

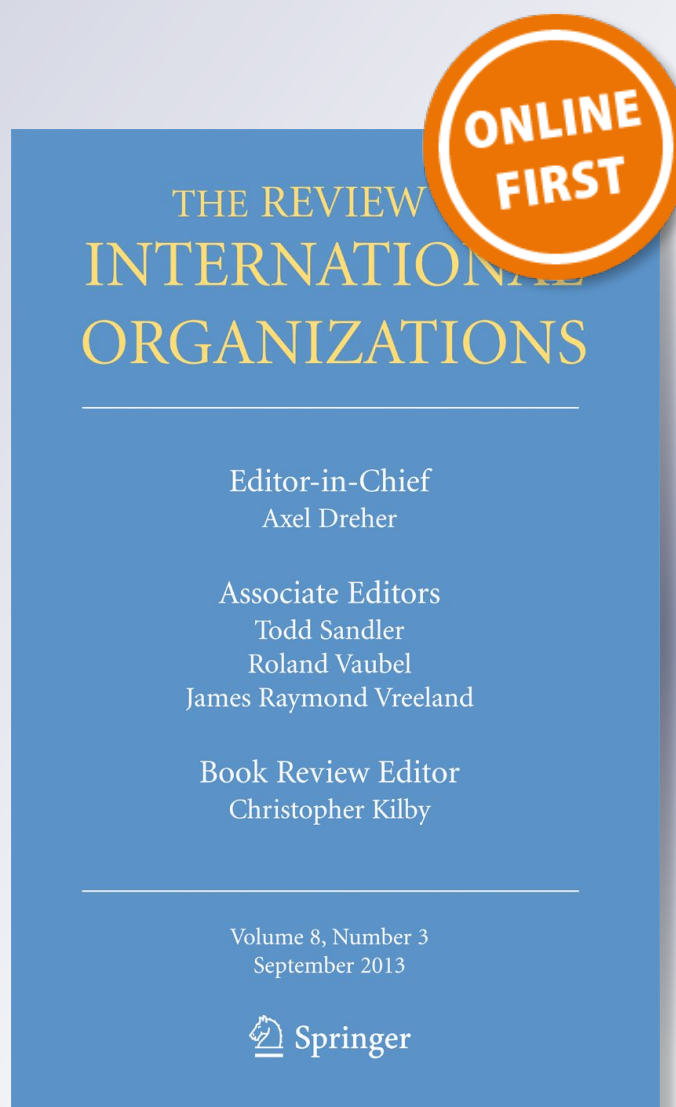
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Plaintiffs by proxy: A firm-level approach to WTO dispute resolution

Jeheung Ryu¹ · Randall W. Stone¹ 

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Abstract Lobbying by multinational business firms drives the agenda of international trade politics. We match Fortune Global 500 firms to WTO disputes in which they have a stake and to their political activities using public disclosure data. The quantitative evidence reveals traces of a principal-agent relationship between major MNCs and the US Trade Representative (USTR). Firms lobby and make political contributions to induce the USTR to lodge a WTO dispute, and once a dispute begins, firms increase their political activity in order to keep USTR on track. Lobbying is overwhelmingly patriotic—the side opposing the US position is barely represented—and we see little evidence of MNCs lobbying against domestic protectionism. When the United States is targeted in a dispute, lobbying by defendant-side firms substantially delays settlement, as the affected firms pressure the government to reject concessions. Lobbying on the complainant side does not delay dispute resolution, as complainant-side firms have mixed incentives, to resolve disputes quickly as well as to hold out for better terms.

Keywords Trade · WTO trade disputes · Lobbying · Political contributions · World Trade Organization · MNCs

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JEL Classification F130 · F230 · F680

1 Introduction

Lobbying by firms drives the agenda of international trade politics. We analyze data that match the top 500 multinational corporations (MNCs) to World Trade Organization (WTO) disputes, and find evidence of their influence over dispute initiation, early settlement, and duration, as well as evidence that involvement in a dispute increases firm political activity. Multinational firms conduct the majority of international trade, so it is not surprising that their influence extends into the dispute settlement process of the WTO. There has been little quantitative analysis of WTO dispute settlement at the firm level, however, so most of our findings are new. The quantitative evidence reveals traces of a principal-agent relationship between major MNCs and the US Trade Representative (USTR). Firms lobby and make political contributions to induce the USTR to lodge a WTO dispute, and once a dispute begins, firms are off to the races—they increase their efforts in order to keep USTR on track. We find that when the United States is targeted in a dispute, lobbying by defendant-side firms substantially delays settlement, as the affected firms pressure the government to reject concessions.

The patterns that we see are not consistent with the informational view of lobbying, which holds that lobbying is effective primarily because firms provide government agents with credible information (Austen-Smith 1993; Milner 1997; Schnakenberg 2017; Brutger 2017). The majority of the lobbying effort that we see is directed to Congress, rather than to the USTR, and Congressional campaign contributions do not provide information to USTR about firms' trade preferences, but they nevertheless appear to influence decisions to file disputes. Rather than providing information about trade policy, this effort appears to be designed to mobilize a political coalition to pressure USTR to adjust its priorities (Shaffer 2003). Furthermore, if lobbying conveyed credible information about the quality of a potential case, we might expect it to be associated with higher success rates in WTO panel rulings, but we find that this is not the case.

Nor are the data entirely consistent with a technocratic view of the USTR as an agency that autonomously pursues a well-defined national interest. There is no doubt that US trade policy embodies some long-term strategies and that some cases are pursued for the sake of the legal precedents they may set rather than the interests of the firms involved (Pelc 2014). However, this is not what our data show. To the extent that dispute initiation depends on campaign contributions and lobbying, it is skewed away from these long-term objectives. In addition, it is striking that firm political activity ramps up once a dispute is filed. This may not be surprising when the United States is the target of a dispute by a foreign country, since the dispute could take US firms by surprise, but the pattern holds as well for disputes initiated by the United States. Rather than trust that the USTR will faithfully pursue their interests after it files a dispute, firms mobilize their resources and build coalitions to pressure USTR to exert effort.

The data are also inconsistent with the view that multinational corporations actively lobby to oppose domestic protectionism (Milner 1988). The lobbying that we

witness is overwhelmingly “patriotic,” in the sense that it is carried out by firms that are aligned with the US side in a dispute. In disputes that the United States initiates, the MNCs that lobby are almost exclusively associated with the complainant side, and in disputes lodged against the United States, the MNCs that lobby are almost exclusively on the defendant side. Firms that would presumably benefit from liberalizing domestic protectionist measures because of their integration into global value chains do not appear as active participants in WTO disputes. It is possible that these firms nevertheless exert influence by failing to show up, or that they make their preferences known in subtle ways that are not picked up in our data, but it is striking that they are not sufficiently public in their opposition to allow us to identify them with disputes.

In contrast, the data are consistent with a bargaining model of WTO dispute resolution. Most disputes are resolved out of court, in informal bargaining sessions that precede the panel ruling, or in additional rounds of bargaining that determine how the ruling will be implemented or what compensation will be offered (Reinhardt 2001). Timing plays a key role in bargaining models. At each point in time, agents make calculations about the relative benefits of accepting the other side’s current offer or waiting for something better, when waiting is costly. Bargaining power consists of the willingness to hold out for a better deal. Firms have a conflict of interest with USTR, because bureaucrats benefit from resolving disputes and do not fully internalize the interests of firms; as a result, firms are motivated to lobby to protect their interests. We cannot directly observe how closely the settlements correspond to firms’ objectives, but we can observe the duration of disputes. The observable effect of lobbying is to delay settlement.

In addition, our data allow us to identify a defendant-side bias in the effectiveness of lobbying, which is consistent with this bargaining interpretation. We find that lobbying increases when a dispute is filed, regardless of whether the United States initiates the dispute as the complainant or is targeted as the defendant. However, only defendant-side lobbying is significantly associated with delay in dispute resolution. This is consistent with a bargaining model, because the cost or benefit of delay depends on the position of the status quo. When a defendant-side firm lobbies its government, concessions that move the status quo can only harm its interests, and the firm benefits in the short run from any delay produced by bargaining, because the status quo remains in force until there is a settlement. Consequently, defendant-side firms have clearly aligned incentives to lobby against concessions. In contrast, complainant-side firms stand to benefit from changes to the status quo, but find delay costly. As a result, they have mixed motives, because every period of delay represents a trade-off between the short-term benefit of settling and the expected long-term benefit of achieving better settlement terms. Firms may differ in their preferences because they make this trade-off differently. As a result, complainant-side coalitions may become unstable over time, as some firms lobby the government to hold out for further concessions while others urge it to accept the offer that is currently on the table. Consequently, increases in complainant-side lobbying need not lead to greater delays.

All of these findings are novel except the finding that firm lobbying is associated with the initiation of disputes (Davis and Shirato 2007; Davis 2012). Little is known about the quantitative patterns that we study, because there have been few quantitative

studies of WTO dispute settlement that use firm-level data. This study relies on data generated using text analysis. We start with a list of firms, which includes every firm that was listed in the Fortune Global 500 list during the period of our study, and we use a text-mining algorithm to identify matches between firms and disputes using a comprehensive library of WTO documentation, which we supplement with an extensive sample of newspaper articles. We match the firms to lobbying and campaign contributions data and other variables from public disclosures mandated by US law. These data have certain limitations. Since we used a list of the most important MNCs to generate our data, we cannot test for the influence of small or medium-sized firms, trade associations, labor unions, or other interest groups. In addition, since no comparable data on lobbying and campaign contributions exist for other countries, we cannot test whether the patterns we observe are the same or vary across jurisdictions. We are able to conclude, however, that lobbying by major multinational corporations plays a key role in setting the agenda of US trade policy. In addition, the patterns of lobbying and the duration of disputes provide important clues to the conditions under which firms can exert influence, the principal-agent relationship between firms and the US government, and the dynamics of bargaining over dispute settlement.

