

Detering Disputes:
WTO Dispute Settlement as a Tool for Conflict
Management

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Abstract

An effective legal system not only solves specific disputes but also inhibits future violations. This paper examines how the WTO dispute settlement process resolves specific disputes and reduces their future occurrence. First, the process of selecting cases to escalate in the legal venue reveals information about the preferences of defendant and complainant. A third party arbitrator and multilateral membership adds international obligation and reputation as new leverage for compliance. Second, a formal dispute mechanism may have broader impact if the adjudication of one case leads to other countries reforming policies. Each dispute case clarifies interpretation of the law and enhances the credibility of enforcement.

This paper examines WTO dispute settlement to assess the role of courts to solve disputes and prevent future incidents. The effectiveness of WTO dispute settlement to resolve disputes is tested with statistical analysis of an original dataset of potential trade disputes coded from U.S. government reports on foreign trade barriers. Evidence shows that taking a dispute to the legal forum brings policy change in comparison with outcomes achieved in bilateral negotiations. In addition, past WTO disputes shape the subsequent pattern of trade barriers. Looking more broadly, the declining frequency of complaints filed by all members from 1995 to 2015 is consistent with the deterrence argument. While some areas of law encounter repeat litigation, standards and new agreements have shown more resilient enforcement. Furthermore, analysis of the filing patterns from 1975 to 2012 suggests that the increase of legalization in the WTO has established deterrence effects that were absent in the GATT period. Looking more closely at individual cases, the paper evaluates how past complaints serve to clarify the law and increase the credibility of enforcement.

The growing role of courts in international affairs suggests that states must find them useful. But do we really know? A well functioning court will enforce law through resolving the disputes brought before it and establish consistent expectations sufficient to guide behavior toward compliance with the law. This may represent a lofty ambition that cannot always be achieved by domestic courts let alone by those at the international level. This paper conducts an empirical investigation of how courts resolve conflict using evidence from WTO dispute settlement.

International courts face several challenges to their effectiveness. The lack of centralized authority structure often leaves enforcement in the hands of sovereign states to act as the police both monitoring and punishing violations. Where delegation to international courts takes place, it comes with strict limitations.¹ The weak machinery for compelling states to follow international court rulings could readily undermine incentives for complainants to bring forward cases or for defendants to compromise in settlement talks. Furthermore, the principle of *stare decisis* has been less established within the mandate of international courts. A case-by-case approach and narrow interpretation of the law by conservative justices restricts the role of jurisprudence to shape behavior in a broader class of settings. A priori one would expect international courts to have little influence.

The WTO offers a useful test case as an international court with a large membership and active docket of cases (513 cases have been brought to the court since 1995). It regulates a broad scope of policies ranging from labeling policies to subsidies and investment rules. The legal process includes right to a hearing by a panel of experts and appeal to a panel of judges with nearly automatic adoption of the rulings. Referred to as the “crown jewel” of the WTO, the dispute settlement procedures are a central element of the trade regime.² Existing scholarship has generally been positive about its effectiveness to resolve disputes.³ Research suggests that participants act strategically as if WTO jurisprudence matters (Busch and Pelc, 2010; Pelc, 2014).

¹For example, the GATT allowed defendant states to reject establishment of panel or adoption of ruling. While the WTO eliminated the defendant veto, rulings must be agreed upon by the Dispute Settlement Body with a negative consensus of member states as a check on judicial independence. The International Court of Justice requires that both parties to a dispute consent to its jurisdiction.

²WTO, *World Trade Report 2007*, p. 261.

³Hudec (1993) showed that even the weaker GATT system of dispute settlement managed to resolve successfully eighty percent of cases, and the assessment of Busch and Reinhardt (2002) is also positive. Davey (2005) offers positive assessment on first ten years of WTO.

The deterrent effect of a WTO complaint is cited by industry representatives as a reason they seek WTO adjudication (Davis and Shirato, 2007). Busch (2007) argues that the desire for multilateral precedent vis a vis other states not party to a dispute accounts for why NAFTA parties often use WTO adjudication with each other even when NAFTA provides an equivalent dispute mechanism. What are the foundations for WTO success as an international court and what are the limitations on its role?

