribute.

4 Multiple Firms with Incomplete Information

This section discusses the role of private firm contributions when there are heterogeneous firms within an industry and uncertainty among the firms about how much they each value initiating the WTO dispute. Rather than focusing on the government's uncertainty about the strength of the case, this extension holds the strength of the case constant and examines how uncertainty over heterogeneous valuations by firms within an industry affect the likelihood that firms contribute a sufficient amount for the case to be brought.

Building from the previously discussed model, I examine the set of cases where the litigation cost is sufficiently high such that the government will not initiate the case on its own ($L > .5p + .25$). It is helpful to consider the government's decision to initiate the dispute as a provision of a public good, where each firm in the industry values initiating the case at $V_i = \tau_i(0) - \tau_i(1)$ ⁸. The values for individual firms are independently drawn from a continuous distribution F , and each firm only knows its own value, although each knows the distribution from which the values were drawn⁹.

In the two player game, it was shown that for given parameters, the firm could contribute L_F^* which was the necessary threshold for the government to initiate the case. In this extension, L_F^* is the cost of the "public good," or the necessary contribution threshold that the firms must reach for the government to bring the case. I allow L_F to be the sum of litigation contributions (L_i) from all firms within the industry. Because firms' litigation contributions involve sinking costs into the litigation process through fact finding and preparation of materials, I consider firms' contributions to be non-refundable in the model. This means that if firms contribute and fail to reach the necessary threshold (L_F^*), the costs are sunk.

Given this setup, which is based on a set of realistic assumptions drawing upon how the WTO litigation process functions, this game is best described as a contribution game with

⁸In the two-player game, the value would be multiplied by the probability of winning the case; however, since this extension holds the strength of the case constant, this component is dropped from the analysis since it does not affect the comparative statics.

⁹In this way, each firm has private information about their value, although they all share a common distribution within the industry, which provides a level of commonality for all firms within a given industry.

uncertainty and heterogenous preferences. The game is formalized through the existence of $N \geq 2$ firms, where each firm i, i, \dots, N , only knows his own value (V_i) for initiating the case, which will be brought if the the firms contribute a combined L_F^* . This type of game has been analyzed in the generic form (for the provision of any discrete public good) by [Menezes, Monteiro, and Temimi \(2001\)](#) in “Private Provision of Discrete Public Goods with Incomplete Information.”

Since the game has been thoroughly analyzed elsewhere, I draw from the earlier insights and discuss the key implications for dispute initiation in the WTO. To illustrate the connection between between the specifics of the game here and the work of [Menezes, Monteiro, and Temimi \(2001\)](#), the following lines specify how the games are linked.

1. In each game there are $N \geq 2$, where i, i, \dots, N , knows its own value (V_i), but only knows the distribution of others’ values (F).
2. The cost of providing the public good for [Menezes, Monteiro, and Temimi \(2001\)](#), 496) is c , which is equivalent to L_F^* . This holds, given that for any set of constant parameters there exists an L_F^* such that the government will initiate the case.
3. In each game, the individual players make a simultaneous decisions to contribute, where the contribution is any amount greater than or equal to zero ($L_i \geq 0$).
4. The “public good” is dichotomous, as shown by the government’s decisions to either initiate (I_G) or not initiate ($\neg I_G$) the case.

In this set up, [Menezes, Monteiro, and Temimi \(2001\)](#) prove the following theorem.

Theorem 1. Suppose $F: [0, \infty) \rightarrow \mathbb{R}$ is a continuous distribution. Suppose there are $N \geq 2$ players for a project with cost $c > 0$ and that $F(c) < 1$. Then there exists an $\alpha > 0$, where α solves $\alpha F(\alpha)^{N-1} = c$ such that

$$b(v) = \begin{cases} 0, & \text{if } v \leq \alpha \\ c, & \text{if } v > \alpha, \end{cases}$$

is an equilibrium strategy for the contribution game.

Theorem 1 implies that when the cost of the provision is not prohibitively high as to prevent a single player from providing the good, there always exists an equilibrium where a player with a *sufficiently large valuation* provides the good himself. (emphasis in original)

From this, we can consider the situation when there are multiple industries, each with multiple firms. All else equal, in expectation the industry that has the firm with the highest valuation (and ability to contribute) will be the most likely to have at least one firm where $v > \alpha$, and is thus the most likely industry in which a firm would contribute and a dispute would be initiated. Based on this, in the empirical section I examine how the size of dominant firms within industries affects the likelihood of WTO dispute initiation.

Menezes, Monteiro, and Temimi (2001, 503) also show that, when no single firm can afford to pay the cost of providing the public good, and the cost of the good is high enough (“slightly above the aggregate mean of the valuations”) then the unique equilibrium of the game is to contribute nothing.

Theorem 2. If the public project cost is higher than C_N , then the unique equilibrium of the contribution game is the strong free riding equilibrium, i.e. $(b_1(\cdot), \dots, b_N(\cdot))$, where $b_i(v) \equiv 0$.

This theorem implies that as the average value for firms within an industry declines, it is increasingly likely that they contribute nothing and the dispute will not be initiated. Conversely, as the average value for firms within an industry increases, it is increasingly likely that they contribute and the dispute will be initiated. Based on this, in the empirical

section I examine how the average size of firms within industries affects the likelihood of WTO dispute initiation.

5 Sample Variation in Empirical Models

Due to data limitations, the number of observations varies in the empirical analysis of the paper. In the following table, the models from Table 1 are replicated, but use the same constrained sample across all models. The results show that the main results are not an artifact of the changing samples across models.