2 Argument

There is a rich tradition in the literature on trade politics that explains variations in policy in terms of the strategies of firms (Milner and Yoffie 1989; Grossman and Helpman 2002).¹ However, most of the quantitative work on WTO dispute settlement has focused instead on state-level explanations.² There is an extensive literature on WTO disputes, and we do not attempt to review all of it here, but we have organized a number of prominent contributions in Table 1. The papers on the left side of the table use qualitative, descriptive methods, and those on the right side use quantitative empirical methods. Those in the top half take a state-centric theoretical approach, focusing on the objectives and strategies of states, and those in the bottom half of the figure take a firm-centric approach, focusing on the objectives and strategies of firms. There are only a few published studies that use quantitative methodology to

¹For example, factors such as intra-industry heterogeneity in competitiveness, factor mobility, industry size, diversification, and trade dependence have been argued to determine which industries have the most influence over public policy (Gilligan 1997; McGillivray 2004; Hillman et al. 2004).

²Some scholars argue that the size of the economy affects involvement in disputes (Bown 2005; Guzman and Simmons 2005; Horn and Mavroidis 2011; Sattler and Bernauer 2011), and others focus on past experience (Davis and Bermeo 2009; Conti 2010), or exchange-rate regimes (Copelovitch and Pevehouse 2011; Broz and Werfel 2014; Bown and Reynolds 2015; Betz and Kerner 2016). While some developing countries have actively initiated WTO disputes, most do not, and empirical studies show that country-level factors such as weak legal capacity, lack of resources, or fear of retaliation deter developing countries from initiating disputes (Guzman and Simmons 2005; Bown 2005; Kim 2008; Busch et al. 2009; Elsig and Stucki 2012). Other studies investigate country-level factors affecting escalation of disputes (Busch and Reinhardt 2000, 2003), and Busch and Reinhardt (2006) and Johns and Pelc (2014) study the role of third-party states during dispute resolution. Other scholarship focuses on domestic politics. Chaudoin (2014) and Pervez (2015) argue that the timing of dispute initiation is driven by elections. The working assumption of all of these studies is that states are the relevant actors.

Table 1 Literature review

	Qualitative	Quantitative
Country-level	Hudec (1993) Pauwelyn (2000) Zangl (2008) Goldstein and Steinberg (2008) Elsig and Stucki (2012) Elsig and Pollack (2014)	Busch and Reinhardt (2000, 2003) Reinhardt (2001) Guzman and Simmons (2005) Bown (2005) Kim (2008, 2016) Busch et al. (2009) Davis and Bermeo (2009) Horn et al. (1999) Conti (2010) Sattler and Bernauer (2011) Chaudoin (2014) Pervez (2015) Bown and Reynolds (2015) Betz and Kerner (2016)
Firm-level	Shaffer (2003, 2006) Woll and Artigas (2007) Bown (2010) Eckhardt (2011) Hanegraaff et al. (2011) Poletti et al. (2016) De Bièvre et al. (2016) Eckhardt and De Bievre (2015)	Davis and Shirato (2007) Davis (2012) Yildirim et al. (2018)

focus on firm-centric hypotheses. This lack of attention to firm-level strategies in the quantitative literature is puzzling, since firm-level hypotheses play such a prominent role in theorizing about trade politics and in the qualitative literature.

We propose a firm-centric approach to WTO dispute resolution. Multinational firms lobby the US Trade Representative to engage in costly bargaining on their behalf, and this principal-agent relationship drives dispute initiation, political activity by firms, and dispute duration. We will show that firm political activities determine which cases become formal disputes, and once a dispute is initiated, a bargaining game begins. Trade officials have incentives to resolve disputes quickly, because disputes are costly to litigate and create tensions that jeopardize other interests. Consequently, most cases are settled without proceeding to a formal panel ruling, and the settlements reflect the resolve on each side of the case. This means that the affected firms on both sides of a dispute have incentives to escalate their political activity to prevent their own side from caving in, or to weaken the resolve of the opponent government. This bargaining game is similar to a war of attrition, in which firms on each side burn money to prevent their respective governments from settling on unfavorable terms, and both states bear costs until the dispute is resolved. Lobbying by

firms determines which cases are settled early and which drag on for years. The complainant side generally wins if a case proceeds to a panel ruling (Busch and Reinhardt 2006; Johns and Pelc 2014), but defendant firms have an offsetting advantage in the bargaining game: they benefit from delay in reaching a settlement, because the status quo prevails in the meantime. Lobbying by defendant-side firms is effective because they have aligned incentives: lobbying prevents their agents from making costly concessions, and meanwhile the delay in settlement allows them more time to enjoy the status quo. In contrast, lobbying on the complainant side is disunited, because firms that are playing offense face a trade-off between the short-term benefits of settling early and the long-term benefits of holding out for a better deal. Since complainant-side lobbying is fragmented, the duration of disputes depends on variation in the intensity of political activity on the defendant side.

We characterize the relationship between firms and the state as a principal-agent relationship, because firms attempt to influence state actors and the state has an information advantage about the conduct of trade negotiations.³ Only states, the members of the WTO, have standing to be complainants or respondents in WTO disputes, and in the US government, the USTR is the gatekeeper charged with representing US trade interests. During the two terms of the Obama administration, the USTR filed 23 complaints at the WTO, more than any other WTO member.⁴ However, the public sector does not formulate public policy on its own. In practice, it shares its authority with private sector actors, and business firms in particular, and is formally obliged to consult with them at various stages of the policy-making process. Shaffer (2003) characterizes this relationship as a “public-private partnership,” which arises because government relies on the private sector to identify the policies pursued by foreign countries that distort trade. Private firms experience the adverse effects of trade barriers and alert government agents (Shaffer 2003, 2006; Bown 2010). The National Trade Estimate Report on Foreign Trade Barriers (NTE), which USTR publishes annually to analyze foreign market access barriers, makes it clear that the pool of potential disputes is generated by complaints raised by firms. According to the NTE in 2012, for example, US firms complained about India’s application of particular customs valuation criteria, arguing that India’s practices raised the cost of their exports and thus constituted a trade barrier that went beyond the applied tariff rate (USTR 2012). USTR initiated an investigation after the firms identified the problem.

States pursue a small minority of potential disputes, however, and this selection stage represents an important bottleneck. Of over eight thousand paragraphs identifying non-compliant trade barriers in National Trade Estimates between 1995 and 2011, USTR pursued only 68 WTO cases. Government agencies have budget constraints and limited technical expertise, so they cannot satisfy every domestic exporting firm

³Formally, a principal-agent relationship exists whenever one actor, the principal, attempts to induce another actor to perform or comply. The agent must have an information advantage of some sort (for example, local knowledge, expertise, hidden effort, or private information about its type) to make the problem theoretically interesting.

⁴Source: <https://ustr.gov/issue-areas/enforcement>.

that proposes a potential WTO dispute (Bown 2010). The cost of initiating a dispute can be substantial (Finger 2010; Bown and Reynolds 2015), and legal expenses grow rapidly if the case proceeds to panel and Appellate Body rulings. Private law firms are often hired, and the legal expenses are estimated to exceed one million dollars in an average case (Finger 2010). The costs of litigation are high enough to deter many developing countries from pursuing WTO cases (Busch and Reinhardt 2007). Moreover, a variety of considerations outside of trade screen out potential WTO disputes. Governments often prioritize diplomatic relations over trade interests, and developed countries often tolerate discriminatory policies by developing countries with which they share military alliances. Alliances are widely believed to internalize the security externalities stemming from close trade ties (Mansfield and Bronson 1997; Morrow et al. 1998; Bliss and Russett 1998; Mansfield and Reinhardt 2003). For example, although Korea was the 6th largest US trade partner by 2013, the United States has only initiated six of its 92 WTO disputes against Korea. On the other hand, weaker states may be deterred from initiating disputes by the prospect of retaliation within the trade regime, or of jeopardizing an important relationship with a powerful patron.

Lobbying and political contributions by private firms play an essential role in determining which disputes are initiated (Shaffer 2003, 2006; Bown 2010; Davis 2012). Lobbying mobilizes Congressional staff to contact USTR. In addition, political contributions and lobbying by firms can persuade Congress and other government agencies to support USTR's objectives (Gilligan 1997; Shaffer 2003), which motivates USTR to cooperate with private firms in exchange. Policy-makers and firms broadly share the goals of enhancing access to overseas markets and defending domestic policies, but according to research on interest groups and trade policy, large firms in an industry are more likely to have legal standing and provide more political contributions to influence government policies (Grier et al. 1994; Bombardini 2008; Weymouth 2012; Kim 2017). The effect of firm political activity, therefore, is to skew public policy toward the interests of the most powerful and organized firms. This leads to our first hypothesis:

Hypothesis 1 Lobbying and political contributions by affected firms make the United States more likely to initiate WTO disputes.

If our analysis is correct and firms are the principals behind WTO disputes, while states are their reluctant agents, the initiation of a dispute creates incentives for firms to increase their political activity. Indeed, Davis (2012) finds qualitative evidence that private firms have increased their political contributions during WTO disputes. A typical dispute is settled through informal negotiations before a panel has a chance to rule, and both governments that are party to the dispute usually have a preference for settling quickly. This leads to a bargaining game in which the terms of the settlement depend on the resolve of the negotiators; negotiators who are willing to wait longer are able to extract more favorable agreements.

Hypothesis 2 Firms increase their lobbying expenditures when they are involved in WTO disputes.

