Litigation for Sale:

Private Firms and WTO Dispute Escalation

Supplementary Online Appendix 1

Ryan Brutger

Contents

1 Sample Variation in Empirical Models

Due to data limitations, the number of observations varies in the empirical analysis of the paper. In table A1 of this appendix, the main models are replicated, but use the same constrained sample across all models. The results show that the main results are not an artifact of the changing samples across models.

2 Industry Level Fixed Effects

It is possible that certain industries are more or less likely to engage in trade disputes, regardless of dominant firm capacity. In the main analysis this concern is addressed by using a multilevel random effects model, which allows each industry to have its own intercept, while allowing for the effects of the key variables of interest to be analyzed across the dataset. However, to isolate the effect of *within* industry variation table A2 of this appendix replicates the models from Table 1 of the manuscript, but uses fixed effects models, with fixed effects for each industry. In the main paper, the choice to use the random effects model was evaluated using a Hausman test, comparing the random effects model to a fixed effects model (Hausman 1978), with both the random effects and fixed effects at the ISIC3 4-digit level. The finding showed the null hypothesis – that the random effects model is consistent – cannot be rejected (prob$> \chi^2 = 0.29$). However, using a fixed effect model at the ISIC 4-digit level would result in 51 groups being dropped due to lack of variation in the dependent variable. To compensate for the lose in efficiency, the fixed effect model shown here is run with fixed effects at the ISIC 2-digit level. This allows us to examine how changes in the variables of interest affect dispute initiation within industries. The results are consistent with those reported in the body of the paper, showing that Dominant Firm Capacity is not just capturing other traits of the industry.

Table A1: Random Effects Logistic Regression of WTO Dispute Complaints

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

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

This table reports results using the smallest subset of data with results reported in the main paper. Random effect models calculated using xtmelogit with STATA17. Random intercepts calculated for groups at the industry level, defined as the ISIC3 4 digit industry. Canada is the omitted comparison. P-values are calculated using a two-tailed test and standard errors are displayed in parenthesis. The dependent variable is an indicator for whether a trade barrier escalates to a complaint being filed at the WTO.

Table A2: Fixed Effects Logistic Regression of WTO Dispute Complaints

	Model 1	Model 2	Model 3	Model 4	Model 5
Product-Specific Barrier	1.191*	1.069*	1.151*	1.302**	1.486*
	(0.61)	(0.65)	(0.64)	(0.65)	(0.79)
Dominant Firm Capacity	0.563**	0.664**	0.554*	0.478*	0.734*
	(0.26)	(0.33)	(0.29)	(0.27)	(0.39)
Trade Barrier Distortion	2.525***	2.560***	2.410***	2.343***	2.314**
	(0.81)	(0.86)	(0.81)	(0.82)	(0.94)
Negotiation Progress	-1.328***	-1.167**	-1.192**	-1.327***	-1.026**
	(0.48)	(0.49)	(0.51)	(0.49)	(0.51)
Trade Barrier Duration	-0.189	-0.183	-0.178	-0.183	-0.0336
	(0.13)	(0.13)	(0.14)	(0.14)	(0.17)
EU		1.100			3.071
		(1.29)			(2.22)
Japan		0.613			0.960
		(1.43)			(2.57)
Mexico		0.814			1.260
		(1.41)			(2.85)
Korea		-0.199			-4.068
		(1.46)			(4.65)
NonOECD		-0.0198			-5.253
		(1.36)			(6.37)
US Exports to Trade Partner			0.193		-2.552
			(0.30)		(2.00)
Industry Production			-0.346		0.153
			(1.05)		(2.08)
Industry Political Contributions				-0.127	0.317
				(0.93)	(1.18)
Active 301				1.467	2.157
				(0.94)	(1.54)
Observations	1059	1059	999	1056	996
* $p < .1$, ** $p < .05$, *** $p < .01$					

Fixed effect models calculated using xtlogit with STATA17. Fixed effects are at the industry level, defined as the ISIC3 2 digit industry. Canada is the omitted comparison. P-values are calculated using a two-tailed test and standard errors are displayed in parenthesis. The dependent variable is an indicator for whether a trade barrier escalates to a complaint being filed at the WTO.