This paper first examines the effectiveness of the dispute settlement system to resolve disputes. Section 1 addresses the problem of selection for evaluation of institutional effectiveness. I argue the cost of adjudication functions as a screening mechanism that provides information helpful to improve bargaining. Obligation provides additional compliance pull. The next section analyzes data on potential disputes data based on coding the U.S. National Trade Estimate Reports. The findings show that for the United States, filing a legal complaint increases the probability of policy change relative to negotiating. Then the paper shifts to explore whether the dispute settlement system is able to achieve the long term reduction of conflict by reducing the incidence of disputes. Section 3 discusses the potential mechanisms by which such generalized conflict prevention would occur. I highlight the importance of jurisprudence to reduce ambiguity about the law and for plaintiff activity to increase the credibility of the enforcement system for deterrence. Both politics and the de facto nature of precedent in the WTO system are given as limiting factors. Section 4 analyzes the declining frequency of WTO disputes apparent in the record of complaints filed by all members over the period 1995 to 2015. Attention is given to variation across different legal agreements of the WTO. Section 5 takes a broader historical look to assess the emergence of deterrence under the more legalized WTO dispute settlement system. Regression analysis of filing patterns show that the accumulation of past disputes has a negative effect on the probability of subsequent disputes during the WTO period, but not during the GATT period. A final section concludes.

1 Evaluating the Effectiveness of Adjudication

The question of evaluating the effectiveness of legal dispute settlement has long been troubled by the lack of evidence for the counter-factual, what if a similar case had not gone to court? Selection bias means that the cases that are raised in the WTO are not the same as other trade

disputes. Yet most studies that evaluate WTO dispute outcomes have been limited to the set of filed WTO disputes (Bown, 2004, 2009b; Guzman and Simmons, 2002; Busch and Reinhardt, 2002, 2003; Iida, 2004). They have increased our understanding of the conditions within WTO disputes that encourage more liberalization, such as retaliatory capacity and a positive ruling. Overall, adjudication appears to produce positive outcomes. The director of the WTO legal affairs division, Bruce Wilson, acclaims members for high compliance with rulings (Wilson, 2007). Busch and Reinhardt (2003, 725) find GATT/WTO disputes produce substantial concessions in 50 percent of cases, and partial concessions for another 20 percent of cases. Bechtel and Sattler (2015) show economic gains, although this finding has been challenged in other research with the differences arising from level of aggregation in trade flows (Chaudoin, Kucik and Pelc, 2016). One also observes variation in the effectiveness by the type of issues, with health and environmental standards serving as an area for lower effectiveness (Kim, 2016). But the assessment of outcomes from observed legal disputes alone does not address the broader question of how WTO dispute settlement compares with *alternative strategies*. For this question, one needs data on potential cases for WTO dispute adjudication.⁴

A central critique of research about international institutions contends that the selection of easy issues for cooperation in institutions biases findings about their effectiveness (Mearsheimer, 1994/5; Downs, Rocke and Barsoom, 1996; Simmons, 2010). International adjudication faces the challenge of uncertain enforcement, which could give rise to a scenario in which WTO dispute settlement would only appear effective because states don't file cases where the stakes are high or compliance is unlikely. Are all WTO disputes low-hanging fruit? On the contrary, we observe that WTO panels for trade adjudication confront a docket including many of the most difficult trade disputes. Government subsidies for aircraft development and agriculture production, regulations on food safety, and safeguards to limit textile and steel imports are all some of the issues with high economic and political stakes that have been addressed in WTO dispute settlement. In other research (Davis, 2012a), I have argued that domestic pressure generates an adverse selection process to push forward hard cases into the adjudication forum.⁵

⁴Horn, Mavroidis and Nordstrom (1999), Bown (2005), and Sattler and Bernauer (2010) generate potential disputes in order to examine the choice of whether to initiate, but they do not take the next step to analyze outcomes.