Table 1: Random Effects Logistic Regression of WTO Dispute Complaints

	Model 1	Model 2	Model 3	Model 4	Model 5
Product-Specific Barrier	1.329** (0.54)	1.352** (0.55)	1.325** (0.54)	1.526** (0.60)	1.840*** (0.66)
Dominant Firm Capacity	0.330** (0.16)	0.360** (0.17)	0.340** (0.16)	0.296* (0.16)	0.320* (0.17)
Trade Barrier Distortion	2.089*** (0.78)	2.093*** (0.80)	2.117*** (0.78)	1.925** (0.78)	1.914** (0.81)
Negotiation Progress	-0.982** (0.47)	-0.918* (0.48)	-0.925** (0.47)	-1.073** (0.48)	-0.922* (0.48)
Trade Barrier Duration	-0.202 (0.14)	-0.212 (0.14)	-0.211 (0.14)	-0.201 (0.13)	-0.0999 (0.16)
EU		0.809 (1.11)			1.849 (1.41)
Japan		0.371 (1.28)			0.468 (1.66)
Mexico		1.307 (1.47)			1.086 (2.08)
Korea		0.209 (1.26)			-3.650 (3.03)
NonOECD		-0.137 (1.18)			-5.407 (4.20)
US Exports to Trade Partner			0.148 (0.24)		-2.283* (1.38)
Industry Production			-0.00794 (0.30)		0.165 (0.52)
Industry Political Contributions				-0.00725 (0.23)	0.0249 (0.36)
Active 301				1.660** (0.73)	2.090** (1.06)
Constant	-8.719*** (1.70)	-9.353*** (2.09)	-12.39 (7.83)	-8.464** (4.18)	46.45 (35.53)
Observations	1407	1407	1407	1407	1407

* $p < .1$, ** $p < .05$, *** $p < .01$

This table reports results using the smallest subset of data with results reported in Table 1 of the main paper. Random effect models calculated using xtmeologit with STATA14. Random intercepts calculated for groups at the industry level, defined as the ISIC3 4 digit industry. Canada is the omitted comparison. P-values are calculated using a two-tailed test and standard errors are displayed in parenthesis.

6 Industry Level Fixed Effects

It is possible that certain industries are more or less likely to engage in trade disputes, regardless of dominant firm capacity. In the main analysis this concern is addressed by using a multilevel random effects model, which allows each industry to have its own intercept, while allowing for the effects of the key variables of interest to be analyzed across the dataset. However, to isolate the effect of *within* industry variation the following table replicates the models from Table 1, but uses fixed effects models, with fixed effects for each industry. In the main paper, the choice to use the random effects model was evaluated using a Hausman test, comparing the random effects model to a fixed effects model (Hausman 1978), with both the random effects and fixed effects at the ISIC3 4-digit level. The finding showed the null hypothesis – that the random effects model is consistent – cannot be rejected ($\text{prob} > \chi^2 = 0.29$). However, using a fixed effect model at the ISIC 4-digit level would result in 51 groups being dropped due to lack of variation in the dependent variable. To compensate for the lose in efficiency, the fixed effect model shown here is run with fixed effects at the ISIC 2-digit level. This allows us to examine how changes in the variables of interest affect dispute initiation within industries. The results are consistent with those reported in the body of the paper, showing that Dominant Firm Capacity is not just capturing other traits of the industry.

Table 2: Fixed Effects Logistic Regression of WTO Dispute Complaints

	Model 1	Model 2	Model 3	Model 4	Model 5
Product-Specific Barrier	1.191* (0.61)	1.069* (0.65)	1.151* (0.64)	1.302** (0.65)	1.486* (0.79)
Dominant Firm Capacity	0.563** (0.26)	0.664** (0.33)	0.554* (0.29)	0.478* (0.27)	0.734* (0.39)
Trade Barrier Distortion	2.525*** (0.81)	2.560*** (0.86)	2.410*** (0.81)	2.343*** (0.82)	2.314** (0.94)
Negotiation Progress	-1.328*** (0.48)	-1.167** (0.49)	-1.192** (0.51)	-1.327*** (0.49)	-1.026** (0.51)
Trade Barrier Duration	-0.189 (0.13)	-0.183 (0.13)	-0.178 (0.14)	-0.183 (0.14)	-0.0336 (0.17)
EU		1.100 (1.29)			3.071 (2.22)
Japan		0.613 (1.43)			0.960 (2.57)
Mexico		0.814 (1.41)			1.260 (2.85)
Korea		-0.199 (1.46)			-4.068 (4.65)
NonOECD		-0.0198 (1.36)			-5.253 (6.37)
US Exports to Trade Partner			0.193 (0.30)		-2.552 (2.00)
Industry Production			-0.346 (1.05)		0.153 (2.08)
Industry Political Contributions				-0.127 (0.93)	0.317 (1.18)
Active 301				1.467 (0.94)	2.157 (1.54)
Observations	1059	1059	999	1056	996

* $p < .1$, ** $p < .05$, *** $p < .01$

Fixed effect models calculated using xtlogit with STATA14. Fixed effects are at the industry level, defined as the ISIC3 2 digit industry. Canada is the omitted comparison.

P-values are calculated using a two-tailed test and standard errors are displayed in parenthesis.

7 OLS Regression Analysis

To further probe the robustness of the results, I also replicate the analysis from Table 1 of the main paper, but now do so with ordinary least squares (OLS) regression. The OLS results show that the results are consistent regardless of model choice.

Table 3: OLS of WTO Dispute Complaints

	(1)	(2)	(3)	(4)	(5)
	Model 1	Model 2	Model 3	Model 4	Model 5
Product-Specific Barrier	0.0236*** (0.01)	0.0208*** (0.01)	0.0242*** (0.01)	0.0242*** (0.01)	0.0241*** (0.01)
Dominant Firm Capacity	0.00344*** (0.00)	0.00337*** (0.00)	0.00286** (0.00)	0.00337*** (0.00)	0.00293** (0.00)
Trade Barrier Distortion	0.0204*** (0.01)	0.0199*** (0.01)	0.0185*** (0.01)	0.0204*** (0.01)	0.0197*** (0.01)
Negotiation Progress	-0.0101*** (0.00)	-0.00919** (0.00)	-0.0107*** (0.00)	-0.0104*** (0.00)	-0.0102** (0.00)
Trade Barrier Duration	-0.00141 (0.00)	-0.00141 (0.00)	-0.00158 (0.00)	-0.00115 (0.00)	-0.000357 (0.00)
Industry Political Contributions		-0.00167 (0.00)			0.000324 (0.00)
Industry Production		0.00206 (0.00)			0.00155 (0.00)
US Exports to Trade Partner			0.00233 (0.00)		-0.0276** (0.01)
Active 301			0.0473*** (0.01)		0.0362*** (0.01)
EU				0.0110 (0.01)	0.0167 (0.01)
Japan				0.00889 (0.01)	-0.00397 (0.01)
Mexico				0.0344** (0.02)	0.00411 (0.02)
Korea				0.00414 (0.01)	-0.0497** (0.02)
NonOECD				-0.000194 (0.01)	-0.0688** (0.03)
Constant	-0.0242** (0.01)	-0.0223 (0.04)	-0.0779 (0.06)	-0.0301** (0.01)	0.661** (0.29)
Observations	1635	1407	1635	1635	1407