3 OLS Regression Analysis

To further probe the robustness of the results, I also replicate the analysis from the main paper, but now do so with ordinary least squares (OLS) regression. The OLS results are displayed in Table A3 of this appendix and show that the results are consistent regardless of model choice.

4 Collapsed Model with one Observation per Barrier

A potential concern with the main analysis is that the trade barrier-year observation could bias the results given the structure of the data. The concern would be that trade barriers that do not escalate to the WTO remain in the dataset, whereas those that are brought to the WTO exit. This would lead to an overrepresentation of barriers that don't escalate, which could alter the findings. I address this issue by conducting an analysis where the data is collapsed to a single observation for each trade barrier. This abandons the trade barrier-year setup, and so I also drop the duration variable that was originally included to address the fact that barriers remain in the dataset over time. For the variables in the main models that change over time, such as the dominant firm's capacity, I take the average value of the variable across the years from original dataset. The results are included below as Table A4 and are consistent with the main analysis, showing that the paper's findings are not sensitive to whether the trade barrier or the trade barrier-year is the unit of observation.[1]

[1]Model 5 is not included because the model failed to converge.

Table A3: OLS of WTO Dispute Complaints

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

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

Canada is the omitted comparison. Standard errors in parentheses. The dependent variable is an indicator for whether a trade barrier escalates to a complaint being filed at the WTO.

Table A4: Collapsed Model with one Observation per Trade Barrier

	(1) Model 1	(2) Model 2	(3) Model 3	(4) Model 4
Product-Specific Barrier	1.413***	1.201**	1.539***	1.479**
	(0.55)	(0.59)	(0.59)	(0.58)
Dominant Firm Capacity	0.309**	0.345**	0.309*	0.348**
	(0.16)	(0.17)	(0.17)	(0.17)
Trade Barrier Distortion	2.395***	2.248***	02.195***	2.408***
	(0.78)	(0.79)	(0.80)	(0.79)
Negotiation Progress	-0.946*	-0.824	-0.957*	-1.004*
	(0.50)	(0.52)	(0.51)	(0.59)
Industry Political Contributions		-0.112		
		(0.30)		
Industry Production		0.041		
		(0.39)		
US Exports to Trade Partner			0.176	
			(0.26)	
Active 301			2.303***	
			(0.83)	
EU				1.064
				(1.15)
Japan				0.166
				(1.27)
Mexico				1.506**
				(1.41)
Korea				0.034
				(1.32)
NonOECD				-0.292
				(0.1.23)
Constant	-7.648***	-5.369	-12.180*	-8.399***
	(1.70)	(4.54)	(7.22)	(2.04)
Observations	331	296	331	331

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

Canada is the omitted comparison. Standard errors in parentheses. The dependent variable is an indicator for whether a trade barrier escalates to a complaint being filed at the WTO.

5 Average Firm Capacity

To assess the substantive effect of average firm capacity, I replicate the analysis from presented in the main paper, which used dominant firm capacity, but now switch to using average firm capacity instead. The results are consistent with expectations as shown in Table A5 of this appendix, with average firm having a substantively significant effect, though it is substantially smaller than dominant firm capacity, as expected.

Table A5: Effect of Key Variables on the Probability of Dispute Initiation

	Model 1
Product-Specific Barrier	0.227 (0.011, 0.566)
Average Firm Capacity	0.089 (0.0003, 0.3345)
Trade Barrier Distortion	0.079 (0.002, 0.319)
Negotiation Progress	-0.124 (-0.438, -0.001)

Change in predicted probability is calculated from Model 5 of Table A6 of this appendix. Estimates and 95 percent confidence intervals are calculated using a quasi-bayesian simulation that samples 2000 times from a distribution based on the coefficients and variance. Changes in predicted probabilties represents a shift from one standard deviation below the mean to one standard deviation above the mean of the variable, or a shift from 0 to 1 for distortion and product-specific barrier. All other variables are set to their mean, or a value of zero, except for the defendant country (Mexico) and distortion, which are each set to a value of one.