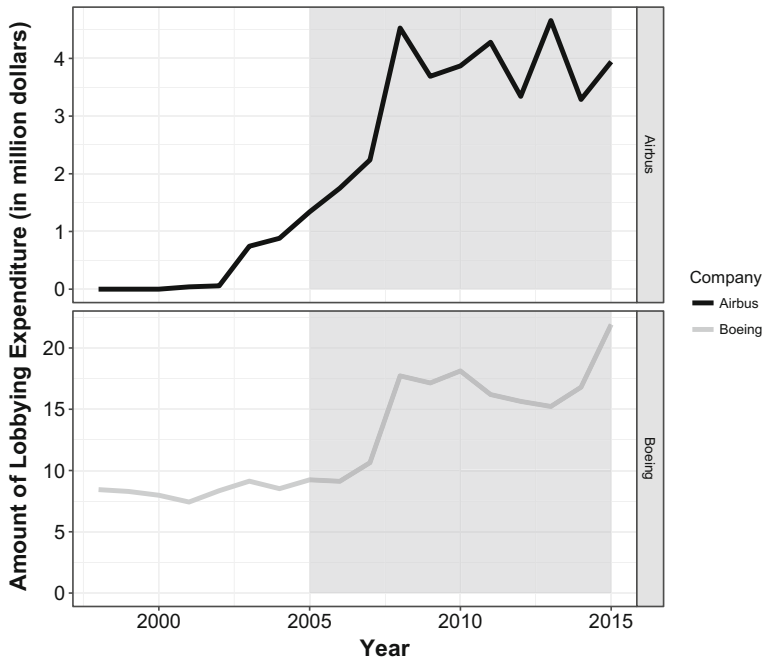


Fig. 1 Lobbying expenditures by Boeing and Airbus

The set of WTO disputes between the US and the EU over large civil aircraft illustrates this dynamic. Confronted with an aggressive market strategy by Airbus, Boeing increased lobbying of the USTR as well as contributions to individual members of the House and the Senate in order to persuade the US government to escalate the case to an official WTO dispute. Figure 1 displays how Boeing increased its lobbying spending to government agencies during WTO disputes. The shaded area marks the period of WTO disputes. The figure shows a rising trend of lobbying expenditures leading up to dispute initiation, and a dramatic expansion during the period when the disputes were under adjudication. Boeing was not the only firm that increased its lobbying; its competitor, Airbus, also increased expenditures on lobbying the US government on the opposing side.⁵

Another implication of our framework is an explanation for the fact that over seventy percent of WTO dispute settlement cases that proceed to the panel stage have pro-complainant rulings. Complainant firms lobby for the initiation of disputes, and reluctant governments act as gatekeepers. While this selection process is politicized, it is still sufficiently rigorous that it is rare for a dispute to be selected that does not have a high probability of a successful ruling. Since WTO dispute settlement is a quasi-judicial procedure where the reasons for rulings are constrained by rules of

⁵A lobbying report provided by Airbus (see the Online Appendix Fig. A1) indicates that Airbus lobbied regarding civil aircraft issues, and in section 16 reports that specific lobbying issues are “matters pertaining to the US and European civil aviation industries.”

legal procedure and are openly published, it should be reasonably impartial. Indeed, the participants have a long-term interest in assuring that it is perceived to be fair, so that dispute resolution is able to prevent the escalation of trade frictions. If lobbying serves the function we claim of seeking to motivate officials to exert effort, there is no obvious mechanism for lobbying or political contributions to affect the outcome at the panel-ruling stage.

Hypothesis 3 Firm lobbying does not affect the outcomes of panel rulings.

This hypothesis contrasts with the view that lobbying is effective primarily because it provides policymakers with information (Milner 1997; Chalmers 2013). An empirical implication of theories of informational lobbying is that lobbying creates an important selection effect: political activity could affect the distribution of cases that reach the panel stage, which in turn affects the distribution of outcomes. In this view, firms have private information about the merit of their cases, and the firms that are willing to invest the most in political influence have the cases with the highest expected value (Austen-Smith 1993; Milner 1997; Schnakenberg 2017; Brutger 2017). Expenditures on lobbying and political contributions act as a signaling mechanism, so political activity increases the credibility of the claims firms make about the harm caused by foreign trade barriers. If, as we show below, lobbying is associated with a higher probability of reaching the panel-ruling stage and, as this view claims, firms lobby more to support high-quality cases, lobbying should be correlated with higher success rates. The fact that we do not observe this suggests that lobbying is not strongly correlated with the underlying quality of cases. A variant of the informational argument holds that firms do not use their lobbying to persuade or cajole, but instead provide a legislative subsidy to like-minded agents by shouldering some of the research and litigation costs (Hall and Deardorff 2006). This is consistent with the argument that private firms hire law firms on behalf of the government to prepare for litigation, which may relax resource constraints.⁶ This argument would similarly lead to the expectation that cases that are driven by highly-motivated firms would be higher in quality and more likely to prevail at the panel stage. Again, the fact that we do not observe this suggests that investments in litigation by firms do not substantially affect the odds of successful outcomes, or are associated with weak underlying cases rather than with strong ones.

Our final hypotheses focus on the duration of WTO disputes. While state-centric quantitative work on WTO dispute settlement has ranged more widely, firm-level studies have so far remained limited to dispute initiation.⁷ We turn first to the strategy of defendant-side firms. The political activity of firms that seek protection inspired much of the literature on interest group politics and U.S. trade policy (O'Halloran 1994; Busch and Reinhardt 1999; Hiscox 2002). Defendant-side firms do not have anything to gain; their objectives are to protect the status quo and retain their cur-

⁶A selected list of law firms involved in WTO cases is in Bown (2010).

⁷The country-level literature, for example has examined dispute outcomes (Busch and Reinhardt 2000; Reinhardt 2001; Bown 2004; Guzman and Simmons 2005).

rent trade barriers. According to the argument above, defendant firms generally face opponents with strong cases, so they are likely to lose if their cases reach a panel ruling. However, it is possible that the complainant government will settle on favorable terms if the defendant firm can motivate its side to hold out long enough. The defendant-side firm faces a risk-reward trade-off: the best possible outcome is a negotiated settlement that preserves beneficial trade barriers, but bargaining failure likely leads to an unfavorable outcome. The defendant-side firm has an advantage that complainant-side firms lack, however. As long as it is able to delay the resolution of the dispute, the defendant continues to benefit from the status-quo policies (the WTO does not authorize retroactive punishment). Even after a panel ruling is issued, it is possible to appeal; and if an appeal is lost, it is possible to delay compliance with the ruling, or to comply partially. In some cases this leads to a subsequent dispute over the adequacy of compliance, which can delay policy change further. In one famous case the United States charged that China was illegally discriminating against US automobile tire exports, and won, but China was able to delay the resolution of the case for several years, by which time American tire companies had built factories in China in order to circumvent the protectionist measures (Stone 2011). In short, defendant-side firms almost always have a dominant strategy of lobbying their government to take a hard line and refuse to make concessions (Davis 2012). The firms with the strongest incentives to seek delay have the strongest incentives to lobby, and they lobby on behalf of specific policies that benefit them, so their preferences should be decisive. As a result, we expect lobbying by these firms to be associated with delay in dispute resolution, and the consequences may severely compromise the effectiveness of the dispute-resolution procedure.

Hypothesis 4 Lobbying by defendant-side firms delays dispute resolution.

Finally, we investigate complainant firms' incentives and strategies. As we have argued, the government's selection of cases to raise as disputes ensures that complainants generally have strong cases that are expected to prevail at the panel stage. However, complainant firms suffer from a bargaining disadvantage because they prefer swift dispute resolution. Delaying the process extends the time period under status-quo policies that are unfavorable to them, and both litigation and the political activity to bolster the government's resolve are costly. As a result, complainant-side firms have mixed motives, which makes it difficult for them to form a solid front to lobby for a tough bargaining position. Several other features of the process magnify these disadvantages. First, firms may have divergent interests about particular protectionist policy measures, so the defendant can splinter their coalition by offering concessions on some issues and not on others. Second, because complainant-side firms have more nuanced interests than defendant-side firms (complainant-side firms are not categorically interested in delay), their governments have a stronger information advantage. It is difficult for firms to monitor their agents, because they cannot directly observe the negotiations, and governments prefer to settle quickly. Third, compliance with the negotiated outcome is much more satisfactory for complainant firms when early settlement takes place. Although the complainant is likely to win at the panel stage, the defendant is more likely to comply with the settlement if it

settles early (Busch and Reinhardt 2006). Finally, even a favorable panel ruling limits the complainant's bargaining leverage in certain respects, because complainants are restricted in their use of measures to force a defendant into compliance. For instance, in the Kodak-Fuji film dispute, Kodak preferred not to pursue legal action through the WTO, but instead demanded that the United States impose bilateral pressure on Japan. The Japanese government, on the other hand, welcomed the US decision to bring a case before the WTO because that would prevent US unilateral retaliation (Davis 2012). In short, the location of the status quo has a number of implications that weaken the effect of complainant-side lobbying on dispute settlement. Individual firms still have compelling incentives to lobby, but the effects of their efforts on the duration of disputes are theoretically indeterminant and in particular cases may cancel each other out.

Hypothesis 5 Lobbying by complainant-side firms does not substantially affect the duration of WTO disputes.

This hypothesis contrasts with a line of research that argues that multinational firms have incentives to lobby against protectionism by their home countries, either in order to maintain access to foreign markets or because their integration into global value chains makes their own operations subject to the duties (Milner 1988). For instance, Jensen et al. (2015) argues that anti-dumping filings by United States firms have declined despite foreign currency under-valuation by US trade partners because MNCs integrated into global supply chains benefit from producing inputs in the country with the undervalued currency. Along similar lines, Gawande et al. (2015) concludes that the 2008 financial crisis did not cause the open trading system to collapse because the fragmentation of production across global value chains deters protectionism. A recent paper by Yildirim et al. (2018) argues that industries integrated into global value chains influence their governments to change protectionist policies when they are targeted in WTO litigation because importers prefer to dismantle them and exporters prefer to avoid retaliation from their trade partners. However, as we will show below, we find little evidence that complainant-side firms lobby in the United States when the United States is the defendant. The lobbying that we observe is overwhelmingly aligned with the US side in the dispute. Consequently, our argument focuses on the incentives of US complainant-side firms when the United States is the complainant.