Canada is the omitted comparison. Standard errors in parentheses

* $p < .1$, ** $p < .05$, *** $p < .01$

8 Collapsed Model with one Observation per Trade Barrier

A potential concern with the main analysis is that the trade barrier-year observation could bias the results given the structure of the data. The concern would be that trade barriers that do not escalate to the WTO remain in the dataset, whereas those that are brought to the WTO exit. This would lead to an overrepresentation of barriers that don't escalate, which could alter the findings. I address this issue by conducting an analysis where the data is collapsed to a single observation for each trade barrier. This abandons the trade barrier-year setup, and so I also drop the duration variable that was originally included to address the fact that barriers remain in the dataset over time. For the variables in the main models that change over time, such as the dominant firm's capacity, I take the average value of the variable across the years from original dataset. The results are included below as Table 4 and are consistent with the main analysis, showing that the paper's findings are not sensitive to whether the trade barrier or the trade barrier-year is the unit of observation.¹⁰

¹⁰Model 5 is not included because the model failed to converge.

Table 4: Collapsed Model with one Observation per Trade Barrier

	(1)	(2)	(3)	(4)
	Model 1	Model 2	Model 3	Model 4
Product-Specific Barrier	1.413*** (0.55)	1.201** (0.59)	1.539*** (0.59)	01.479** (0.58)
Dominant Firm Capacity	0.309** (0.16)	0.345** (0.17)	0.309* (0.17)	0.348** (0.17)
Trade Barrier Distortion	2.395*** (0.78)	2.248*** (0.79)	02.195*** (0.80)	2.408*** (0.79)
Negotiation Progress	-0.946* (0.50)	-0.824 (0.52)	-0.957* (0.51)	-1.004* (0.59)
Industry Political Contributions		-0.112 (0.30)		
Industry Production		0.041 (0.39)		
US Exports to Trade Partner			0.176 (0.26)	
Active 301			2.303*** (0.83)	
EU				1.064 (1.15)
Japan				0.166 (1.27)
Mexico				1.506** (1.41)
Korea				0.034 (1.32)
NonOECD				-0.292 (0.1.23)
Constant	-7.648*** (1.70)	-5.369 (4.54)	-12.180* (7.22)	-8.400*** (2.04)
Observations	331	296	331	331

Canada is the omitted comparison. Standard errors in parentheses

* $p < .1$, ** $p < .05$, *** $p < .01$

9 Average Firm Capacity

Table 5: Random Effects Logistic Regression of WTO Dispute Complaints

	Model 1	Model 2	Model 3	Model 4	Model 5
Product-Specific Barrier	1.361*** (0.51)	1.158** (0.56)	1.462*** (0.54)	1.290** (0.52)	1.699*** (0.65)
Average Firm Capacity	0.000638** (0.00)	0.000711** (0.00)	0.000609* (0.00)	0.000777** (0.00)	0.000772* (0.00)
Trade Barrier Distortion	2.105*** (0.77)	1.925** (0.78)	1.940** (0.78)	2.068*** (0.78)	1.741** (0.79)
Negotiation Progress	-1.136** (0.45)	-0.978** (0.48)	-1.180*** (0.45)	-0.984** (0.46)	-0.969** (0.48)
Trade Barrier Duration	-0.214 (0.13)	-0.193 (0.14)	-0.214 (0.13)	-0.223* (0.13)	-0.0837 (0.16)
Industry Political Contributions		0.0494 (0.30)			0.126 (0.37)
Industry Production		-0.160 (0.39)			-0.111 (0.51)
US Exports to Trade Partner			0.198 (0.26)		-2.445* (1.40)
Active 301			1.930*** (0.67)		1.923* (1.08)
EU				0.925 (1.11)	1.671 (1.42)
Japan				0.546 (1.19)	0.0638 (1.70)
Mexico				1.398 (1.32)	0.790 (2.13)
Korea				0.299 (1.26)	-4.272 (3.17)
NonOECD				-0.300 (1.22)	-6.157 (4.35)
Constant	-6.263*** (0.82)	-4.796 (3.96)	-11.34* (6.51)	-6.660*** (1.27)	55.30 (36.39)
Observations	1635	1407	1635	1635	1407

* $p < .1$, ** $p < .05$, *** $p < .01$

Random effect models calculated using xtlogit with STATA14. Random intercepts calculated for groups at the industry level, defined as the ISIC3 4 digit industry. Canada is the omitted comparison. P-values are calculated using a two-tailed test and standard errors are displayed in parenthesis.

To assess the substantive effect of average firm capacity, I replicate the analysis from Table 2 of the paper using average firm capacity instead of dominant firm capacity, which is shown in Figure 6. The results are consistent with expectations, with average firm having a substantively significant effect, though it is substantially smaller than dominant firm capacity, as expected.

Table 6: Effect of Key Variables on the Probability of Dispute Initiation

	Model 1
Product-Specific Barrier	0.278 (0.029, 0.547)
Average Firm Capacity	0.166 (0.001, 0.401)
Trade Barrier Distortion	0.225 (0.008, 0.556)
Negotiation Progress	-0.247 (-0.563, -0.004)

Change in predicted probability is calculated from Model 5 of Table 1. Estimates and 95 percent confidence intervals are calculated using a quasi-bayesian simulation that samples 2000 times from a distribution based on the coefficients and variance. Changes in predicted probabilities represents a shift from one standard deviation below the mean to one standard deviation above the mean of the variable, or a shift from 0 to 1 for distortion and product-specific barrier. All other variables are set to their mean, or a value of zero, except for the defendant country (Mexico) and distortion, which are each set to a value of one.

10 Potential Firm Counter-Lobbying

One potential complication to the model would be incorporating firm counter-lobbying. However, this is omitted from the model since such counter-lobbying does not appear to factor into the dispute escalation process, except on very rare occasions. To understand why, I consider counter-lobbying from both a theoretical and empirical approach.

From a theoretical standpoint, domestic firms with the potential to counter-lobby would be most likely to do so when initiating a dispute is expected to have a negative effect on the firm's economic situation. This could occur if they believed the dispute would hurt their exports or raise the cost of imports on their intermediate goods. In either case, the

most likely mechanism through which counter-lobbying would shape the decision process is by providing information about the economic effects of the dispute. Counter-lobbying could thus lower the expected value of the case, which would reduce the likelihood the case would be initiated. However, there are limited cases where domestic firms with the ability to counter-lobby the trade bureaucracy would be beneficiaries from a trade barrier violating WTO law imposed by foreign government. For example, when a new trade barrier harms US exporters, it is typically because their access to export markets has been curtailed. The most likely firms to benefit from such a policy are import-competing firms from the country imposing the trade barrier, or exporters from other countries that are not affected by the barrier. In either case, most firms benefiting from the trade barrier, who would have an incentive to lobby against initiating a dispute, would be foreign companies whose interests would not give them significant standing to lobby domestic bureaucracies.