⁵Busch (2000) and Guzman and Simmons (2002) show that more difficult cases are the most likely to escalate

In fact, screening to select cases that are priorities for the government is an important function of the legal process. Exporters may charge that they face unfair barriers in a foreign market while the trade partner defends that their policy is reasonable. Both sides have incentives to dissemble about their willingness to compromise over a range of possible negotiated outcomes, which makes it harder to reach any agreement.⁶ The defendant and complainant signal their resolve by taking the issue to court, which requires paying legal fees and raises the risk of potential harm to diplomatic relations. While costly, the rule-based action to file a complaint is more moderate than unilateral enforcement measures like the U.S. has pursued during some periods in its trade policy. The formal procedures for making the complaint, engaging in consultations, requesting a panel, responding to the ruling all structure the interaction between both parties. Within the institutional forum, states are more able to communicate through common understandings of the meaning in each step in the process.⁷ Such information facilitates more efficient bargaining over settlement.

In addition to providing information about resolve, legal framing of a negotiation changes the stakes by adding obligation and reputation concerns to the existing disagreement over economic interests. Rulings provide legitimacy to pull states toward compliance (Franck, 1990). Most states are reluctant to be seen as violating agreed upon rules. As they are engaged in repeat interactions across a range of issues, it becomes worthwhile to play by the rules for any given case. Several different strands of institutional theory offer explanations for why states comply.⁸ Socialization within the institution encourages norm-compliant behavior (Johnston, 2001). The public and leaders may hold a preference for compliance with international law, and an international court ruling can serve as a focal point for agenda-setting and mobilization (Gaubatz, 1996; Tomz, 2008; Helfer and Voeten, 2014). Interest in upholding the overall credibility of the rules system leads countries to comply with rulings (Kovenock and Thursby, 1992; Jackson, 1997; Hudec, 2002).

Yet it is important to note the limitations of legal rulings as the determinant of dispute out-
from complaint to panel stage within the adjudication process.

⁶This follows the same logic as Fearon (1995) presents for how incentives to misrepresent can lead to war. Cooter, Marks and Mnookin (1982) model trials as the result of strategic bargaining over distributional gains. (Farber and White, 1994) explain how the litigation process helps a defendant screen for whether the complainant is “peaceful” or “litigious” and adjust their settlement offer.

⁷See Morrow (1994, p. 389) on informational role of institutions to promote “exchange of meaningful messages” for coordination in distributional bargaining.

⁸See Raustiala and Slaughter (2002); Simmons (2010) for review of literature.

comes. First, compliance with a ruling is a second order compliance problem that follows an original decision to implement policies that are inconsistent with the agreement. Second, a majority of WTO complaints are resolved *before* a ruling has been issued. Finally, for those with a ruling there is still considerable leeway for negotiation over the policy change. A ruling determines whether the current policy is in violation but rarely specifies the new policy that should be adopted. Even the adjustment of a policy to achieve technical compliance with the law may not resolve the dispute if the other party remains unsatisfied. The negotiations after a ruling may quickly resolve the issue or involve tough bargaining. In a small number of cases, protracted disagreement over compliance leads to another round of litigation, as seen in the well known dispute over the EU restrictions on the import of bananas. More than the content of the legal interpretation, it is the process of going through adjudication that helps states coordinate on an agreed outcome. The standard for effectiveness is whether the process helps to end a dispute, and this may be achieved with or without a legal ruling.

The dispute process works as a communication tool *between states* and also *within states*. Governments are often driven to make extreme commitments to support a powerful domestic industry. Such public statements may push negotiators into a corner by reducing bargaining range and flexibility even in the face of potential overlap in agreements that both governments would be willing to accept (Leventoglu and Tarar, 2005). With the moderate step to escalate a dispute in the legal venue, leaders respond to demands from domestic audience and gain space to work out a solution in the international negotiation. After filing the legal complaint, in consultations the officials can explore whether a settlement could be reached if they became more flexible without the risk that they appear to have voluntarily offered a concession. Legal adjudication makes it possible to simultaneously send a signal of tough action and open new talks.

Likewise, reputation and obligation offer leverage for domestic bargaining. The third party role of an international court offers political cover for changing position from public commitments in the event that an agreement is reached. The same compromise that would have appeared as a sign of weakness when offered in negotiations to an opponent can now be portrayed as cooperation that will reap future benefits (Simmons, 2002; Allee and Huth, 2006). Research has shown that legal proceedings can shift interest group mobilization against protectionist interests to make compliance possible (Davis, N.d; Brewster, 2006; Goldstein and Steinberg, 2009). Leaders need

a justification to give their domestic regulatory agency and lobby groups before they can change policies that were adopted to protect sensitive sectors.