Figure 2 illustrates the timeline of a WTO dispute and indicates how the empirical results that we present in the next section focus on various stages in the sequence. Before a dispute is lodged at the WTO, firms identify a trade policy of concern, notify USTR, lobby, make political contributions and engage in political activity. In Table 2 we show the results of how political activity affects the initiation of WTO disputes using logistic regression models. This analysis extends the data and replicates the results of Davis and Shirato (2007) and Davis (2012). Our other hypotheses are being tested using firm-level data for the first time. After a WTO dispute arises, the firms that are directly affected on each side have an incentive to increase their political activity. In Table 4 we show the results of whether firms increase their lobbying expenditures after a WTO dispute begins in which they are directly involved. In the next stage, disputes are either settled early, before a panel is formed, or continue to

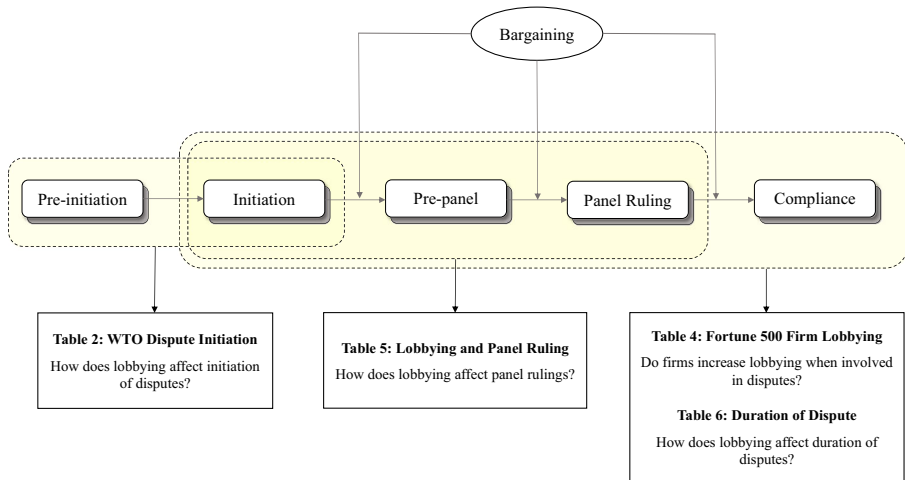


Fig. 2 WTO dispute resolution procedures and summary of empirical analyses

litigation and a formal ruling. In Table 5 we show the results of how firms’ lobbying expenditures influence the direction of panel rulings using two-stage Heckman models, which correct for selection into panel rulings. Finally, the duration of a dispute can last anywhere from a few months to a number of years, and the affected firms have the opportunity to lobby throughout this process to influence the outcome. In Table 6 we show the results of how defendant-side and complainant-side lobbying, respectively, affect the duration of dispute settlement using Cox Proportional Hazard models.

3 Political contributions and initiation of WTO disputes

3.1 Data

To test our first hypothesis that case selection and initiation of disputes is determined by political contributions, we rely on the Foreign Trade Barrier Dataset constructed by Davis (2012). This dataset codes lists of trade barriers established by US trade partners that have adverse effects on US exporters’ interests. The unit of analysis is the trade barrier-year and the amount of political contributions at the industry level is matched with each trade barrier.⁸ The dataset covers the period from 1995–2004, and we expand its coverage through 2011, adding an additional 106 trade barriers, which brings the total to 870.⁹ We test the implications of our theory using models and specifications similar to those in Davis (2012).

⁸For further information about the dataset, see Davis (2012), 123–32.

⁹Davis (2012) considers only nine WTO members that have the highest trade volumes with the United States. These nine are Canada, EU, Japan, Korea, Mexico, Brazil, India, Malaysia, and Singapore. Note that China is one of the major trade partners of the United States, but it is excluded because it joined the WTO only in 2001.

Table 2 WTO dispute initiation

	Dependant variable: initiation of disputes at the WTO		
	(1)	(2)	(3)
Political contributions	0.418** (0.196)	0.464** (0.216)	0.459** (0.223)
Duration in NTE	-0.147** (0.058)	-0.155** (0.063)	-0.148** (0.059)
Section 301	4.047*** (0.734)	3.657*** (0.780)	4.030*** (0.549)
Production value	-0.581* (0.331)	-0.241 (0.384)	-0.282 (0.372)
World export value		0.076 (0.143)	0.010 (0.141)
Import penetration	0.017*** (0.006)	0.020*** (0.005)	0.016*** (0.006)
Import policy	1.390*** (0.406)	1.445*** (0.415)	1.462*** (0.360)
Distortion		1.919*** (0.521)	1.904*** (0.512)
EU			1.844** (0.727)
Japan			1.414* (0.812)
Mexico			0.998 (0.809)
Korea			0.592 (0.841)
Non-OECD			1.078 (0.837)
Intercept	2.177 (7.437)	-10.111 (9.716)	-8.804 (9.134)
Number of barriers	594	453	453
Observations	7,926	5,951	5,951

Random-effects logistic regression models. Canada is the omitted comparison group for the trade partner
 *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

The dependent variable used in the models is the government's decision to bring a case to the WTO. The binary variable is coded 1 for the year in which the US government initiates a case at the WTO that addresses a particular trade barrier, and 0 otherwise. The independent variable of interest is the amount of political contributions US industries provide to political parties and all Federal candidates.¹⁰

¹⁰Data available at <http://www.opensecrets.org>.

A variety of variables is included to control for unobserved factors that might affect the relationship between political contributions and dispute initiations. We control for industry-level factors: the total value of US *production* in each industry, the world *export value* of the industry, and the *import penetration* ratio for the partner industries, which are gathered from the OECD Structural Analysis (STAN) Database.¹¹ In addition, we control for features of trade barriers. The *duration* of a trade barrier counts the number of years the barrier has been identified in an NTE report prior to the current year. Two binary variables are taken from the literature: *distortion* identifies trade barriers that result in significant market closure, such as bans, quotas, or high tariffs; and *import policy* indicates issues related to antidumping measures or quantitative import quotas (Guzman and Simmons 2002). These variables have been shown to be positively associated with dispute initiations (Guzman and Simmons 2002). In addition, we consider whether the case is related to a *Section 301* petition, a legal status that constrains US government treatment of the case. Finally, we include indicator variables for major trade partners to control for fixed characteristics of particular countries. Descriptive statistics for the variables used in the analysis are in the Online Appendix Table B1.

3.2 Results

Estimation results are reported in Table 2. The results are consistent with the findings of Davis (2012). Political contributions by firms in an industry are associated with a significant and substantively important increase in the estimated probability that the United States initiates a WTO dispute. The difference in political contributions between an average industry, whose firms contribute \$15.2 million per year, and an industry that is one standard deviation above the mean, whose firms contribute \$49.8 million per year, is estimated to increase the probability of initiating a dispute by 37 percent.¹²

4 Effects of WTO trade disputes on firm lobbying

4.1 Data

Our theoretical argument implies that firms increase the resources they devote to lobbying when WTO disputes begin that affect their interests. As previous research has shown (Davis 2012) and our results in the last section confirm, political contributions by organized interest groups on the complainant side of a case are associated with an increased probability of WTO dispute initiation. However, we argue that both complainant-side and defendant-side firms have increased incentives to engage

¹¹Data available at <http://www.oecd.org/sti/ind/stanstructuralanalysisdatabase.htm>.

¹²In addition, we analyze the effects of political contributions to the Republicans and the Democrats separately. The results are similar to those reported above, and we report them in the Online Appendix Table B2.

in lobbying once a dispute begins. Lobbying effort encourages reluctant government officials to invest time and resources in a case rather than settling early, which improves the prospects of a settlement that is favorable to the lobbying firms' interests.

To test Hypothesis 2, we construct a database at the firm-year level by combining the list of Fortune Global 500 firms, WTO disputes, and lobbying expenditures data. We expand the list of Fortune Global 500 firms to include all firms that fell into the top 500 during the years of our study, yielding a total of 906 firms in our database. We match these firms with WTO disputes from DS1 through DS415, which were initiated and resolved in 1995-2013. Among the 906 firms, 255 firms (28.1%) were involved in WTO disputes in which their home country featured either as plaintiff, defendant, or third party. Firms are coded as involved in a WTO dispute if they are mentioned in the complainant's brief or subsequent WTO documentation, including panel rulings, or if they are linked to the dispute by news articles.¹³ We then match the firms to data on their annual lobbying expenditures from the Center for Responsive Politics (CRP), as reported under the 1995 Lobbying Disclosure Act.¹⁴ Lobbying firms are required to provide a good-faith estimate rounded to the nearest \$10,000 of all lobbying-related income from their clients in each quarter, and the CRP calculates the annual lobbying expenditure by adding the four quarterly totals.¹⁵ On average, Fortune 500 firms spend \$621,506 per year to lobby the US Congress and Federal agencies. While we cannot directly observe firms' political activities or the details of what lobbying firms sought, we treat the firms' annual lobbying expenditures as a measure of their lobbying effort and political influence.

The unit of analysis is a firm-year, the dependent variable is annual lobbying expenditures, and the main independent variable of interest is an indicator variable for whether a firm is implicated in a WTO dispute that involves the United States in each year, either as complainant or defendant. We focus on lobbying of US government agencies because comparable data are not available for other countries, so we limit our attention to disputes involving the United States. The data include US and foreign firms, and either type can be involved on either side of a dispute. For example, a US multinational with a global supply chain may take the defendant side in a case initiated by the United States, and a US affiliate of a foreign multinational may take the defendant side in a case lodged against the United States. Accordingly, we construct four indicator variables of dispute involvement: when the US is a complainant, whether firms are involved on the complainant side (in models (2) and (3)); when the US is a complainant, whether firms are involved on the defendant side (in models (4) and (5)); when the US is a defendant, whether firms are involved on the complainant side (in models (6) and (7)); and when the US is a defendant, whether firms are involved on the defendant side (in models (8) and (9)). These four binary

¹³ A description of the text analysis method used in the data collection and the list of involved firms can be found in the Online Appendix Section A.3.

¹⁴ Data available at <http://www.opensecrets.org>.

¹⁵ Details on the methodology are available at <http://www.opensecrets.org/lobby/methodology.php>.