This situation is somewhat complicated by multinational corporations, who may seek to take advantage of differences in trade law across countries; however, empirically, the one quantitative study that examines firm-level lobbying and WTO disputes, found that total lobbying expenditures toward the US government by Fortune 500 companies was nearly seven times higher by firms supporting the complaint than those opposed to it (Ryu and Stone, 2017). While existing analysis only measures aggregate lobbying once a dispute has already been initiated, it suggests that any lobbying against complaints is relatively minor when compared to the efforts of firms who advocate in favor of WTO disputes.

Finally, it is worth noting that counter-lobbying *before* a WTO complaint is initiated is even rarer than counter-lobbying once a complaint is initiated. In the 38 author-interviews conducted, counter-lobbying prior to dispute initiation was only identified by a single interviewee, whereas trade experts and government officials almost universally agreed that counter-lobbying was an exceptionally rare or non-existent practice during the WTO dispute initiation process, as shown in the quotes in Figure 3. The single case of counter-lobbying identified in the interviews involved a potential challenge against sanctions imposed by the US and EU where the government was “lobbied by private law firms that were concerned

that WTO dispute settlement would be overtaken by sanctions disputes” if a dispute was initiated (International Trade Attorney 2021f). This was not a case of firms from industry counter-lobbying to protect their economic interest, but was instead a case of lawyers counter-lobbying because they were concerned about the future state of WTO dispute settlement. In hindsight, the official noted that choosing not to initiate the dispute “was a major mistake” (International Trade Attorney 2021f). Given the existing evidence and limited domestic standing of most firms who could potentially oppose filing a dispute against a foreign country’s trade barrier, I focus my analysis on the role of firms pursuing dispute escalation.

Figure 3: Expert Quotes Regarding Counter-Lobbying

I did not personally ever see cases saying “don’t bring this case” (Assistant General Counsel, United States Trade Representative, 2021).	No firms don’t counter lobby. Never heard of firms counter lobbying (Department of Commerce Official, United States, 2021)
No I haven’t seen that a firm ever comes forward and asks the government not to bring a case, that someone else wants to bring (International Trade Lawyer, Egypt, 2021)	So no, there has been no cases I’m familiar with where firms lobby against the case (International Trade Lawyer, United States, 2021).
I have not seen any case of counter lobbying by an industry or association or firm, but I guess it could happen (International Trade Attorney, China, 2021).	Counter-lobbying doesn’t happen when bringing cases, but the government will consider the different stakeholders they have to deal with (Senior Official familiar with WTO and Airbus-Boeing Dispute, 2021).
It’s the government who is reluctant. So no, industries don’t lobby against (International Trade Lawyer, United States, 2021).	Can’t think of any instances of counter lobbying (Assistant General Counsel, United States Trade Representative, 2021).

11 Resource Constraints

The budget constraint is a real challenge for all governments when it comes to WTO litigation, though it is a greater challenge for some than others. Throughout the author-interviews it was often noted that the US and EC have more capacity than other countries to manage trade disputes, but it was also explicitly noted that both have insufficient resources to independently manage their high case load. One USTR official summed it up, saying “At the USTR we have very limited resources” (Assistant General Counsel 2021a). An Assistant General Counsel to the USTR affirmed this when he noted that the private sector typically pays 90 percent of the litigation costs (Assistant General Counsel 2021a). The Assistant General Counsel noted that the USTR is vastly under resourced relative to resources allo-

cated by opposing private firms, and thus the USTR is reliant on private firms to contribute to the litigation process:

We [USTR] have four lawyers, two on each case being paid an average of \$130,000 per year with no assistants. Maybe \$500,000 per year. Think about what Wilmer [a private law firm] billed Boeing. [They had] multiple senior partners, paralegals, associates, document prep. Given the money involved in the dispute, money was no issue for Boeing (Assistant General Counsel 2021a).

The relative shortcoming of the USTR's budget was further emphasized by another US attorney with experience working with USTR, who noted:

Your opposition may have basically an unlimited or at least bigger budget than USTR and they will put more people on the case than USTR. The AB has encouraged everybody to drill down and write 400-500 pages, and its very possible that USTR is literally swamped. They literally need help. Depending on the size and scope of the case. If Sidley [a private law firm] is going to file hundreds of pages on why something isn't zeroing and another expert report on x, y, z, somebody has to answer it. So when I talk about support I mean just practical support because it is very very difficult for USTR to go up against somebody that's going to hire teams of the best lawyers and throw money at the case (International Trade Lawyer 2021d).

Budget constraints for WTO disputes have remained a consistent feature of the USTR across the history of the agency, due in part to the fact that significant budget changes require congressional approval and the fact that pursuing WTO disputes is not the top priority of the USTR (USTR 2014). While the budget has increased modestly for USTR over the years, it continues to leave the USTR constrained, and thus they face significant tradeoffs when selecting which trade barriers to contest.

Budget constraints are also a significant challenge for other countries considering challenging trade barriers through the WTO. For example, in Mexico it was noted that "The

budget constraint is very real... Government tells them [the private firm] to just pay for the case and lawyers” (General Counsel 2021). The interviews show that such budget concerns were a persistent challenge, as shown in Figure 1 of the paper, which shows additional references to budget constraints in the United States, Japan, and other countries.

12 Staff Turnover

An additional challenge faced by many governments is that they cannot retain trade experts who are able to identify the strength and quality of cases, and thus the governments are reliant on private firms to signal the strength and provide litigation support. Though not a problem for all countries, “The way the diplomatic career is setup in many countries actively discourages specialization, which is what you need for WTO dispute settlement” (International Trade Attorney 2021a). Furthermore, the “Rotation of staff, especially for countries that don’t frequently use the WTO system, will have people move on and so the current government officials won’t have the expertise” (International Trade Attorney 2021b), which makes the government more reliant on private industry and private lawyers to build the case to bring to the WTO. This challenge was reiterated by numerous interviewees, with another noting that the problem exists “Not only for developing countries. Many countries face this problem, because they hire someone, but they move on... The problem is in poor countries, but also others is the frequent change of staff (International Trade Lawyer 2021c).