This argument supports the expectation that disputes brought to adjudication will be more likely to be resolved than those in negotiations. In contrast, to the extent that coercive power drives outcomes there should be little independent effect from adjudication. Within the trade regime, the legal steps of dispute settlement if anything restrain rather than augment retaliation. There are no provisions for collective punishment and authorization of retaliation remains limited to suspending concessions at a level determined to be equivalent to lost trade (Lawrence, 2003). Going to court may facilitate credible retaliation through information about resolve following the logic outlined above, but it does not change the capacity to retaliate. Indeed, this is often noted by developing countries who fear they will be unable to enforce rules. From the perspective of power dynamics, the venue itself will have little constraining effect after conditioning on the capacity of actors and stakes that influence the decision to bring the issue into the legal forum.

2 Analysis of Progress to Remove Barrier

In this section, I evaluate WTO dispute effectiveness for trade barriers that were either negotiated or raised in WTO dispute adjudication.⁹ This allows me to compare the effectiveness of dispute settlement relative to the alternative of negotiation in a different forum.

As in any study of litigation, the challenge is to account for the non-random nature of selection for cases taken to court. Here my strategy is to use data on *potential disputes* generated from the National Trade Estimate reports produced on an annual basis by the U.S. Trade Representative. Mandated by Congress, the reports reflect a list of trade barriers to U.S. exports that are taken up as a concern of the U.S. government. Some trade barriers mentioned in the report are raised for WTO disputes while others are negotiated in other fora such as WTO committee meetings and bilateral negotiations and some are noted in the reports as issues for continued monitoring. These barriers have passed a threshold of economic and political significance to merit inclusion in the report. For the years 1995 to 2004, I coded an original dataset of all barriers listed that were industry specific at the 2 digit International Standard Industry Classification (ISIC) level (e.g.

⁹Section 2 draws on analysis in Davis (2012a).

textiles or motor vehicles) for nine top U.S. trade partners.¹⁰

Evaluating the effectiveness of negotiation strategies poses a significant measurement challenge. One way would be to look at the change in trade flows after settlement. Bown (2004) uses this approach in his analysis of the economic outcomes of GATT/WTO disputes. However, as Bown himself notes, the GATT/WTO does not call for an increase of trade flows as the measure of compliance, and “Better measures of economic success would thus include detailed information on the change in the tariff or non-tariff measure under dispute” (p. 814). Along this line, a second way to evaluate outcomes requires direct evaluation of the policy change. Busch and Reinhardt (2003) use this latter approach to classify the outcomes of GATT/WTO disputes on an ordered scale. Bayard and Elliott (1994) also evaluate the outcomes of Section 301 cases in terms of a categorical variable for policy change.

I measure effectiveness by evaluating the progress in resolving the trade complaint recorded in the National Trade Estimate Reports. The advantage to this approach from a theoretical perspective is that it is closer to the goals of the WTO agreement. It also maintains consistency with the underlying data without introducing measurement error that would come with using a trade flow measure (i.e. product trade flows and period would only loosely correlate with the specific items in dispute and expected period of implementation).¹¹ The disadvantage is the risk of bias. There are two potential sources of bias. First, the USTR may be overly positive in order to show Congress that it has made progress. The greatest threat to the inference in this study would arise if the USTR tends to be more positive about outcomes for those disputes raised in WTO adjudication. This seems unlikely, however, since industry actors know whether their problem has been solved and will inform Congress. Overly positive reporting would also undermine the role of the reports to inform foreign governments that the United States is concerned about an issue. The USTR has not hesitated to criticize specific dispute rulings or poor compliance by members, which indicates that it is not blindly taking a positive stance towards dispute adjudication. Nevertheless,

¹⁰Canada, EU, Japan, Korea, and Mexico represent the top five OECD trade partners. Brazil, India, Malaysia, and Singapore are top U.S. trade partners among developing countries that have also been WTO members since 1995. In 2005, the value of U.S. exports to these nine countries represented 72 percent of all U.S. exports. WTO, International trade statistics 2006, table III.16 U.S. Merchandise Trade by Region. Note that while China is a major trade partner, it only joined the WTO in November 2001

