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Litigation for Sale: Private Firms and WTO Dispute Escalation

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This article 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 (WTO). 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.

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,[1] 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 article studies how firms and governments monitor trade barriers and select which barriers to contest. In doing so, this article 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 (2023) demonstrates that private firms can use their informational advantage to shape international standards.[2] 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 do not 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 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 article 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 article 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

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[1] See Goldberg and Maggi (2001) and Grossman and Helpman (1994).
[2] Kennard (2020, 199) shows that firm contributions for environmental standards can influence international cooperation, noting that her model is consistent with lobbying as information provision.

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% 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 article 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 low- and high-income 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 United States (US), this information is compiled in the National Trade Estimate (NTE) annual reports and for the European Union (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 Section 5 of Supplementary Appendix 2 available at the APSR Dataverse (see Brutger 2023). 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 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,[3] 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 someone to do it, because there's no place in the budget for it." (International Trade Attorney, Russia 2021)

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 WTO dispute 291 over genetically modified foods between the European Commission (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 (WTO 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 US (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).[4] For example, one expert noted that "Some firms push the envelope and try to bring more

[3] The EU is considered as a single entity because trade policy is centrally coordinated (Meunir 2005).

[4] This is discussed further in Section 11 of Supplementary Appendix 1.

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, Colombia 2021). 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 EC 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.

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, Canada 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.[5]

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 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 Section 6 of Supplementary Appendix 1. 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 is initiated. Trade lawyers emphasized this point, noting that they do not 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, Switzerland 2021). 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 Section 6 of Supplementary Appendix 1.

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).[6] The importance of resource constraints was emphasized by a multitude of officials from a variety of countries, as the interview quotes in Table 1 show, and is discussed further in Sections 7 and 9 of Supplementary Appendix 1.

[5] Similarly, Mansfield, Milner, and Rosendorff (2002) argue that firms lobby for PTAs to reduce foreign governments' opportunistic behavior.

[6] This 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.

TABLE 1. Evidence of Resource Constraints across Countries

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)	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)
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)	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)
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)	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 2021b)
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 hundreds of pages long. So I think the cost has been increasing. Government budget has increased, but industry has had to play a larger role. (METI Official, Japan 2021)	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)

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 not believe there was a viable case, and only after private firms prepared arguments and pitched the case 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 did not 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, Ministry of Mexico 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, Russia 2021). An EC 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.[7] 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, 165–8). 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.

[7] Divergent firm and government preferences are discussed further in Section 11 of Supplementary Appendix 1.

By theorizing the strategic incentives of the government and firms, we can generate additional empirical implications, which are formalized in Section 1 of Supplementary Appendix 2. 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 Section 2 of Supplementary Appendix 2.[8] 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).[9]

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 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 Section 2 of Supplementary 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 the case to the government, thus altering the expected payoff for 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 Section 2 of Supplementary 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 firm's 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.[10] 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 discussed in Section 3 of Supplementary Appendix 2.

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.[11] 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

[8] The expected payoffs are based on the probability of winning the case times the value of winning the case and are formally defined in Section 1 of Supplementary Appendix 2.

[9] It 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).

[10] Some 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).

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

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.[12] 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 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 Section 4 of Supplementary Appendix 2. 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.[13]

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—which 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, Canada 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

[12] Since 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.

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

product specific barrier "Normally there is one company that cares a lot and takes the lead" (International Trade Lawyer 2021a). In fact, numerous officials emphasized that for many industries, firms and association do not 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, Japan 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 Section 13 of Supplementary Appendix 1.

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, Brazil 2021). 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, United States 2021a). 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 1–3, 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%, and the resulting sample included individuals representing countries across Africa, Asia, Australia, Europe, South America, and North America.[14]

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, US Trade Representative, USTR General Counsel, ambassadors, in-house counsel for private firms, and so on. 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 interviewees is presented in Table 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 Table 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, Egypt 2021). 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, Korea 2021). The qualitative evidence in Table 3 further highlights the informational advantage of firms and the reliance of governments on firms' information, as predicted by Hypothesis 1.

[14] More on the interview process is included in Section 14 of Supplementary Appendix 1.