13 Increasing Complexity of WTO Litigation

The WTO dispute settlement process has become increasingly complex and governments have become more reliant on firms over time. Although the process of WTO disputes may have become more regularized, the fact finding burden and costs have increased dramatically as well. The author-interviews found that respondents were unanimous in their opinion

that the the dispute settlement process at the WTO has become more complex over time. Speaking in an interview with the author, a USTR Assistance General Counsel confirmed this, saying “cases have become more complex over time and taken on more of a legal character, with procedural things that we didn’t see 15 years ago” (Assistant General Counsel 2021a). Similarly, an official from Japan’s METI noted the costs have been increasing over time and that “industry has had to play a larger role” (Assistant General Counsel 2021a). The increasing complexity and costs of WTO disputes is recognized by WTO panelists, government officials, and private lawyers, as is shown in Figure 4. This means that the period from 1995-2004 analyzed in the paper represents a conservative test for the importance of private firms, given that governments have become more reliant on private firms for the increasingly fact intensive and expensive cases at the WTO.

Figure 4: Evidence of Increasing Complexity of WTO Disputes

<p>Cases have become more complex both legally and factually. Legally, because there is so much case law. The fact is there’s a lot of case law now, so with every issue you have to look at a string of cases... Even where it’s a novel issue, you try to find cases that support your position and that is more complex than what would have occurred earlier. Factually cases have become more complex as well. Cases now provide experts and expert reports (International Trade Lawyer, Colombia, 2021).</p>	<p>When the first cases started, the cases were very basic. Now they are thousands and thousands of pages. It’s become crazy now. Everything goes to the experts. It’s more difficult now with arbitrators chosen for the specific case. Now we have people bringing huge files of economic analysis. Some of these cases have 100s of lawyers now (General Counsel, Ministry of Mexico, 2021).</p>
<p>It’s become overly legalized that even the most well-resourced countries can’t do it well without outside help from private firms (International Trade Attorney, European Union, 2021).</p>	<p>There are certain trends in WTO. The first is the increasing complexity of the cases, which has implications for the time it takes to resolve the issue and the expertise you need to mobilize (International Trade Lawyer, Egypt, 2021).</p>
<p>The WTO process has become more litigious as the WTO has been basically unable to write and interpret new rules. The panel processes have become more fact intensive undoubtedly (WTO Panelist, 2021).</p>	<p>The cases have absolutely become more complex. It’s not just the “low hanging fruit” was picked first, but the case process and the AB have become much more complex over time (WTO Adjudicator, 2021).</p>
<p>Things have generally become more complex and technical over the years. Trade barriers used to be the tariffs, but that’s not usually the biggest issues anymore (Assistant for WTO and Multicultural Affairs, United States Trade Representative, 2021).</p>	<p>The cost of cases has been increasing year over year. In the early years of the WTO the reports were relatively short, but recently the cases are 100s of pages long. So I think the cost has been increasing. Government budget has increased, but industry has had to play a larger role (Ministry of Economy, Trade, and Industry Official, Japan, 2021).</p>

The increasing complexity also means that it is often harder for the government to assess the strength and value of cases on their own. In practice this means that most potential cases that would be considered for WTO disputes do not fall in the low parameter space, discussed in §2 of this appendix. Instead, governments are increasingly reliant on firms to help them assess the strength and value of the potential dispute. Indeed, the interviewees emphasized their reliance on private firms, noting “Most of the cases brought to the WTO come from a demand from the private sector” (Ambassador, 2021) and that “Most WTO

litigation involved governments that do not have that expertise, so the private law firm advice has historically been really important” (International Trade Attorney, 2021e). Even in the US, where the USTR has some of the most experienced government lawyers and trade experts, it was noted the “USTR can often handle the legal case, but they rely on the technical information about how the market works, and support and partnership in developing arguments” (Assistant General Counsel, 2021a). The reliance of the government on firms to provide the information about the legal issues, arguments, and values at stake emphasize the importance of information provision to the government in the dispute escalation process.

14 The US Case and NTE Selection Effects

As discussed on page 22 of the manuscript, there are advantages and limitations of using the US case for the quantitative analysis. From a pragmatic perspective, the data from the National Trade Estimate annual report provides a useful set of trade barriers, given us a set of potential claims that could be initiated at the WTO. This data can also be matched with firm-level data using Compustat, providing us important variation on one of the key independent variables. From a case selection standpoint, the US case also has aspects that correspond with being an influential and typical case (Seawright and Gerring, 2008), both of which provide advantages. The case provides valuable variation on the independent variables, which is due to both the variation in firm-level attributes, but also the number of potential disputes that can be coded, allowing us to compare product-specific to more diffuse barriers. Second, since the US is the most frequent user of the WTO dispute settlement system, it represents a typical case in that the modal case at the WTO is initiated by the US. Of course, this also means that the US is unique in that it has more experience with dispute initiation, meaning that the USTR staff generally has more expertise than staff from many other countries, especially those with more limited WTO dispute experience. However, as discussed in the manuscript, this should make the US relatively less reliant on firms’ expertise,

which would potentially bias against finding a significant effect on the role of firms influence in the dispute escalation process.

The NTE is compiled annually by the USTR and lists trade barriers that are implemented by US trade partners that are harmful to US exporters. Trade barriers may be reported to the USTR, and thus enter the NTE reports, via a telephone hotline or online reporting, or the government may add barriers to the list that they become aware of through field offices or other bureaucracies. This means there is a relatively low threshold for barriers to enter the dataset. However, the most likely barriers to be reported are those causing significant distortion, with barriers that cause less distortion being the most likely to be left out. If some low-value barriers are left out of the NTE, this would effectively reduce the number of observations with low levels of distortion that would also have very low probabilities of escalating to WTO disputes. This selection process attenuates the results making the model estimates in the paper relatively conservative¹¹

As shown in Figure 5 of the paper, firms also play a role in bringing trade barriers to the attention of the government, including some of the barriers in the NTE. This is potentially concerning if a systematic bias in reporting of barriers that make their way to the NTE would cause us to exaggerate the influence of firms. However, since it is larger firms that are more likely to have the capacity to identify trade barriers in the first place, they are the most likely firms to report barriers that make their way into the NTE. This means that trade barriers that primarily affect industries with smaller firms are the most likely to be underrepresented, but these firms are also the most likely *not* to be brought to the WTO. Given this selection process, any bias caused by firms role in generating the NTE would lead the paper's analysis to underreport the significance of dominant firms, and thus not a major concern for this paper.