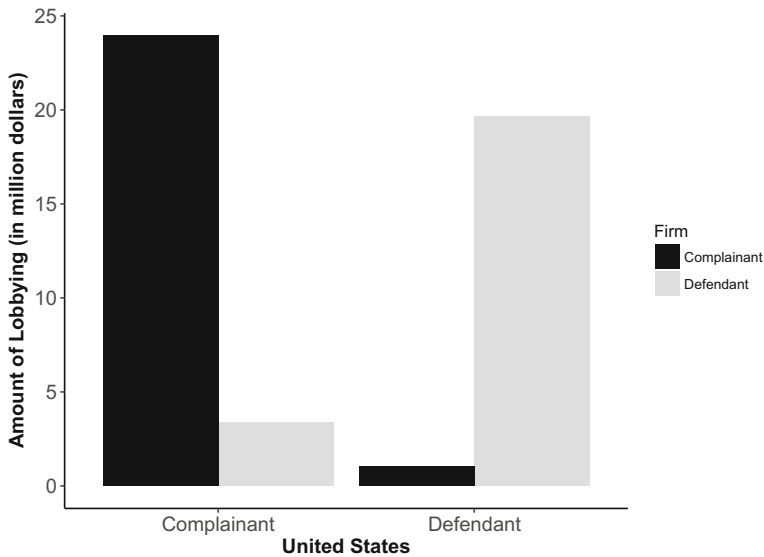


Fig. 3 Average lobbying expenditures by dispute types

variables are used to analyze the relationship between involvement in disputes and annual lobbying expenditures.

Figure 3 shows the results of cross-tabulating lobbying expenditures by complainant and defendant firms with US involvement in WTO disputes on the complainant and defendant sides. In all of these cases, most of the lobbying is done by US firms. As the figure indicates, complainant-side firms dominate the lobbying game when the United States is the complainant (\$23.9 million vs. \$3.3 million), and defendant-side firms mobilize the most political influence when the United States is the defendant (\$19.7 million vs. \$1.0 million). As we will show below, further analysis indicates that firms aligned with the US position in a dispute indeed increase their lobbying expenditures when a dispute arises that affects their interests. Because US firms are more heavily represented in the list of Fortune 500 than firms from any other country, it is important to conduct this analysis at the firm level. Among the 918 Fortune 500 firms, 299 firms (32.6%) are headquartered in the United States, and 25.4% of those are involved in WTO disputes at some point.

Each model includes additional variables to control for factors that might affect lobbying expenditure. We control for time-varying firm-level characteristics,¹⁶ including the number of *employees* and *gross profit*, which are taken from Compustat. To control for the effect of intra-firm trade on trade disputes, we use a firm's cumulative number of *FDI* transactions (from SDC Platinum).¹⁷ In addition, we control for

¹⁶On the “new-new” trade theory, see Melitz (2003), Bernard et al. (2003), and Helpman et al. (2004), and Antràs and Helpman (2004).

¹⁷Jensen et al. (2015) show that firms with more vertical FDI are less likely to file antidumping petitions, and we find that FDI is also associated with lower levels of lobbying during WTO disputes.

whether the parties to a dispute are members of a treaty with investment provisions (*TIPs*) to see how other available venues for addressing trade barriers affect firms' political activities.¹⁸ The data on *TIPs* are collected from the database of international investment agreements maintained by the United Nations Conference on Trade and Development (UNCTAD). Finally, we include firm and year fixed effects to control for unobserved factors that might affect expenditures that are specific to fixed firm-level characteristics or that are due to contemporaneous shocks that affect all firms, such as US election years or global financial crises. Descriptive statistics for all variables we use are in the Table 3.

4.2 Results

We estimate fixed-effects models with two types of specifications.¹⁹ In models (2), (4), (6), and (8), we run the baseline specification that relies on fixed effects to control for firm heterogeneity. In models (3), (5), (7), and (9), we include two additional firm-level covariates, gross profits and number of employees, and missing data substantially reduces the usable sample size. In addition, we classify the involvement of firms into two situations. In models (2), (3), (4), and (5), we consider cases where the United States is complainant, whereas in models (6), (7), (8), and (9), the United States is defendant. In model (1), we pool all disputes and all firms without specifying which side of the dispute firms take or whether the United States is complainant or defendant.

We report the results in Table 4. We find strong evidence that when MNCs are involved in disputes, they are likely to increase their investment in lobbying. Specifically, when firms are involved in disputes on the complainant side (in models (2) and (3)), as expected, firms are likely to spend money to open up the market of a defendant. We can find the same pattern in models (8) and (9). When the US is defendant, MNCs spend more on lobbying to protect their domestic markets. However, this significant relationship disappears for defendant-side firms when the United States is the complainant (in models (4) and (5)). Similarly, we find no statistically significant effect of firm involvement on the complainant side when the United States is the defendant. All of these models have firm-level and year fixed effects, so we can interpret this result as a change over time: firms that become involved in a WTO dispute on the side that is aligned with US policy increase their lobbying expenditures.

As expected, the gross profit variable is positive and significant. Firms with more gross profit are likely to spend more on lobbying. Another firm-level control variable, the number of employees, has a negative coefficient but is not statistically significant. The coefficients of *TIPs* are also, as expected, negative, but not statistically significant in models (5) and (7). The important conclusion from the models with

¹⁸Since we consider four categories in our analyses—US is complainant, complainant-side firms; US is complainant, defendant-side firms; US is defendant, complainant-side firms; and US is defendant, defendant-side firms—we use four different *TIPs* variables to capture these bilateral relations.

¹⁹The results are robust to other model selections (pooling and random effects). A Hausman test indicates that fixed-effect models are appropriate.

Table 3 Descriptive statistics

Statistic	N	Mean	SD	Min	Max
Firm-level variables					
Lobbying amount (in million \$)	12,684	0.622	1.98	0	45.51
Number of employees (in thousand)	3,897	74.53	123.89	0	2,100
Gross Profit (in billion \$)	3,983	8.68	12.95	-76.74	112.37
FDI	11,783	2.28	4.70	0	67
TIP _{s1}	12,684	0.004	0.06	0	1
TIP _{s2}	12,684	0.001	0.03	0	1
TIP _{s3}	12,684	0.001	0.04	0	1
TIP _{s4}	12,684	0.003	0.06	0	1
When the US is complainant:					
Complainant-side firms	12,684	0.02	0.12	0	1
Defendant-side firms	12,684	0.01	0.11	0	1
When the US is defendant:					
Complainant-side firm	12,684	0.02	0.15	0	1
Defendant-side firm	12,684	0.02	0.13	0	1
Dispute-level variables					
Lobby amount (complainant)	980	1.05	5.14	0	63.83
Lobby amount (defendant)	980	1.67	6.54	0	82.96
Duration of disputes	980	3.22	2.62	1	18
Logged GDP (complainant)	980	27.86	1.92	20.55	30.41
Logged GDP (defendant)	980	28.36	1.71	22.35	30.41
Polity score (complainant)	980	8.84	2.99	-7	10
Polity score (defendant)	980	8.72	3.57	-7	10
US complainant	980	0.24	0.43	0	1
US defendant	980	0.34	0.47	0	1
Legislative election (complainant)	980	0.31	0.46	0	1
Legislative election (defendant)	980	0.34	0.48	0	1
Political constraint (complainant)	980	0.72	0.22	0	0.88
Political constraint (defendant)	980	0.75	0.21	0	0.87
Involved disputes (complainant)	980	18.28	16.69	0	54
Involved disputes (defendant)	978	19.69	16.18	0	54
Cited articles	980	8.87	7.16	1	39
Third parties	980	5.47	5.24	0	24
Agriculture	980	0.22	0.42	0	1
SPS/TBT	980	0.14	0.34	0	1
TIPs	980	0.28	0.45	0	1

additional covariates is that the core findings are robust: WTO disputes are associated with increased lobbying expenditures, but only when a firm's interests are aligned with the position taken by the United States.

Table 4 Fortune 500 firm lobbying

	When the US is complainant: (2) ~ (5)				When the US is defendant: (6) ~ (9)				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Total firms	0.393*** (0.124)								
Complainant-side firms		0.873*** (0.109)	1.133*** (0.228)						
Defendant-side firms				-0.189 (0.125)	-0.266 (0.405)				
Complainant-side firms						0.017 (0.104)	-0.276 (0.464)		
Defendant-side firms								0.481*** (0.120)	0.867*** (0.252)
FDI	-0.021*** (0.008)	-0.004 (0.004)	-0.023*** (0.008)	-0.004 (0.004)	-0.022*** (0.008)	-0.004 (0.004)	-0.022*** (0.008)	-0.004 (0.004)	-0.022*** (0.008)
Number of employees	-0.0004 (0.001)		-0.0004 (0.001)		-0.0004 (0.001)		-0.0004 (0.001)		-0.0004 (0.001)
Gross Profit	0.076*** (0.006)		0.073*** (0.006)		0.076*** (0.006)		0.076*** (0.006)		0.076*** (0.006)
TIP _{s1}			-2.202*** (0.432)						
TIP _{s2}					0.189 (1.151)				
TIP _{s3}						0.314 (1.189)			
TIP _{s4}									-1.034*** (0.498)

Table 4 (continued)

	When the US is complainant: (2) ~ (5)				When the US is defendant: (6) ~ (9)				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Firm FE	✓	✓	✓	✓	✓	✓	✓	✓	✓
Year FE	✓	✓	✓	✓	✓	✓	✓	✓	✓
Observations	3,597	11,783	3,597	11,783	3,597	11,783	3,597	11,783	3,597
R ²	0.176	0.042	0.181	0.037	0.173	0.036	0.173	0.038	0.176

Linear models; 906 firms over the years 1995–2013

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

5 Effects of lobbying on the outcome of disputes

As we argued above, we do not expect to find effects of lobbying on the outcome of disputes, because WTO dispute resolution is a transparent, quasi-judicial procedure, and the parties to the disputes have a long-term interest in assuring the perception of fairness. This has not previously been tested, however. In addition, if we found evidence that lobbying was associated with the outcome of disputes, this could be interpreted as support for an informational theory of lobbying: lobbying sends a credible signal about the firm's private information about the quality of a case, so it is correlated with the outcome. We do not find such evidence, which suggests that lobbying is effective because it convinces US government officials that a powerful actor or coalition stands behind a case, rather than because it convinces them of the merits of the case.