¹¹Progress is measured as the policy change observed in the years after the filing of a complaint or start of a negotiation without a fixed evaluation period. The next section will analyze the time to removal of the barrier.

the analysis below is subject to the assumption that USTR reports on negotiation progress are not biased to report more optimistic outcomes for one negotiation venue over another (uniform bragging about results achieved across venues would not bias my findings). The second source of bias is the possibility of measurement error from coding the contents. The reports do not grade the outcome. Coding involved a judgment about whether the report mentions specific policy improvement. Progress was first coded as a four category ordinal variable, but I use a dichotomous indicator for the main analysis.

The following illustrates a comparison of the coding for three cases that were all WTO disputes. For the the WTO dispute about Canadian restrictions on U.S. periodicals (DS31), the report states “In June 1999, the United States and Canada announced an agreement under which U.S. publications would be allowed gradually improved access to this market.”¹² For the WTO dispute challenging EU export subsidies for processed cheese (DS104 against Belgium), it states that the United States filed a complaint in 1997 and held initial consultations that November, while noting that “The United States is considering next steps.”¹³ No further mention of the dispute is made again in the reports and no settlement was notified to the WTO. A search of the widely used trade briefing report “Inside Trade,” shows that in 1999, U.S. agricultural industry sources complained about EU circumvention of export subsidies while specifically noting the example of “inward processing” for cheese.¹⁴ For the WTO dispute filed against Mexico for anti-dumping duties on high-fructose corn syrup (DS132), the 2000 report notes that Mexico will have to comply with the ruling adopted by the Dispute Settlement Body, but the 2001 report notes that the Mexican corn industry is considering filing a new dumping petition and the 2002 report notes that the Mexican Congress passed a consumption tax on beverages including high fructose corn syrup, which is described as “a major barrier to a settlement of broader sweetener disputes between the United States and Mexico.”¹⁵ The first case on Canadian periodicals was coded as having progress, and the second and third cases about European cheese export subsidies and Mexico’s barriers against high-fructose corn syrup were coded as having no progress.

As a first look at the problem, I examine the measure of progress in the aggregate data for the 328 cases coded for trade complaints with the 9 trade partners that were negotiated or raised

¹²NTE 2001, p.31.

¹³NTE 1999, p. 120.

¹⁴Inside U.S. Trade, 21 May 1999. “Agriculture Coalition Sets priorities for WTO, Sidesteps Radical Reform.”

¹⁵NTE 2002, p. 293.

Dispute Outcome	WTO DS	Negotiation	All cases
No Progress (percentage)	10 (24.39)	134 (46.69)	144 (43.90)
Progress (percentage)	31 (75.61)	153 (53.31)	184 (56.10)
Total cases	41	287	328

Table 1: Measuring Dispute Outcomes *The data represents industry specific trade barrier cases coded from the National Trade Estimate Reports of the USTR from 1995 to 2004. The first column describes progress towards resolving the U.S. complaint for trade barriers that were initiated for WTO dispute settlement, and the second column describes those that were negotiated.*

in WTO dispute settlement (Table 1). Seventy-six percent of the WTO disputes (31 of 41 cases) recorded progress. This suggests that the WTO dispute system achieves better outcomes than negotiation. Before drawing any *causal* conclusions from such *descriptive* inference, however, one needs to consider the selection mechanism that sends cases to the adjudication forum.

Multivariate regression allows me to analyze the effect of WTO adjudication on progress towards removal of the trade barrier when controlling for features of the trade barrier at stake that could influence both the selection of adjudication strategy and the outcome of the dispute. The key independent variable for analysis is a dichotomous indicator for whether the barrier has been the subject of WTO complaint or remained in negotiation. Next I briefly describe control variables that are also included in the analysis.