¹¹The firm level data is gathered from Compustat, which includes publicly traded companies. These companies tend to be larger than private companies, so the dataset underrepresents smaller firms, which would bias against finding results.

15 Alternative Paths to Dispute Settlement

Although a complete analysis of alternative paths of trade dispute resolution is beyond the scope of this paper, it is worth considering what those options are and how they fit into the strategy of firms and governments.¹² When firms seek to have a trade barrier removed, their preference is to first pursue a low cost strategy to remove the barrier. One USTR Assistant General Counsel referred to this as the desire to keep things at “the lowest temperature possible” (Assistant General Counsel 2021a). This means that firms almost always engage in direct consultations with the government imposing the trade barrier or have consultations with the foreign government in coordination with a domestic agency prior to pushing for a WTO complaint, which is only one of the many tools firms use to shape trade policy. One international trade attorney noted that “Industry would rather deal with it themselves, and so if there’s a problem they would try to resolve it with the other government directly” (International Trade Lawyer 2021a). In the United States, one USTR official noted that firms sometimes “come to USTR in the regional office that focuses on that country” and the desk officer for the country will evaluate bilateral options to resolve the issue (Assistant for WTO and Multicultural Affairs 2021). The preference of the government at this early stage is generally aligned with the firm, since both would prefer to see the issue resolved without a WTO dispute or other form of escalation. For this reason, the empirics in the paper control for whether progress is being made in resolving the dispute through other mechanisms, since making progress through bilateral consultations is preferred to initiating a claim at the WTO. However, the same individuals noted that even when a trade barrier is brought to the attention of the government through an agency process, potentially coordinated through the ITA or USDA, “we need the firm to bring data to show the problem really exists, the magnitude of the problem... We can get high level information from industry associations, but we really need to talk with individual companies because what we need is confidential and proprietary information” (Assistant for WTO and Multicultural Affairs 2021). This is also true when the case has been litigated through a domestic court, but does not yield a

¹²For an excellent analysis of dispute settlement forum shopping, see Busch (2007).

satisfactory result for the firm, and so the firm may then push to bring a WTO dispute.

If alternative venues of litigation do not resolve the dispute, the firm still plays a critical role in alleviating the resource constraint and providing information when deciding to escalate the complaint to the WTO, as was specified by one expert; “The only lawyer who has the knowledge on trade remedies cases is the domestic lawyer in the underlying case, but that lawyer is never from the government, and so the inexperienced government lawyer can’t just step in” (International Trade Attorney 2021d). Even though domestic agency processes have been established in various forms across countries, a consistent refrain of government officials is that they first try to resolve the issue bilaterally, but if the case moves forward to the WTO, the agencies are reliant on firms to provide the information and support to build the case.

When bilateral consultations are unable to resolve the dispute, then the firm must consider further options, including initiating a claim at the WTO. While the WTO option is one of the most costly, it is also viewed as less of an escalation than some other domestic options. For example, a USTR official said that “trade remedies or some other form of domestic dispute settlement are more provocative and hard edge than the WTO... The WTO is quasi judicial and quasi diplomatic, making it less provocative” (Assistant General Counsel 2021a). When it comes to other domestic options, at least in the United States, “Section 301 is pretty middle of the road. It sends a signal, but the actual substance is not punitive and can’t dictate what happens” though sometimes “301 can be used to do the investigatory work to build a case that would go to the WTO” (Assistant General Counsel 2021a), which is also why the paper includes a control for Section 301 proceedings. Firms thus make a calculation about how much the case is worth and the likelihood of winning a dispute at the WTO, and whether a complaint at WTO is an efficient strategy relative to the other options. The path to dispute escalation almost always involves bilateral consultations, often coordinated with a domestic agency, but when these options do not resolve the situation, then the firm must decide whether it is worth contributing to the litigation process and signaling to the government the need to initiate a WTO complain.

If a dispute escalates to the WTO, then the government begins by filing a request for consultations. The parties then engage in consultations in an attempt to resolve the dispute. If consultations are unsuccessful, then a panel is established to hear the case. The parties engage in adjudication and the panel may then issue a ruling on the case. The parties to the dispute have the option to appeal the ruling to the WTO appellate body, which then issues its own report. Once the dispute settlement body adopts the panel/appellate report(s), the process proceeds to the implementation phase. If a party was found to be in violation of their WTO obligations, they must revise their policies to implement the ruling, or in cases of non-implementation they may negotiate compensation or retaliation may be authorized. As detailed in WTO's dispute settlement process (World Trade Organization, 2022), the process can include additional interim steps, all of which makes WTO dispute settlement a costly process to seek the resolution of trade disputes.

16 Firm Influence on Argumentation Legal Strategy

Firm litigation contributions often play a positive role in developing the legal strategy and improving the quality of the submissions to the WTO. A trade lawyer representing Brazil noted that, even though the Brazilian diplomats and trade officials are well-versed in WTO law, the private firm “can make a real contribution and helping make judgement calls about strategy” (International Trade Attorney 2021a). Similarly, a member of the WTO secretariat said that “On the receiving end, when I was working at the AB, we really appreciated the difference between litigants that were assisted by the private counsel as opposed to those who weren't. Those doing it on their own were not necessarily always intelligible” (WTO Secretariat Attorney 2021). Private firms often hire private counsel that assist in writing the submissions to the WTO, which dramatically enhances the quality of the submissions (International Trade Attorney 2021a).

Although firms' contributions to the litigation process can improve the argumentation and quality of submissions to the WTO, not all firm contributions are helpful to the government

and there can be potential downsides. Sometimes the firm and government are in conflict over which arguments to present, and the government then must exercise its gatekeeping role and make the final decision about which arguments to submit. The most common point of tension is over how many claims to raise, with private firms generally preferring to bring more claims than the government. The firm is typically only concerned about the specific dispute, but the government must also be concerned about how the arguments in today's dispute could be used against them in the future. For example, a Japanese official affirmed that "sometimes the government has to tell the outside counsel, we don't want to file a case based on that argument. The ministry needs to be consistent with the interpretation of the treaty, so if industry or counsel is inconsistent, even if it's a strong argument, the government has to be aware of those issues" (Legal Advisor to Ministry of Finance 2021). A former Assistant General Counsel to the USTR echoed this sentiment, noting that "Industry often wanted to take more strident or stringent steps than USTR wanted or needed to take," and so the USTR would have to be selective about what arguments and strategies proposed by the firm to integrate into its legal strategy (Assistant General Counsel 2021b).