5.1 Data

The unit of analysis for the next set of regressions is the WTO dispute, and our data cover the first 415 disputes, ranging from 1995–2013. Our dependent variable is a binary indicator for the direction of a panel ruling. We collected original data on the direction of panel rulings and cross-checked our data with Horn and Mavroidis (2011). Our main variables of interest measure political activities by involved firms. First, we count the number of firms that we code as implicated in a dispute on each side, and then we use lobbying data linked to those firms, which is aggregated by dispute into pro-complainant and pro-defendant variables. In addition, we rely on recent papers to identify variables to control for factors that might affect dispute outcomes. We include the total market size of each disputant, measured as logged *GDP* in current US dollars gathered from the World Bank's World Development Indicators (WDI). *GDP* captures a disputant's capacity to pursue dispute settlement procedures at the DSU (Guzman and Simmons 2005), and since large economies conduct more trade, they have more resources and bargaining power during disputes. As Busch and Reinhardt (2006) and Johns and Pelc (2014) point out, *third parties* decrease the likelihood of early settlement and may affect panel rulings. In addition, following Johns and Pelc (2014) we include a binary variable for *Article XXII* citations, which are used by complainants to manipulate the number of third parties to influence panel rulings. They find that Article XXII is positively associated with early settlement and negatively related to pro-complainant panel rulings. We construct two types of *election timing* variables. First is an indicator variable that is coded 1 if the legislative election is approaching within the next twelve months, and 0 otherwise. The second variable is a count variable that measures the number of years until the next election.

We also consider several dispute-specific characteristics. We include the number of GATT *articles cited* in the complaint to control for a case's legal complexity (Busch and Reinhardt 2006). We also include a *systemic interest* indicator, which is coded 1 when a third party to a dispute asserts a concern that the dispute has broad implications for the interpretation of trade law. We expect that cases concerning systemic interests are associated with longer duration. Finally, according to Kim (2016),

states have difficulty resolving trade disputes when they involve human health and safety measures, because defendant countries often use such regulations to disguise protectionism. He finds that disputes last longer and are more likely to recur when they are related to the WTO Sanitary and Phytosanitary (*SPS*) Agreement. Accordingly, we include a binary variable to indicate whether a dispute concerns the SPS Agreement. Similarly, we employ a binary variable for whether a dispute concerns the Agreement on Technical Barriers to Trade (*TBT*), since these technical barriers can be used to disguise trade barriers in a similar way. We also consider a binary variable to indicate whether disputes concern *agricultural issues*.

5.2 Results

We expect the relationship between lobbying and panel rulings, if any, to be obscured by selection bias, since lobbying could affect which cases are settled early and never make it to a panel. As we show below, lobbying does affect the probability of early settlement. Accordingly, we use a two-stage Heckman model that addresses the possibility of selection bias into panel rulings to test Hypothesis 3 (Busch and Reinhardt 2006; Johns and Pelc 2014).²⁰ The first step estimates an equation for survival of a dispute to the panel-ruling stage, and the second step estimates how firm lobbying and controls affect the outcome of panel rulings. The dependent variable in the second stage is a binary variable, which indicates whether a panel rules in favor of the complainant. Our main variables of interest are the number of involved firms and the amount of lobbying.

We report the estimates in Table 5. In models (1) and (2), the sample includes all disputes, whereas in models (3) and (4), we only consider US-related cases, where we can measure lobbying activities. Model (2) has a similar specification to Johns and Pelc (2014). As expected, the results indicate that lobbying expenditures are not significantly related to the resolution of disputes that proceed to a panel ruling. This is reassuring, since WTO dispute resolution is a quasi-judicial procedure based on legal reasoning, which is designed to be insulated from informal influence. However, firms' political activities measured by the number of involved firms do affect government decisions to proceed to a panel rather than settling a case early. Regardless of whether they are involved on the complainant or disputant side, increasing the number of involved firms is associated with an increased probability that a dispute proceeds to a panel ruling.²¹ The results confirm the finding that third parties

²⁰Additional results in the [Online Appendix](#) show that a model that does not control for selection effects does exhibit a significant positive effect of a different variable, *political contributions*, on the probability of a pro-complainant ruling (Table B5), and this result survives in models that control for selection into WTO dispute initiation (Table B4) (We use industry-level political contributions data because the unit of analysis for the selection model is an industry-level trade barrier). However, the result of firm-level lobbying on panel rulings is insignificant when we model the selection problem as survival of a dispute until the panel rules.

²¹It would appear natural to include lobbying data in the selection stage in models (3) and (4), we cannot do so because the data are not available. Since the consultation stage only lasts a few months and the lobbying data are collected annually, we cannot specify the amount of lobbying spent in the first stage.

Table 5 How do firms' political activities affect WTO panel rulings?

	(1)	(2)	(3)	(4)
	Outcome equation: likelihood of pro-complainant panel ruling			
Firms (complainant, <i>count</i>)	0.019 (0.018)	0.020 (0.019)	0.024 (0.019)	0.029 (0.019)
Firms (defendant, <i>count</i>)	0.005 (0.017)	-0.004 (0.020)	0.005 (0.028)	0.007 (0.028)
Complainant lobbying			-0.000 (0.001)	-0.000 (0.001)
Defendant lobbying			0.004 (0.006)	0.003 (0.006)
Article XXII	-0.020 (0.059)	-0.014 (0.066)	0.007 (0.067)	0.005 (0.067)
Third parties	0.008 (0.007)	0.004 (0.007)	0.009 (0.007)	0.007 (0.007)
Systemic interest indicator	0.107 (0.073)	0.117 (0.081)	0.155* (0.086)	0.163* (0.085)
Complainant logged GDP	-0.015 (0.015)		-0.020 (0.017)	-0.022 (0.017)
Defendant logged GDP	-0.035** (0.017)		-0.040** (0.020)	-0.045** (0.021)
Antidumping		0.043 (0.071)		0.061 (0.088)
SPS & TBT		0.085 (0.089)		0.121 (0.090)
Agriculture		0.106 (0.082)		0.082 (0.086)
Cited article			0.004 (0.003)	0.002 (0.004)
Intercept	2.116*** (0.657)	0.691*** (0.129)	2.274*** (0.742)	2.446*** (0.747)
	Selection equation: likelihood of proceeding to panel			
Firms (complainant, <i>count</i>)	0.689*** (0.158)	0.661*** (0.177)	0.721*** (0.205)	0.726*** (0.209)
Firms (defendant, <i>count</i>)	0.375** (0.148)	0.350** (0.169)	0.840*** (0.247)	0.839*** (0.247)
Article XXII	-0.231 (0.196)	-0.230 (0.215)	-0.430* (0.246)	-0.441* (0.249)
Third parties	0.240*** (0.034)	0.249*** (0.036)	0.159*** (0.038)	0.157*** (0.039)
Systemic interest indicator	0.944*** (0.224)	1.076*** (0.260)	1.222*** (0.280)	1.270*** (0.309)

Table 5 (continued)

	(1)	(2)	(3)	(4)
Complainant logged GDP	-0.023 (0.049)	-0.231** (0.100)	-0.178** (0.070)	-0.180** (0.072)
Defendant logged GDP	0.000 (0.051)	0.014 (0.089)	-0.053 (0.069)	-0.049 (0.071)
EU complainant		0.695* (0.396)		
US complainant		1.380*** (0.467)		
EU defendant		0.010 (0.338)		
US defendant		0.388 (0.394)		
Antidumping		0.194 (0.280)		-0.085 (0.349)
SPS & TBT		0.192 (0.286)		0.090 (0.318)
Agriculture		-0.185 (0.264)		-0.016 (0.286)
Complainant election year			0.233 (0.334)	0.250 (0.341)
Defendant election year			0.428 (0.294)	0.438 (0.298)
Intercept	-0.844 (1.788)	3.876 (2.977)	5.393* (2.768)	5.327* (2.779)
ρ	0.213	0.201	0.538	0.500
Observations	379	357	248	248

Heckman probit estimation

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

push the case into the panel stage (Busch and Reinhardt 2006; Johns and Pelc 2014). We also confirm that filing under Article XXII is negatively associated with the likelihood of proceeding to a panel, but does not have any effect in the second stage (Busch and Reinhardt 2006). The systemic interest indicator is the only variable that affects both stages. When third parties assert systemic interest in a case, it is more likely to proceed to the litigation stage and the panel is more likely to rule in favor of the complainant. As for size of the economy, complainant GDP matters in the selection stage, whereas defendant GDP plays an important role in the outcome stage. We use election timing as an exclusion restriction, because initiation of WTO disputes

has been found to be linked to election timing, but it should not be related to panel rulings (Chaudoin 2014; Pervez 2015). From Bormann and Golder (2013), we gather data on the timing of legislative elections.²² However, we could not find a significant effect of election year. Finally, in models (3) and (4) we include the number of cited articles only in the outcome stage because this sort of technical factor should be relevant only in the judicial stage, but it does not have a significant effect.

6 Lobbying and the duration of disputes

Most WTO disputes are settled by the disputants before a panel ruling is made. The disputants enjoy joint gains from early settlement, because they resolve uncertainty about the substance of the panel ruling and retain greater control over the outcome. However, the disputants differ about the distribution of those gains, so they delay agreement in order to signal resolve and extract concessions. Disputes may remain unresolved after a panel ruling, and in some cases drag on for years involving appeals, implementation, compensation, and retaliation proceedings. Lobbying, in this context, serves to stiffen the resolve of the national negotiators, making them less willing to make concessions and more willing to delay agreement. Our expectation is that lobbying is associated with delay in dispute resolution.

In addition, the context of WTO dispute resolution allows us to make distinctions between defendant-side and complainant-side lobbying. Dispute resolution favors the defendant, because the complainant seeks to change the status quo, and therefore faces higher costs from delay. Complainant-side firms attempt to terminate defendant countries' WTO-inconsistent policies as soon as possible, while defendant-side firms benefit from those policies while the dispute remains unresolved. Consequently, we expect that lobbying will have stronger effects on the defendant side than on the complainant side.

The dependent variable is the duration of WTO disputes, measured in years (Table 6), and in months (Online Appendix Table B6), and the main explanatory variable is lobbying expenditures. All models use the Cox proportional hazard model and the Breslow method for dealing with ties.

In addition to control variables used in the previous section (GDP, the number of third parties, and TIPS, etc.), we control for democracy, because the previous literature argues that democratic countries are more likely to become involved in trade disputes (Rosendorff 2005; Sattler and Bernauer 2011). We use an indicator variable that is coded 1 for countries with Polity scores ranging from 7–10, and 0 otherwise (Marshall and Jaggers 2014). We also control for political constraints, a measure of political risk developed to capture the stability of the status quo (Henisz 2000). In addition, we control for the total number of disputes in which each disputant is involved, since involvement in multiple disputes may reinforce incentives to demonstrate resolve, as in the chain-store paradox (Kreps and Wilson 1982).