TABLE 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, USTR
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 Secretariat Attorney	**18**	International Trade Attorney, United States	**31**	Ministry of Economy, Trade, and Industry Official, Japan
6	U.S. International Trade Commission Attorney	**19**	Assistant General Counsel, USTR	**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, USTR	**37**	General Counsel, USTR
12	International Trade Attorney, Switzerland	**25**	WTO Adjudicator	**38**	Trade Official, USTR
13	International Trade Attorney, Egypt	**26**	Assistant for WTO and Multicultural Affairs, USTR		

TABLE 3. Evidence of Private Firms Identifying Trade Barriers

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)	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)
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)	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)
If you're a poor and understaffed country, you don't even know if you're facing barriers hurting your firms. (U.S. International Trade Commission Attorney 2021)	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)
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)	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, Russia 2021)

The information asymmetry was also emphasized by interviewees, who noted governments do not 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, U.S. Trade Representative 2021). The point was echoed by others in Table 3, with numerous government officials noting that firms have better knowledge of the market. One official noted that the government has to

TABLE 4. Evidence of Litigation Contributions Mitigating the Resource Constraint

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)	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)
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 2021c)	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 2021a)
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. (METI Official, Japan 2021)	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. (International Trade Lawyer, Switzerland 2021)
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)	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)
Then they [the private firm] take it to government and say this is an intergovernmental treaty and we're 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)	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, U.S. Trade Representative 2021)

"filter cases" since they cannot 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, Korea 2021).

Firm contributions also alter the dispute settlement process by mitigating the resource constraint, as predicted in Hypothesis 2. As noted in Table 1, the interviewees emphasized the importance 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 it's very possible that USTR is literally swamped. They literally need help" (International Trade Lawyer, United States 2021b). 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 did not have the resources to pursue the case (Associate Trade Attorney 2009). As shown in the qualitative evidence in Table 4, governments are often aware that they do not 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 5% of the total costs, while the private companies paid the remaining 95% (Trade Attorney 2009). The same partner estimated that the average cost breakdown across WTO disputes would be distributed 20% to the government and 80% paid by private parties. For Japan, the typical breakdown of costs is 70% paid by the firm and the remaining costs by the government (METI Official, Japan 2021).

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.[15] For example, firms are playing a larger role in alleviating the government's 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

[15] For more on how the litigation process varies across contexts, see Section 12 of Supplementary Appendix 1.

TABLE 5. Evidence of Private Firms Information Signaling and Fact Finding

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 it's important to present the adverse trade effects. (International Trade Attorney, Hong Kong 2021)	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)
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)	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)
Industry helps with the fact finding and resources for the case. Sometimes, the government's only job is to be present at the meetings, and the attorneys paid for by the industry do all the speaking. (Ambassador, Brazil 2021)	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)
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)	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, U.S. Trade Representative 2021)
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)	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, U.S. Trade Representative 2021)

countries have been catching up. An official with the EC 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 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 is 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 will not move" (METI Official, Japan 2021). Similarly, a Mexican official affirmed that it is 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, Ministry of Mexico 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 Table 5.

Although the consensus among 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 US and EC 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, Russia 2021). 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, Egypt 2021). 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, U.S. Trade Representative 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, Belgium 2021). 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, Russia 2021).

The interviews illuminate the mechanisms of WTO case selection, especially those components not readily measurable across a broad set of cases and are consistent with Hypotheses 1–3. Governments do not 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 do not have the expertise or time to gather and process the necessary information for WTO cases (International Trade Attorney, Brazil 2021; International Trade Lawyer, United States 2021b).[16] 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.

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 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 and 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 4–6 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 Section 10 of Supplementary Appendix 1. 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 10 years of the WTO has advantages and limitations. On the 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 10 years of the WTO a relatively hard test of the theory.[17] 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 complements the cross-national interviews, by providing a rigorous empirical analysis for the most frequent user of the WTO's dispute settlement system.

[16] See Section 8 of Supplementary Appendix 1 for more on the constraints caused by staff turnover.

[17] This point is developed in Section 9 of Supplementary Appendix 1.

The unit of analysis is the trade barrier, with an observation included for every year the NTE mentions the barrier in their report.[18] 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%, 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.[19] 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.[20] Of the 1,635 trade-barrier-years analyzed in the data, 23% 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 (WTO 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 US 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.[21] This model identifies intercepts for each industry, while allowing for the effects of the key variables of interest to be analyzed across the dataset.[22] The results are also robust to alternative fixed effects and ordinary least squares models, which are shown and discussed in Sections 2 and 3 of Supplementary Appendix 1.

The results of the baseline model are reported in Model 1 of Table 6. 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 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, Canada 2021), and that

[18] I analyze the data with a single observation for each trade barrier, in Section 4 of Supplementary Appendix 1.
[19] The earnings are defined as "retained earnings."
[20] This classification is consistent with Davis (2012) and facilitates a comparison of results.
[21] Using the Hausman test, I compared the random effects model to a fixed effects model (Hausman 1978), with both at the ISIC3 four-digit level, and found that the null hypothesis—that the random effects model is consistent—cannot be rejected (prob $> \chi^2 = 0.29$).
[22] The results are robust to grouping on trade barrier as Davis (2012) does.