In one of the most egregious cases of the private firm proposing an argument at odds with the government, there was "one instance where the outside firm was pressing for [the government] to make an argument that would be completely inconsistent with Canada's image. This was in the Brazil case, and they were asking [the government] to argue that Brazil was not a developing country for the purposes of the aircraft industry. There was a famine and there were literally children dying in Brazil, and Canada had provided aid" (Counsel for WTO Disputes 2021). In this case the government said that the argument was immoral and chose not to proceed with the claim.

Although the private firms sometimes propose strategies and arguments that are in tension with the long-term interests of the government, the government has the ability to override the proposals of the private firms. This is a notable difference between WTO dispute settlement and transnational dispute settlement, such as ISDS. Since the government is able to use their gatekeeper status at the WTO to have the final say on which claims are raised

in the submissions, this generally results in stronger arguments being presented and clearer submissions to the WTO than would occur in the absence of private firm contributions. It is worth noting that some countries with very limited capacity do not necessarily exercise significant gatekeeping status, and essentially “rubber stamp” the arguments prepared by private firms (General Counsel 2021). In such cases, there would not be any dispute without the private firms, but the arguments being presented are not necessarily thoroughly vetted by the government.

17 Variation across Contexts

The cross-national implications are clear when it comes to resource constraints, with governments being more reliant on the information provision and financial resources of private firms when the government has the least capacity to pursue WTO disputes. For example, throughout the interviews experts noted that countries such as Mexico, Ecuador, and Antigua were all reliant on private firms to finance the cases (General Counsel 2021; Ambassador 2021; International Trade Lawyer 2021b).¹³ Although countries such as the US, EU, and Japan are also reliant on private firms, they generally have more resources than other countries and are thus able to share the financial burden to some extent. For example, Mexico may require the industry to sometimes pay the entirety of the litigation cost (General Counsel 2021), whereas the Japanese government is more likely to cover about a third of the litigation costs (METI Official 2021). For governments with more in-house expertise and attorneys, they also have greater ability to screen the arguments of the cases, as opposed to acting as a rubber stamp for the private firms’ case. This is why the USTR can always vet, and generally prepare, the final submissions to the WTO, whereas many less-resourced bureaucracies are heavily reliant on the private firms to prepare the case and argumentation, as discussed in greater

¹³One exception to low-resource countries’ reliance on private firms is when they receive assistance from the Advisory Center on WTO Law. However, the Advisory Center will only prepare systemic arguments (General Counsel 2021), which are less fact intensive than most other types of cases.

detail in section 16 of this appendix.

Countries resource constraints are not static, and some countries proactively seek to increase their WTO expertise and litigation capacity. For example, China made substantial investments in developing both their government’s capacity and also domestic firms’ knowledge and capacity to pursue WTO complaints. Shaffer and Gao (2018) detail the learning curve that China faced, noting that the government participated as a third-party in a multitude of complaints where they hired private law firms to help them build capacity and develop the necessary expertise to initiate WTO complaints. Interestingly, private firms and SOEs were taught about WTO law through an extensive series of seminars and outreach efforts so that they were better positioned to support WTO litigation. Shaffer and Gao (2018, 163) found that “Larger Chinese companies independently saw the need to develop WTO knowledge... and built in-house expertise.” For example, one large telecommunications company hired James Lockett, who previously worked for the U.S. Department of Commerce, to be their Vice President and Head of Trade Facilitation and Market Access (Shaffer and Gao, 2018, 164). However, it was also noted that “Building in-house trade law expertise takes time and resources that most Chinese small- and medium-sized enterprises cannot afford” (Shaffer and Gao, 2018, 164). This is consistent with the theory’s expectations that larger companies are better positioned to contribute to the litigation process. Furthermore, the increase in government and private capacity in China is consistent with the rise of China’s role as a claimant at the WTO.

When it comes to information asymmetries, the role of private firms is greatest when there is a larger information asymmetry between the government and private market actors. As was noted in one of the interviews, when trade barriers affect state owned enterprises (SOEs) the government has greater access to information than if the trade barrier affects a private firm (International Trade Attorney 2021f). This means that in countries with a higher proportion of SOEs, such as China, the information asymmetry is less likely to be a critical component of the dispute selection process. That said, the importance of SOEs to the Chinese economy has declined; “private companies now represent around 54% of the country’s GDP” (Shaffer

and Gao (2018). The role of these private companies has increased since China's WTO accession. According to the research of Shaffer and Gao (2018), once Chinese law firms had developed sufficient expertise in WTO law, they increasingly represented private companies who seek to proactively fight foreign trade barriers.

18 Product Specific Barriers and Collective Action

The importance of collective action and coordination problems when firms address trade barriers was brought up by multiple experts in the interviews. One noted that industry associations are often unable to overcome the collective actions problem since “The association doesn't bring the case, because at the end of the day it depends on whose going to pay for it” and so having a trade barrier with a more concentrated effect reduces the potential for free riding (International Trade Attorney 2021c). Additionally, when there is a product specific barrier “Normally there is one company that cares a lot and takes the lead” (International Trade Lawyer 2021e). A government official from Japan noted that “If the issue is product specific, or the barrier is limited to affecting a single industry then there are not so many conflicting views. Firms work independently. They do not cooperate when asking for requests for consultations. Sharing information may result in conflicts of interest so they don't work together” (METI Official 2021). From the perspective of private firms and government officials, there is evidence that collective action problems are significant in the dispute settlement process, and that product specific barriers help reduce these challenges.

The evidence presented in the paper clearly shows that product specific barriers are more likely to escalate than barriers affecting a broader range of products. What makes this so interesting is that the interviews repeatedly noted that the *government's* preference (on its own) would be “to go after structural and systemic issues. Typically these would be issues that affect multiple industries;” however, consistent with the paper's theory, it was also noted that private firms “can get their specific cases brought” (International Trade

Attorney 2021f). Similarly, an official familiar with the USTR priorities found that “An individual industry is almost always only concerned with the very narrow particular dispute or industry... The government wants to invest their resources in cases with broader impact” (International Trade Lawyer 2021e). Furthermore, a number of experts also noted that it was easier for the government to bring systemic cases than product specific cases to the WTO. The rationale provided was that many governments (and the Advisory Centre on WTO Law) have sufficient expertise for the broad legal theories needed for systemic cases, but they lack the resources and expertise for the fact finding needed for more specific cases (General Counsel 2021). Given that governments would prefer to pursue broad claims and find it easier to pursue systemic claims, the fact that product specific barriers are challenged regularly is especially surprising and consistent with the theory advanced in the paper.