Political contributions are a key indicator of industry political influence on trade policy (Grossman and Helpman, 1994; Hansen and Drope, 2004). I use contributions data provided by the Center for Responsive Politics (CRP), a non-partisan research group that tracks money in U.S. politics.¹⁶ The CRP collects the publicly listed data from the Federal Election Commission and summarizes the total contributions by individuals, PACs, and soft money contributions according to industry category for over one hundred industries.¹⁷ Institutional leverage can augment the voice of a particular industry. Eighteen of the trade barriers in the data used for regression analysis are Section 301 cases. The U.S. Trade Act of 1974 and later revisions call for the USTR to investigate the complaints of industries that file petitions and initiate a Section 301 case for

¹⁶The totals include contributions to all federal candidates and to parties. Data available at <http://www.crp.org/>.

¹⁷Contributions are measured as the amount over the two year election cycle to all parties leading up to the year of the observation. The log of the U.S. dollar value is taken to smooth high values.

those evaluated to have sufficient merit.¹⁸ When met by continued resistance by the trade partner, the procedure calls for unilateral sanctions or initiation of a GATT/WTO dispute. Given the institutional constraint one would expect that Section 301 cases would be more likely to have an adjudication strategy chosen. The influence of an industry may also be a function of its size in terms of production value and export share. I use the production value of the U.S. industry affected by the foreign trade barrier and control for the world export value of the industry.¹⁹

It is also important to consider the legal strength of a potential complaint. Studies of the litigation behavior of administrative agencies contend that legal certainty pushes bureaucracies to prioritize their win-rate over the actual economic gains per case (Posner, 1972). The observation that ninety percent of the rulings by WTO panels favor the plaintiff indicates that governments screen out weak legal cases before filing or in early settlement. Ideally, one would want a legal brief prepared to evaluate each trade barrier by a trade partner. Unfortunately this is rarely possible.²⁰ Evaluation of the legal status of a trade barrier requires both extensive WTO legal expertise and knowledge about the specific policy and its impact on trade; even when governments conduct such internal analysis, they treat their conclusions as private information. Coding legal status was not possible for this project. Instead, I use a proxy variable for strong legal cases based on the nature of the trade barrier as an import policy. A government looking for sure-win cases is more likely to challenge trade barriers based on import policies over other policy areas (e.g. standards, intellectual property right protection, services, or investment policies). Import policies have always been at the core of the trade regime regulations, so there is a large body of jurisprudence based on previous cases under both GATT and the WTO that can help governments to build a legal case. In the record of WTO jurisprudence, issues that directly limit imports, such as anti-dumping measures or import quotas, have led to consistently strong positive rulings.²¹ There may also be higher certainty over prospects for early settlement for import policy barriers. Guzman and Simmons (2002) show that within the set of WTO disputes, those related to tariffs and quotas are

¹⁸See Bayard and Elliott (1994) for description of the use of Section 301.

¹⁹OECD STAN database for Industrial Analysis. OECD STAN Bilateral Trade Database (thousand U.S. dollars). All economic control variables are converted to constant U.S. dollar and converted to log form.

²⁰Busch and Reinhardt (2006) include variables on the legal merits of a case, but this approach is only possible because their analysis focuses on those cases that have a complaint filed that specifies the legal argument in public documents. For my analysis to include the unfiled cases, I cannot construct such a variable.

²¹See Tarullo (2004) for review of trend for positive rulings in anti-dumping cases.

easier to resolve (and hence more likely to settle early) because their “continuous” nature allows for compromise that cannot be made on “all-or-nothing” regulations. Thus a bureaucrat trying to maximize either early settlement or legal victory is more likely to choose cases related to border measures affecting goods imports. The NTE divides the report on each trade partner into sections for the type of trade barrier, and I code an indicator variable for those included in the section on import policies.

The level of trade distortion from the disputed barrier increases the economic stakes and likelihood of a violation ruling, so one would expect high distortion trade barriers to be more likely to face challenge by WTO dispute adjudication. I measure the distortionary burden from the trade barrier with an indicator variable which codes cases that involved substantial market closure resulting from policies such as high quantitative restriction (ban, quota, or increase of tariff/duty by more than 10 percent), use of standards or rules of origin to implement a de facto ban on imports, violation of intellectual property rights, or subsidies provided to competitors. Fifty-one percent of the barriers involved such high distortion policies. Other barriers coded as having a more moderate distortionary effect on trade included policies such as low level quantitative restriction or burdensome procedures.