Table A6: Random Effects Logistic Regression of WTO Dispute Complaints

	Model 1	Model 2	Model 3	Model 4	Model 5
Product-Specific Barrier	1.361***	1.158**	1.462***	1.290**	1.699***
	(0.51)	(0.56)	(0.54)	(0.52)	(0.65)
Average Firm Capacity	0.000638**	0.000711**	0.000609*	0.000777**	0.000772*
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Trade Barrier Distortion	2.105***	1.925**	1.940**	2.068***	1.741**
	(0.77)	(0.78)	(0.78)	(0.78)	(0.79)
Negotiation Progress	-1.136**	-0.978**	-1.180***	-0.984**	-0.969**
	(0.45)	(0.48)	(0.45)	(0.46)	(0.48)
Trade Barrier Duration	-0.214	-0.193	-0.214	-0.223*	-0.0837
	(0.13)	(0.14)	(0.13)	(0.13)	(0.16)
Industry Political Contributions		0.0494			0.126
		(0.30)			(0.37)
Industry Production		-0.160			-0.111
		(0.39)			(0.51)
US Exports to Trade Partner			0.198		-2.445*
			(0.26)		(1.40)
Active 301			1.930***		1.923*
			(0.67)		(1.08)
EU				0.925	1.671
				(1.11)	(1.42)
Japan				0.546	0.0638
				(1.19)	(1.70)
Mexico				1.398	0.790
				(1.32)	(2.13)
Korea				0.299	-4.272
				(1.26)	(3.17)
NonOECD				-0.300	-6.156
				(1.22)	(4.35)
Constant	-6.263***	-4.796	-11.34*	-6.660***	55.30
	(0.82)	(3.96)	(6.51)	(1.27)	(36.37)
Observations	1635	1407	1635	1635	1407

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

Random effect models calculated using xtmelogit with STATA17. Random intercepts calculated for groups at the industry level, defined as the ISIC3 4 digit industry. Canada is the omitted comparison. P-values are calculated using a two-tailed test and standard errors are displayed in parenthesis. The dependent variable is an indicator for whether a trade barrier escalates to a complaint being filed at the WTO

6 Potential Firm Counter-Lobbying

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

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

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

when compared to the efforts of firms who advocate in favor of WTO disputes.

Finally, it is worth noting that counter-lobbying *before* a WTO complaint is initiated is even rarer than counter-lobbying once a complaint is initiated. In the 38 author-interviews conducted, counter-lobbying prior to dispute initiation was only identified by a single interviewee, whereas trade experts and government officials almost universally agreed that counter-lobbying was an exceptionally rare or non-existent practice during the WTO dispute initiation process, as shown in the quotes in Table A7. The single case of counter-lobbying identified in the interviews involved a potential challenge against sanctions imposed by the US and EU where the government was "lobbied by private law firms that were concerned that WTO dispute settlement would be overtaken by sanctions disputes" if a dispute was initiated (International Trade Attorney 2021e). This was not a case of firms from industry counter-lobbying to protect their economic interest, but was instead a case of lawyers counter-lobbying because they were concerned about the future state of WTO dispute settlement. In hindsight, the official noted that choosing not to initiate the dispute "was a major mistake" (International Trade Attorney 2021e). Given the existing evidence and limited domestic standing of most firms who could potentially oppose filing a dispute against a foreign country's trade barrier, I focus my analysis on the role of firms pursuing dispute escalation.

Table A7: Expert Quotes Regarding Counter-Lobbying

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

7 Resource Constraints

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

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

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

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

that's going to hire teams of the best lawyers and throw money at the case (International Trade Lawyer 2021c).

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

Budget constraints are also a significant challenge for other countries considering challenging trade barriers through the WTO. For example, in Mexico it was noted that "The budget constraint is very real... Government tells them [the private firm] to just pay for the case and lawyers" (General Counsel 2021). The interviews show that such budget concerns were a persistent challenge, as shown in Figure 1 of the paper, which shows additional references to budget constraints in the United States, Japan, and other countries.

8 Staff Turnover

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

face this problem, because they hire someone, but they move on... The problem is in poor countries, but also others is the frequent change of staff (International Trade Lawyer 2021b).