19 Discussion of Ethical and Human Subjects Principles

The human subjects research included in this paper complies with Principles and Guidance for Human Subjects Research outlined by the APSA. The qualitative interviews consisted of individuals who were officials who had represented governments or international organizations. Each interviewee was provided a description of the research agenda, research protocols, and citation protocols in their invitation to participate. All interviewees volunteered to participate and did not receive any compensation. Details about the selection of interviewees and citation protocols that preserve the anonymity of the officials is provided in the main text of the paper.

With regard to Principal 10 on the impact of the research on the political processes, we do not believe there is any reason to believe that our studies would have had an impact on political processes such as elections or policy creation. Respondents were asked to share their experience and knowledge of dispute escalation, and were generally providing information about cases that they had already worked on, and thus the interviewees should not affect the

dispute escalation process. Therefore the research is not seeing as presenting any information to interviewees that would alter their political behavior or political processes.

20 Qualitative Methods

As discussed in the paper, I conducted 38 in-depth interviews with trade experts from around the world. The selection of interviewees was guided by a number of goals. To expand upon the selection criteria discussed in the paper, I provide additional details on the qualitative methodology. To identify potential interviewees, a research assistant compiled a list of individuals who worked for government offices responsible for trade, individuals who worked in government relations or in-house counsel for firms affected by trade barriers, and attorneys who worked for firms with practice groups focused on international trade. This generates a diverse list of individuals who represented people with a variety of potential perspectives on trade barriers and disputes.

The research assistant then contacted those on the list via email and/or phone. If we did not receive a response from the first email, I followed up with an additional email or phone call. After multiple contacts, we had about a 50 percent response rate. Though the sample is not randomly generated, it was generated based upon purposive selection to ensure respondents represented a range of perspectives in the dispute escalation process, which can be especially useful for identifying recurrent relationships and themes (Lynch, 2013). For each interview, I followed an outline of questions, though I also allowed the interviewees to elaborate based on their expertise. Each respondent was first asked to confirm their professional experience as it related to trade policy and disputes. Depending on their position, they were asked to provide the perspective of the government and/or firm when assessing trade barriers. Interviewees were asked how they learned about trade barriers, how they evaluated which barriers were worth contesting, how firms and governments interacted (if at all) when considering challenging a trade barrier, whether they faced resource constraints, etc. Most interviewees had worked in numerous positions that were involved with trade

disputes, so they often provided multiple perspectives.

Given the open-ended nature of the questions, there was ample opportunity for evidence to be gathered that would support or falsify the theory. For example, if officials with the government had noted that they are generally able to identify trade barriers through their embassies and other offices, that would have discredited the idea that firms are critical to identifying the presence of trade barriers. Similarly, respondents could have spoken about their government's ability to prepare and fund cases without significant private assistance, but that was not the case. Instead, the interviews repeatedly emphasized similarly aspects of the dispute escalation, which painted a fairly consistent picture of firms and governments interactions, though they also highlighted interesting variation across countries (discussed in §17 of this appendix).

References

- Ambassador, Brazil. 2021. Author Interview.
- Assistant for WTO and Multicultural Affairs, United States Trade Representative. 2021. Author Interview.
- Assistant General Counsel, United States Trade Representative. 2021a. Author Interview.
- Assistant General Counsel, United States Trade Representative. 2021b. Author Interview.
- Busch, Marc L. 2007. “Overlapping institutions, forum shopping, and dispute settlement in international trade.” *International Organization* 61 (4): 735–761.
- Cho, In-Koo, and David M Kreps. 1987. “Signaling games and stable equilibria.” *The Quarterly Journal of Economics* 102 (2): 179–221.
- Counsel for WTO Disputes, Canada. 2021. Author Interview.
- General Counsel, Ministry of Mexico. 2021. Author Interview.
- Hausman, Jerry A. 1978. “Specification tests in econometrics.” *Econometrica: Journal of the Econometric Society*: 1251–1271.
- International Trade Attorney, Brazil. 2021a. Author Interview.
- International Trade Attorney, Colombia. 2021b. Author Interview.
- International Trade Attorney, Egypt. 2021c. Author Interview.
- International Trade Attorney, European Union. 2021d. Author Interview.
- International Trade Attorney, Korea. 2021e. Author Interview.
- International Trade Attorney, Russia. 2021f. Author Interview.
- International Trade Lawyer, Australia. 2021a. Author Interview.

International Trade Lawyer, Hong Kong. 2021b. Author Interview.

International Trade Lawyer, Switzerland. 2021c. Author Interview.

International Trade Lawyer, United States. 2021d. Author Interview.

International Trade Lawyer, United States. 2021e. Author Interview.

Legal Advisor to Ministry of Finance, Japan. 2021. Author Interview.

Lynch, Julia F. 2013. “Aligning sampling strategies with analytic goals.” *Interview research in political science*: 31–44.

Menezes, Flavio, Paulo Monteiro, and Akram Temimi. 2001. “Private Provision of Discrete Public Goods with Incomplete Information.” *Journal of Mathematical Economics* 35 (4): 493-514.

METI Official, Japan. 2021. Author Interview.

Ryu, Jeheung, and Randall W Stone. 2017. “Plaintiffs by Proxy: A Firm-Level Approach to WTO Dispute Resolution.” Political Economy of International Organizations Conference. http://wp.peio.me/wp-content/uploads/2016/12/PEI010_paper_110.pdf

Seawright, Jason, and John Gerring. 2008. “Case selection techniques in case study research: A menu of qualitative and quantitative options.” *Political research quarterly* 61 (2): 294–308.

Shaffer, Gregory, and Henry Gao. 2018. “China’s Rise: How It Took on the US at the WTO.” *U. Ill. L. Rev.*: 115.

USTR. 2014. “United States Trade Representative: Fiscal Year 2014 Budget.” Congressional Budget Submission. <https://ustr.gov/sites/default/files/Final%20FY2014%20Congressional%20Budget%20Submission.pdf>.

World Trade Organization. 2022. “The process ? Stages in a typical WTO dispute settlement case.”. https://www.wto.org/english/tratop_e/dispu_e/disp_settlement_cbt_e/c6s1p1_e.htm#:~:text=There.

WTO Secretariat Attorney. 2021. Author Interview.