The demand for protection in the trade partner for its industry influences whether the government will be more or less likely to remove the trade barrier. At the same time the expected market gain for the exporter influences their incentives to push for change. The import penetration ratio (share of imports in GDP) for the trade partner industry serves as a proxy for the market stakes to both sides.²² The literature offers conflicting interpretations of whether import penetration increases demand for protection by threatening the domestic industry (Trefler, 1993) or reduces the supply of protection by increasing the cost to aggregate welfare (Grossman and Helpman, 1994). From the exporter perspective, a higher level of trade partner import penetration suggests a larger market.

I use a logistic regression model to estimate the effect of the indicator for dispute settlement on

²²The data on import penetration ratios for Canada, the EU, Japan, Korea, and Mexico at the 2-digit ISIC level is taken directly from the OECD STAN Indicators database “MPEN” variable and represents imports as share of total market (imports plus domestic production minus exports). Since data on import penetration ratio was unavailable for the non-OECD countries, these observations are entered as zero and any effect from the systematic nature of the missing data will be captured in the non-OECD indicator variable.

the dichotomous outcome measure for progress to resolve the complaint (results are similar when using ordered logit to estimate a four category variable). The statistical technique of matching allows me to partly address the concern that cases brought to court are systematically different. This technique aims to bring the observational data closer to a comparison of cases that are similar in all but the treatment (e.g. Rubin, 1973, 1979). In this study, the treatment group are those barriers raised for WTO dispute settlement and the control group are those barriers that are only negotiated. The pre-processing of data involves removing observations from the sample that lack common support in terms of overlapping covariate distribution for the treatment and control groups. Creating a smaller sample of more similar units by “pruning” outlier observations in this manner allows for less model-dependent and more robust causal inference (Ho, Imai, King and Stuart, 2007).

I conduct three-to-one nearest neighbor matching with exact restrictions on trade partner.²³ The propensity score, which represents a single measure summarizing variables that estimates the probability of a unit receiving treatment (in this case, WTO dispute settlement), is estimated based on logistic regression using covariates that have been shown to predict which countries file complaints (Davis, 2012a). Exact matching on trade partner means that for each dispute case filed against a specific trade partner, the matching procedure will select control cases from within the group of negotiation cases with that same trade partner (the four developing countries are grouped together). I find that this improves the balance on other covariates. The choice to exact match on partner also addresses the concern that bilateral relations are shaped by an economic and political structure specific to the trading pair. Table 4 in the appendix describes the percent balance improvement for each covariate through a comparison of the mean difference and quantile breakdown. It shows that matching substantially improves balance across all variables in terms of various balance measures.

After matching to improve the balance, I use logistic regression to estimate the effect of dispute settlement on progress using the smaller sample of matched data. The propensity score is included as an additional variable. The results in table 2 show dispute settlement is effective to increase the likelihood of progress towards removal of the trade barrier. Dispute settlement increases the predicted probability of progress resolving the complaint by 28 percentage points.²⁴ The model

²³I implement matching procedures using the MatchIt software available at <http://gking.harvard.edu/matchit>.

²⁴The first difference of 0.28 (95 percent confidence interval from 0.11 to 0.44) is calculated from 1,000 simulations

Variable	Coefficient	(Std. Err.)
WTO DS	1.546 **	(0.568)
Contributions	-0.365	(0.203)
Section 301	4.179 **	(1.173)
Production (log)	0.317	(0.516)
Exports (log)	0.262	(0.390)
MPEN (partner)	0.001	(0.007)
Import policy	0.952	(0.673)
Distortion	0.995*	(0.586)
EU	0.060	(0.657)
Japan	-0.548	(0.687)
Mexico	-0.062	(0.357)
Korea	0.316	(0.744)
Non-OECD	-0.527	(0.954)
Duration	0.459 **	(0.221)
Propensity score	-6.836 **	(2.808)
Intercept	-0.710	(8.478)
Pseudo R-squared	0.112	
N	160	

Table 2: Matched Sample Logistic Regression Model of WTO DSU Effectiveness. The coefficients estimate the likelihood that the NTE reports describe progress toward trade barrier removal. Robust standard errors (clustered on industry) are in parentheses. Canada is the omitted comparison group for the trade partner indicator variables, and Non-OECD is an indicator for barriers of Brazil, India, Malaysia, and Singapore. *Significant at the 10 percent level. **Significant at the 5 percent level.

correctly predicts progress 70 percent of the time.²⁵ These findings offer strong evidence that WTO adjudication makes a substantively important contribution towards policy reform of trade barriers, and this is not because states are only sending *easy* issues to the forum. On the contrary, when controlling for the process that sends cases with strong interests on both sides into the dispute settlement mechanism, WTO adjudication is effective relative to negotiation.