9 Increasing Complexity of WTO Litigation

The WTO dispute settlement process has become increasingly complex and governments have become more reliant on firms over time. Although the process of WTO disputes may have become more regularized, the fact finding burden and costs have increased dramatically as well. The author-interviews found that respondents were unanimous in their opinion that the the dispute settlement process at the WTO has become more complex over time. Speaking in an interview with the author, a USTR Assistance General Counsel confirmed this, saying "cases have become more complex over time and taken on more of a legal character, with procedural things that we didn't see 15 years ago" (Assistant General Counsel 2021a). Similarly, an official from Japan's METI noted the costs have been increasing over time and that "industry has had to play a larger role" (Assistant General Counsel 2021a). The increasing complexity and costs of WTO disputes is recognized by WTO panelists, government officials, and private lawyers, as is shown in Table A8. This means that the period from 1995-2004 analyzed in the paper represents a conservative test for the importance of private firms, given that governments have become more reliant on private firms for the increasingly fact intensive and expensive cases at the WTO.

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

Table A8: Evidence of Increasing Complexity of WTO Disputes

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

vice has historically been really important" (International Trade Attorney, 2021d). Even in the US, where the USTR has some of the most experienced government lawyers and trade experts, it was noted the "USTR can often handle the legal case, but they rely on the technical information about how the market works, and support and partnership in developing arguments" (Assistant General Counsel, 2021a). The reliance of the government on firms to provide the information about the legal issues, arguments, and values at stake emphasize the importance of information provision to the government in the dispute escalation process.

10 The US Case and NTE Selection Effects

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

The NTE is compiled annually by the USTR and lists trade barriers that are implemented by US trade partners that are harmful to US exporters. Trade barriers may be reported to the USTR, and thus enter the NTE reports, via a telephone hotline or online reporting, or the government may add barriers to the list that they become aware of through field offices or other bureaucracies. This means there is a relatively low threshold for barriers to enter the dataset. However, the most likely barriers to be reported are those causing significant distortion, with barriers that cause less distortion being the most likely to be left out. If some low-value barriers are left out of the NTE, this would effectively reduce the number of observations with low levels of distortion that would also have very low probabilities of escalating to WTO disputes. This selection process attenuates the results making the model estimates in the paper relatively conservative.[2]

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

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

11 Firm Influence on Argumentation Legal Strategy

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

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

by the firm to integrate into its legal strategy (Assistant General Counsel 2021b).

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

Although the private firms sometimes propose strategies and arguments that are in tension with the long-term interests of the government, the government has the ability to override the proposals of the private firms. This is a notable difference between WTO dispute settlement and transnational dispute settlement, such as ISDS. Since the government is able to use their gatekeeper status at the WTO to have the final say on which claims are raised in the submissions, this generally results in stronger arguments being presented and clearer submissions to the WTO than would occur in the absence of private firm contributions. It is worth noting that some countries with very limited capacity do not necessarily exercise significant gatekeeping status, and essentially "rubber stamp" the arguments prepared by private firms (General Counsel 2021). In such cases, there would not be any dispute without the private firms, but the arguments being presented are not necessarily thoroughly vetted by the government.

12 Variation across Contexts

The cross-national implications are clear when it comes to resource constraints, with governments being more reliant on the information provision and financial resources of private firms when the government has the least capacity to pursue WTO disputes. For example, throughout the interviews experts noted that countries such as Mexico, Ecuador, and Antigua were

all reliant on private firms to finance the cases (General Counsel 2021; Ambassador 2021; International Trade Lawyer 2021a).[3] Although countries such as the US, EU, and Japan are also reliant on private firms, they generally have more resources than other countries and are thus able to share the financial burden to some extent. For example, Mexico may require the industry to sometimes pay the entirety of the litigation cost (General Counsel 2021, whereas the Japanese government is more likely to cover about a third of the litigation costs (METI Official 2021). For governments with more in-house expertise and attorneys, they also have greater ability to screen the arguments of the cases, as opposed to acting as a rubber stamp for the private firms' case. This is why the USTR can always vet, and generally prepare, the final submissions to the WTO, whereas many less-resourced bureaucracies are heavily reliant on the private firms to prepare the case and argumentation, as discussed in greater detail in section 11 of this appendix.