²²We update the dataset because its coverage ends in 2010. We consider both legislative and presidential elections.

Table 6 Cox proportional hazard models

	(1)	(2)	(3)	(4)	(5)	(6)
Firm lobby (complainant)	-0.020 (0.016)	-0.026 (0.017)	-0.012 (0.086)	-0.027 (0.018)	-0.029 (0.018)	-0.029 (0.018)
Firm lobby (defendant)	-0.050** (0.025)	-0.055** (0.025)	-0.061** (0.025)	-0.068** (0.027)	-0.069*** (0.026)	-0.062 (0.047)
Logged GDP (complainant)	0.009 (0.050)	-0.005 (0.066)				
Logged GDP (defendant)	-0.195*** (0.060)	-0.158** (0.062)				
Polity score (complainant)	-0.062*** (0.024)					
Polity score (defendant)	-0.061*** (0.019)					
US complainant			-0.528** (0.256)	-0.575** (0.252)		
Firm lobby (complainant) × US complainant			-0.012 (0.088)			
Firm lobby (defendant) × US complainant				0.115 (0.083)		
US defendant					0.088 (0.195)	0.093 (0.198)
Firm lobby (complainant) × US defendant					-0.018 (0.157)	
Firm lobby (defendant) × US defendant						-0.010 (0.057)
Involved disputes (complainant)	-0.004 (0.007)	-0.006 (0.008)	0.005 (0.008)	0.004 (0.008)	-0.005 (0.006)	-0.005 (0.006)
Involved disputes (defendant)	0.003 (0.008)	0.004 (0.008)	-0.010 (0.006)	-0.010 (0.006)		
Cited article	-0.001 (0.011)	0.001 (0.011)	0.0002 (0.011)	-0.0003 (0.011)	-0.005 (0.011)	-0.004 (0.011)
Third parties	-0.005 (0.016)	-0.002 (0.016)	-0.012 (0.016)	-0.015 (0.016)	-0.018 (0.016)	-0.018 (0.016)
SPS/TBT	0.184 (0.211)	0.158 (0.221)	0.211 (0.219)	0.191 (0.220)	0.327 (0.219)	0.314 (0.231)
Agriculture	-0.270 (0.185)	-0.298 (0.185)	-0.253 (0.181)	-0.274 (0.182)	-0.259 (0.187)	-0.266 (0.192)
Election (complainant)		-0.107 (0.153)	-0.068 (0.152)	-0.071 (0.152)	-0.095 (0.152)	-0.096 (0.152)
Election (defendant)		-0.102 (0.154)	-0.121 (0.156)	-0.115 (0.156)	-0.106 (0.156)	-0.106 (0.156)

Table 6 (continued)

	(1)	(2)	(3)	(4)	(5)	(6)
Political constraint (complainant)		0.155 (0.496)	0.042 (0.383)	0.066 (0.385)	0.072 (0.377)	0.072 (0.377)
Political constraint (defendant)		- 1.269*** (0.345)	- 1.363*** (0.338)	- 1.399*** (0.338)	- 1.500*** (0.317)	- 1.505*** (0.318)
TIPs		- 0.085 (0.157)	- 0.108 (0.162)	- 0.116 (0.161)	0.018 (0.156)	0.018 (0.156)
Observations	977	977	977	977	979	979
R ²	0.061	0.062	0.059	0.060	0.053	0.053
Max. possible R ²	0.932	0.932	0.932	0.932	0.932	0.932

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Table 6 presents the estimated coefficients from a series of Cox model specifications of the duration of disputes in years, using a database with annual coding of all variables. Models (1) and (2) are the primary specifications testing our arguments, and to facilitate further analysis we include the interaction terms added in models (3)–(6). We identify significant negative coefficients of defendant-side lobbying expenditures in almost all model specifications, which indicate that increases in the amount of lobbying are associated with decreases in the probability (hazard rate) of dispute settlement. This is consistent with the hypothesis that lobbying lengthens dispute duration. In model (1), the hazard ratio of the estimated coefficient is 0.95, which means that increasing lobbying spending by MNCs on the defendant side by \$1 million decreases the probability of a dispute being settled in the current year by approximately 5% below the baseline hazard. The estimated effect of lobbying in the average dispute (with defendant-firm lobbying expenditures of \$1.7 million) is an 8.4% reduction in the probability of settling the case each year, and a high-stakes dispute with defendant-firm lobbying one standard-deviation above the mean (\$8.2 million) is 41% less likely to be settled.²³ The hazard ratios corresponding to the other estimated coefficients are reported in the Online Appendix (Table B7).

We include two dummy variables to capture the effect of involvement of the United States: US complainant and US defendant. The hazard decreases significantly when disputes are raised initially by the United States, indicating that US-initiated

²³These results are consistent with the magnitudes observed in some well-known cases. In *US-Softwood Lumber*, the United States lumber industry spent on average \$1.5 million to influence the International Trade Commission (ITC), which had investigated imports of softwood lumber from Canada and determined that Canadian imports were subsidized and sold in the United States at less than fair value. The Canadian government challenged this measure by initiating a dispute on 20 December 2002 at the WTO. The dispute took almost four years before it was resolved. In a case with higher stakes, *US-Zeroing*, several countries lodged a complaint against the United States for its use of “zeroing” methodology in its antidumping margin calculations. The WTO panel ruled that using zeroing is inconsistent with the Antidumping Agreement, but US industries spent on average \$5.9 million per year on lobbying, and US compliance with the ruling was delayed for eight years.

disputes last substantially longer than disputes initiated by other countries. The substantive effect is a 41% (64%, 3%) decrease in the probability of settling a case in a particular year. In models (3)–(6), US complainant or disputant status is interacted with complainant- and defendant-side lobbying variables to determine whether the effectiveness of lobbying the US government depends upon which side of the dispute the United States takes. The interaction terms have insignificant coefficient estimates, but this exercise confirms that defendant-side lobbying has significant effects only when the United States takes the defendant side, and that complainant-side lobbying never has a significant effect. It is interesting to note, however, that the size of the estimated effect of US initiation is similar for the average dispute to the effect of high-stakes lobbying in a case in which the United States is the defendant. We interpret this result to mean that US initiation of a dispute indicates a high degree of lobbying, and consequently a high degree of resolve on the part of US negotiators, while cases in which the United States plays the role of defendant are more heterogeneous. This is consistent with the findings above that indicated that political contributions by exporting industries play an important role in determining which disputes are initiated. We are only able to identify the effect of lobbying, however, when the United States is the defendant.

The other findings support our conjectures and previous literature, so they provide greater confidence in the model. As expected, increasing the number of third parties lengthens the duration of disputes, and disputes over agricultural issues, which are highly salient to political parties with rural voting bases, are less likely to be resolved early. In addition, democracies and defendant countries that operate under significant political constraints as measured by *polcon* are less likely to resolve disputes early (Henisz 2000). Evidently, these domestic constraints prevent governments from making concessions. It may be the case, as Davis (2012) argues, that it is preferable for the country to lose the case and be seen to be compelled to comply with an adverse judgment than to bear the political cost of pushing through a compromise.

We have refined this analysis by estimating our models on monthly-frequency data, transforming the applicable variables to vary by month. We recalculated the number of contemporaneous disputes in which the disputing countries are involved at the monthly level, defined an election timing variable to count the number of months until the next legislative election, and recoded political constraints to change at the monthly level after elections. Table B6 in the Online Appendix presents estimation results from the same Cox models using these monthly data. The results are largely consistent with the annual-frequency results, but with a couple of interesting differences. Lobbying by defendant-side firms is consistently associated with disputes of longer duration. However, in the month-level analysis, this effect is significant even when the United States is the complainant. This suggests that “disloyal” firms are able to influence the US government through lobbying to delay resolution of disputes that might be adverse to their interests, even when the US government has initiated the dispute.

The other interesting difference is that in the month-level analysis domestic political constraints (*polcon*) in the complainant country have the effect of significantly increasing the probability of dispute resolution. This suggests that, although independent political actors at the domestic level make it difficult for defendants

to make concessions in trade disputes, the operation of similar constraints in the complainant country encourage defendants to make concessions early because they indicate the complainant government's resolve. This is similar to the finding that democracies make deeper concessions to each other in trade negotiations because they recognize that the partner's domestic ratification constraints are binding (Mansfield et al. 2000).

7 The case of Japanese steel

A high-stakes dispute in the steel industry illustrates the potency of US defendant-side lobbying, and the dramatic way in which it can delay resolution of WTO disputes. On September 30, 1998, US steel producers filed a trade complaint seeking punitive tariffs against alleged unfairly-traded imports from Japan.²⁴ They alleged that Japanese steel was being sold below cost, and that imports of Japanese steel caused significant injury to the US steel industry. In response to their petitions, the US Department of Commerce and the US International Trade Commission launched an investigation and made a determination that sales of Japanese hot-rolled steel products qualified as dumping, and an antidumping duty would be imposed.²⁵

US steel producers commenced aggressive lobbying efforts before submitting the petition and mounted political activities throughout the process. On September 10, the steel producers began a "Stand Up for Steel" campaign, which lasted until election day, to pressure Congress and the administration for protection. On November 5, the United Steelworkers of America (USWA) president George Becker and the chief executive officers of the major steel companies met President Clinton, Vice President Gore, and the key Cabinet members to discuss steel industry concerns (Keisuke 2006). Following this meeting, President Clinton said for the first time that the United States would not tolerate the "flooding of our markets" with low-cost goods from Asia and Russia. US Secretary of Commerce William Daley also expressed public support for this case, saying, "[. . .] Japan's trade surplus [. . .] is a major source of instability. And such instability—caused by boatloads of cheap imports—can lead to political unrest, as people fear for their jobs."²⁶ He further added, "Enforcing our trade laws is not protectionist."²⁷

Japan responded by initiating a WTO dispute. While the dispute was ongoing, the US government took aggressive new steps to protect the steel industry, which included speeding up antidumping procedures and providing faster relief for industries and workers.²⁸ While these new steps were planned to satisfy domestic

²⁴Japanese steel producers related to this case are Nippon Steel, NKK Corp., Kawasaki Steel Corp., Kobe Steel Ltd., Sumitomo Metal Industries Ltd., and Nisshin Steel Co.