TABLE 6. Random Effects Logistic Regression of WTO Dispute Complaints

	Model 1	Model 2	Model 3	Model 4	Model 5
Product-specific barrier	1.531***	1.317**	1.698***	1.460***	1.840***
	(0.52)	(0.57)	(0.56)	(0.52)	(0.66)
Dominant firm capacity	0.330**	0.331**	0.334**	0.343**	0.320*
	(0.15)	(0.16)	(0.16)	(0.16)	(0.17)
Trade barrier distortion	2.234***	2.084***	2.048***	2.246***	1.914**
	(0.77)	(0.78)	(0.78)	(0.79)	(0.81)
Negotiation progress	−1.185***	−0.980**	−1.174***	−1.042**	−0.922*
	(0.45)	(0.47)	(0.45)	(0.45)	(0.48)
Trade barrier duration	−0.227*	−0.203	−0.227*	−0.234*	−0.0999
	(0.13)	(0.14)	(0.13)	(0.14)	(0.16)
Industry political contributions		−0.0138			0.0249
		(0.29)			(0.36)
Industry production		−0.0111			0.165
		(0.39)			(0.52)
US exports to trade partner			0.183		−2.283*
			(0.25)		(1.38)
Active 301			1.966***		2.090**
			(0.66)		(1.06)
EU				0.870	1.849
				(1.11)	(1.41)
Japan				0.659	0.468
				(1.20)	(1.66)
Mexico				1.394	1.086
				(1.31)	(2.08)
Korea				0.320	−3.650
				(1.26)	(3.03)
Non-OECD				−0.118	−5.407
				(1.18)	(4.20)
Constant	−8.949***	−8.355*	−13.72**	−9.485***	46.45
	(1.63)	(4.42)	(6.60)	(1.96)	(35.54)
No. of obs.	1,635	1,407	1,635	1,635	1,407

Note: Random effect models calculated using xtmelogit with STATA17. Random intercepts calculated for groups at the industry level, defined as the ISIC3 four-digit industry. Canada is the omitted comparison. *P*-values are calculated using a two-tailed test and standard errors are displayed in parentheses. The dependent variable is an indicator for whether a trade barrier escalates to a complaint being filed at the WTO. *$p < 0.1$, **$p < 0.05$, *** $p < 0.01$.

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's (2012) FTBD. In contrast to previous studies that found political contributions to have a strong positive effect on dispute initiation, I do not 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 found neither to be significant, and the main results all retained significance.[23] These tests show that the significance of product-specific barriers

[23] Results not shown here.

TABLE 7. Effect of Key Variables on the Probability of Dispute Initiation

	Model 1
Product-specific barrier	0.240 (0.013, 0.585)
Dominant firm capacity	0.116 (0.0001, 0.4362)
Trade barrier distortion	0.075 (0.005, 0.248)
Negotiation progress	−0.111 (−0.349, −0.005)

Note: Change in predicted probability is calculated from Model 5 of Table 6. Estimates and 95% confidence intervals are calculated using a quasi-Bayesian simulation that samples two thousand times from a distribution based on the coefficients and variance. Changes in predicted probabilities represent 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.

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 4% 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.[24]

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, or a shift from zero to one for indicator variables, which are reported in Table 7. 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.[25]

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 7.

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 6, but now include the variable for average firm capacity, as shown in Section 5 of Supplementary Appendix 1. 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.

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

[24] Due to data availability, the number of observations fluctuates across models. In Section 1 of Supplementary Appendix 1, all results are replicated using the same sample of 1,407 observations.

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

consistent accounts of leading trade experts and government officials, provide strong support for the theory.

CONCLUSION

The theory and evidence presented in this article have 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.[26]

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 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 low- and high-income 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 article contributes to debates about monitoring and enforcing 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.

SUPPLEMENTARY MATERIAL

To view supplementary material for this article, please visit https://doi.org/10.1017/S0003055423000850.

DATA AVAILABILITY STATEMENT

Research documentation and data that support the findings of this study are openly available at the American Political Science Review Dataverse: https://doi.org/10.7910/DVN/LKRKQJ. Limitations on data availability are discussed in the text and Supplementary Material.

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[26] This point is elaborated upon in Section 11 of Supplementary Appendix 1.

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CONFLICT OF INTEREST

The author declares no ethical issues or conflicts of interest in this research.

ETHICAL STANDARD

The author declares the human subjects research in this article was reviewed and approved by the University of Chicago and certificate numbers are provided in Section 6 of Supplementary Appendix 2. The author affirms that this article adheres to the APSA's Principles and Guidance on Human Subject Research.

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