Countries resource constraints are not static, and some countries proactively seek to increase their WTO expertise and litigation capacity. For example, China made substantial investments in developing both their government's capacity and also domestic firms' knowledge and capacity to pursue WTO complaints. Shaffer and Gao (2018) detail the learning curve that China faced, noting that the government participated as a third-party in a multitude of complaints where they hired private law firms to help them build capacity and develop the necessary expertise to initiate WTO complaints. Interestingly, private firms and SOEs were taught about WTO law through an extensive series of seminars and outreach efforts so that they were better positioned to support WTO litigation. Shaffer and Gao (2018, 163) found that "Larger Chinese companies independently saw the need to develop WTO knowledge... and built in-house expertise." For example, one large telecommunications company hired James Lockett, who previously worked for the U.S. Department of Commerce, to be their Vice President and Head of Trade Facilitation and Market Access (Shaffer and Gao,

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

2018, 164). However, it was also noted that "Building in-house trade law expertise takes time and resources that most Chinese small- and medium-sized enterprises cannot afford" (Shaffer and Gao, 2018, 164). This is consistent with the theory's expectations that larger companies are better positioned to contribute to the litigation process. Furthermore, the increase in government and private capacity in China is consistent with the rise of China's role as a claimant at the WTO.

When it comes to information asymmetries, the role of private firms is greatest when there is a larger information asymmetry between the government and private market actors. As was noted in one of the interviews, when trade barriers affect state owned enterprises (SOEs) the government has greater access to information than if the trade barrier affects a private firm (International Trade Attorney 2021e). This means that in countries with a higher proportion of SOEs, such as China, the information asymmetry is less likely to be a critical component of the dispute selection process. That said, the importance of SOEs to the Chinese economy has declined; "private companies now represent around 54% of the country's GDP" (Shaffer and Gao, 2018). The role of these private companies has increased since China's WTO accession. According to the research of Shaffer and Gao (2018), once Chinese law firms had developed sufficient expertise in WTO law, they increasingly represented private companies who seek to proactively fight foreign trade barriers.

13 Product Specific Barriers and Collective Action

The importance of collective action and coordination problems when firms address trade barriers was brought up by multiple experts in the interviews. One noted that industry associations are often unable to overcome the collective actions problem since "The association doesn't bring the case, because at the end of the day it depends on whose going to pay for it" and so having a trade barrier with a more concentrated effect reduces the potential for free riding (International Trade Attorney 2021c). Additionally, when there is a product specific barrier "Normally there is one company that cares a lot and takes the lead"

(International Trade Lawyer 2021d). A government official from Japan noted that "If the issue is product specific, or the barrier is limited to affecting a single industry then there are not so many conflicting views. Firms work independently. They do not cooperate when asking for requests for consultations. Sharing information may result in conflicts of interest so they don't work together" (METI Official 2021). From the perspective of private firms and government officials, there is evidence that collective action problems are significant in the dispute settlement process, and that product specific barriers help reduce these challenges.

The evidence presented in the paper clearly shows that product specific barriers are more likely to escalate than barriers affecting a broader range of products. What makes this so interesting is that the interviews repeatedly noted that the *government's* preference (on its own) would be "to go after structural and systemic issues. Typically these would be issues that affect multiple industries;" however, consistent with the paper's theory, it was also noted that private firms "can get their specific cases brought" (International Trade Attorney 2021e). Similarly, an official familiar with the USTR priorities found that "An individual industry is almost always only concerned with the very narrow particular dispute or industry... The government wants to invest their resources in cases with broader impact" (International Trade Lawyer 2021d). Furthermore, a number of experts also noted that it was easier for the government to bring systemic cases than product specific cases to the WTO. The rational provided was that many governments (and the Advisory Centre on WTO Law) have sufficient expertise for the broad legal theories needed for systemic cases, but they lack the resources and expertise for the fact finding needed for more specific cases (General Counsel 2021). Given that governments would prefer to pursue broad claims and find it easier to pursue systemic claims, the fact that product specific barriers are challenged regularly is especially surprising and consistent with the theory advanced in the paper.

14 Qualitative Methods

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

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

Given the open-ended nature of the questions, there was ample opportunity for evidence to be gathered that would support or falsify the theory. For example, if officials with the government had noted that they are generally able to identify trade barriers through their

embassies and other offices, that would have discredited the idea that firms are critical to identifying the presence of trade barriers. Similarly, respondents could have spoken about their government's ability to prepare and fund cases without significant private assistance, but that was not the case. Instead, the interviews repeatedly emphasized similar aspects of the dispute escalation, which painted a fairly consistent picture of firms and governments interactions, though they also highlighted interesting variation across countries (discussed in §17 of this appendix).

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