²⁵WTO Panel report WT/DS184/R.

²⁶New York Times article, "Clinton warns US will fight cheap imports." Source: <http://www.nytimes.com/1998/11/11/business/international-business-clinton-warns-us-will-fight-cheap-imports.html>.

²⁷House hearing in the 106 Congress to discuss steel trade issues, which is available at <https://www.gpo.gov/fdsys/pkg/CHRG-106hhrg57306/html/CHRG-106hhrg57306.htm>.

²⁸New York times article, "New US guards promised against steel import surges." Source: <http://www.nytimes.com/2000/07/26/business/new-us-guards-promised-against-steel-import-surges.html>

workers in response to their lobbying and political pressure, they inflamed the already tense dispute with Japan. After about nine months, the panel ruled that the United States had acted inconsistently with the antidumping agreement in its application to Kawasaki Steel Corporation, Nippon Steel Corporation, and NKK Corporation. The Japanese government welcomed this decision and hoped to conclude the case, but the United States rejected the outcome. One of the US lawyers was quoted as saying, "What's wrong with this case is the intrusiveness of the WTO in internal matters of member countries" (Iida 2006, 218).

One of the most controversial issues discussed in the dispute concerned the calculation of antidumping margins. Japanese firms played a decisive role in this respect by monitoring the antidumping process, providing relevant information to the government, which often included business secrets, and challenging US decisions. It appears to be the case that the Commerce Department used inaccurate production cost estimates, which erroneously caused Japanese firms to be found guilty of dumping. After the preliminary dumping determination was issued, the NKK Corporation found a serious clerical error in the calculation of the margin that inflated the rate. NKK brought this to the Commerce Department's attention, but Commerce declined to correct it.²⁹

The United States appealed the panel ruling on April 25, 2001. The Appellate Body reviewed the legal issues and interpretations covered in the panel report and upheld most of the panel's findings, and the DSB adopted the Appellate Body rulings. The United States thereby assumed the legal burden of promptly implementing the recommendations of the panel,³⁰ but it did not do so. The two parties disagreed over the determination of "a reasonable period of time" for implementation. The United States insisted that it needed 18 months, while Japan wanted to allow only 10 months. As a result, arbitration was required to determine the implementation period, which led to additional delay. After the dispute had ostensibly been settled and an implementation period had been set, the United States has repeatedly requested extensions of the reasonable period of time, and the dispute is still under way.³¹ A senior official at the Ministry of International Trade and Industry of Japan said, "As is often the case with defendants at the WTO, the US probably wanted to buy time and delay the WTO's procedures for settling the steel dispute."³² During the dispute settlement period, the Japanese steel industry has suffered severe damage.³³

The US steel industry dramatically expanded its political contributions during the 2000 election cycle, when the dispute with Japan advanced to the panel stage. The industry made total contributions of \$2.7 million dollars, compared to total contributions during the previous election cycle of \$1.6 million. One of the top contributor firms, Nucor Corporation, also increased its lobbying spending from \$440,000 in

²⁹WTO Panel report WT/DS184/R.

³⁰According to the Article XXI, prompt compliance with recommendations or rulings of the DSB is required in order to ensure effective resolution of disputes for the benefit of all members.

³¹A recent status report is WT/DS184/15/Add.171 [accessed 12 April 2017].

³²"Japan-US steel dispute to be resolved by WTO," *Japan Times*, July 18, 2000. www.japantimes.co.jp/news/2000/07/18/business/japan-u-s-steel-dispute-to-be-resolved-by-wto/.

³³Compared to imports during a period before the US imposed antidumping measures in 1998 (6.07 million), steel imports from Japan decreased to only 1.93 million tons in 2000 (Keisuke 2006).

2001 to \$760,000 in 2002, and to \$800,000 in 2003.³⁴ Lobbying reports provide evidence that the defendant-side firms were indeed attempting to delay the dispute settlement process. According to the lobbying report provided by Nucor Corp in 2008, it “requires the President to delay or reverse the implementation of a decision of a World Trade Organization dispute settlement panel.” (Nucor 2008)

The dispute over alleged Japanese dumping of steel is not a representative case; it was unusually prominent, it attracted an unusual amount of lobbying from firms, and it was unusually lengthy. It was selected because it is a case in which the United States is the defendant, which is the circumstance in which our quantitative results show that defendant-side lobbying can have a substantial effect on duration. It illustrates several of our key arguments: (1) firms are behind trade barriers and WTO disputes; (2) these disputes increase the incentive to engage in lobbying; (3) lobbying on the defendant side can substantially delay resolution of a dispute when the United States is the defendant. The case is not intended to establish the general pattern; we rely on the statistical results to establish the generality of our findings. Instead, the case represents a kind of proof of concept in the sense that it shows that the mechanism that we argue explains our quantitative findings appears to have operated in a concrete instance.

8 Conclusions

There has been very little quantitative research on WTO dispute resolution at the firm level, so this study breaks substantial new ground. We match WTO disputes to Fortune Global 500 firms using text analysis of WTO documentation and newspapers, and match the firms to their political contributions and lobbying activities in the United States using public disclosure data. We find that major multinational firms have substantial influence over US trade policy, and we characterize their interaction with the US Trade Representative as a principal-agent relationship. Firms lobby to attempt to set the agenda, to incentivize the bureaucracy to engage in costly bargaining, and to block concessions that could lead to early resolution of disputes.

The empirical results we present provide consistent evidence of firms' political activity. We show that political contributions by firms and industry trade groups play a key role in determining which foreign trade barriers the United States government escalates to the level of a WTO trade dispute. Even the US government, with its high institutional capacity, has to pick and choose which disputes it will raise, and the decision often turns on the resources that firms are able to bring to bear. Firms self-select into participation, because preparation for an official WTO adjudication is costly for firms. They have to identify foreign policies that are WTO-inconsistent, estimate the economic benefits of removing such policies, and engage the domestic government and convince it to pursue the case through the WTO. This is generally a game for high-capacity organizations.

Once a WTO dispute begins that touches on a firm's interests, the firm generally increases its investment in political lobbying. Using firm-level data matched to

³⁴Japanese steel producers also spend on lobbying, but the amount is relatively small. Sumitomo Metal Industries Ltd spent a mere \$40,000 in 1999 and this amount decreased to \$20,000 in 2002.

lobbying expenditures and involvement in WTO disputes, and controlling for fixed effects for firms, we show that Fortune Global 500 firms allocate more resources to lobbying when they are involved in WTO trade disputes. US firms can take advantage of legal mechanisms such as the Section 301 process and antidumping rules to request that the US Trade Representative investigate their concerns, but this does not necessarily guarantee that firms can motivate officials to exert effort on their behalf. Lobbying persuades government officials to act as their agents.

WTO disputes may be decided by panel rulings, but are usually resolved through informal bargaining, and the process is deliberately structured to encourage such out-of-court settlements. We find that the existence of firms that are directly implicated in a WTO dispute because they are named in WTO documents or that are publicly associated with the case in the press makes it substantially more likely that a case will proceed to a panel. These firms have vested interests in the case at hand, and are unwilling to tolerate disadvantageous settlements. There is no guarantee that firms' political efforts will result in successful outcomes when disputes are in the hands of the international court, and indeed, our evidence indicates that lobbying expenditures do not influence the outcome of disputes that are decided by a panel ruling. This is not surprising, since WTO panels are independent agencies that reach their decisions through a transparent process of legal reasoning.

There is ample reason to believe that lobbying does substantially affect the outcomes of negotiated settlements, because bargaining is a game in which the willingness to wait provides leverage. The complainant's priority is to remove WTO-inconsistent policies and open up the exporting market, whereas defendants prefer to maintain the status quo and drag out the litigation process. This implies that defendant-side firms have a bargaining advantage, which compensates to some degree for the fact that they tend to have weak legal cases. Defendant-side firms lobby more consistently for their government to take a hard line, while complainant-side firms may find their coalitions fragmented by tactical considerations. We find that lobbying expenditures by firms that support the defendant's position lead to longer disputes, and we find no similar effect for lobbying by complainant-side firms.

On the other hand, the investment in a lengthy dispute may be worthwhile for the plaintiff from a bargaining perspective. Bargaining is a contest in which time is wasted in order to demonstrate resolve. If lobbying increases the home government's audience costs from making concessions, it should extend the bargaining process on average, but also lead to more favorable negotiated settlements. While we find that the effects of complainant-side lobbying on dispute duration are statistically insignificant, we also find a substantial effect of initiation by the United States on the duration of disputes involving the United States.

The evidence is clear that US policy toward WTO trade disputes is largely controlled by the preferences of politically-active firms. Firms increase their investment in the political process considerably when a WTO dispute arises that directly affects their interests. Lobbying and political contributions determine which disputes are initiated, which are settled early rather than litigated, and how long they last. The only outcome that lobbying does not seem to determine is who wins the legal contest when a dispute goes to a panel ruling; but even after a panel ruling, determined lobbying can lead to substantial delay that ultimately subverts the decision and leads

to a new negotiated settlement more favorable to powerful firms. The WTO dispute-resolution procedure is nominally designed to resolve disputes between states, but it is actually used as a device to resolve disputes between firms that employ states as their agents.

One important limitation of our results is that our data do not allow us to test whether the patterns we find generalize beyond the US case. The effectiveness of lobbying presumably varies across countries, and the regulation of campaign contributions should influence the effectiveness of lobbying. Lobbying is a general phenomenon, however, and corrupt practices may substitute for legal campaign contributions, so it is likely that firms have similar influence in other countries. We do not have a priori reasons to expect most of the patterns we find to be different in other countries. However, our findings that foreign lobbying is relatively rare and that the vast majority of lobbying is aligned with home-country policy are probably limited to the US case. These generalizations hold in the United States, but they may not hold in other countries, where powerful US MNCs make themselves heard.

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