The evidence here has been from the United States, which limits the ability to make more general conclusions. Nevertheless, when comparing negotiation versus adjudication strategies, the United States would experience less gap in results because it has many power resources to apply in bilateral negotiations. Smaller countries are very disadvantaged in the context of bilateral negotiations where they have few sources of leverage, especially when paired against powerful

using the estimates of table 2.

²⁵This calculation follows a cutoff rule to compare predictions with 0.50 or higher probability of progress to those in the data that actually report progress.

counterparts. Lower legal capacity can also interfere with the ability of developing states to bring and succeed in adjudication (Busch, Reinhardt and Shaffer, 2009; Bown, 2009b). But within the legal forum developing states may benefit from at least some leveling effect of legal rules. The WTO Advisory Centre has proven effective to help countries through legal aid and many developing countries have developed a solid track record as participants in the system (Davis and Bermeo, 2009). The key question of interest here is not whether other countries do as well as the United States, but rather whether their own outcomes for a given case would improve if it were taken to the WTO. Lacking evidence on potential disputes for other countries, I cannot offer conclusive claims on this point. I would contend, however, that the relative advantage in a legal setting over bilateral setting looms larger for developing countries than for the advanced industrial economies. For the question at hand, using the evidence from the United States offers a conservative estimate for the effectiveness of legal measures.

3 Conflict Prevention? The Broader Effect of Disputes

The evidence above suggests the international trade system is relatively effective in its enforcement role as a legal system to resolve specific disputes over compliance. The effectiveness of a legal system, however, lies not only in settling the observed disputes but also through prevention of future disputes. How well does the WTO perform this task?

Those involved in adjudication expect the benefits of victory in the case to reach beyond the single issue. Even prior to strengthening the legal system in the WTO, U.S. and Japanese officials both recognized that the ruling of a GATT panel on import quotas applied to twelve agricultural products added pressure for reform of the entire system of import quotas including the trade in rice that had been explicitly not targeted in the case – a U.S. trade negotiator said, “When we won on GATT 12, we knew their defense on rice was lost.” (Davis, 2004, p. 185). The United States never did file a case against Japan’s import ban on rice, which instead was lifted as part of negotiations in the Uruguay Round. Similarly, a New Zealand Minister of Trade and Agriculture declared that he could use the U.S. victory against Japan’s ban on apple quarantine policies to pressure South Korea to lift its similar policy, and apple growers in New Zealand increased their demands for government action against the quarantine policies of Australia (Kucik and Pelc, 2016, p. 719, 721). These examples suggest the possibility for identifying the most important gains from

a WTO dispute in the subsequent cases that governments never file!

The primary mechanism for the dispute settlement process to prevent cases lies in the ability to clarify agreements and reduce uncertainty over enforcement. I discuss this logic as it relates to informational theories of compliance. I then address the limiting conditions whereby political constraints and lack of precedent reduce compliance pull from rulings. Even if states have the capacity to internalize the new information about their obligations, they may choose not to act upon such information. A preliminary analysis of dispute frequency by agreement suggests that some issue areas of the treaty are more supportive of conflict prevention than others.

Reducing Ambiguity and Deterring Violations

A legal system may encourage compliance through jurisprudence that clarifies legal interpretation of the rules. The violation ruling against one party provides information for all members about an area of the law that had been vague or openly contested. Others may recognize inconsistency with rules in their own policies on similar matters. This perspective highlights the role of dispute settlement to *complete* the incomplete contract formed in the trade agreement by clarifying interpretation or filling gaps (Maggi and Staiger, 2011). To the extent that ambiguity in the rules is a primary source of noncompliance, reaching a consensus on rule interpretation through public discourse or court decisions will reduce the number of disputes (Chayes and Chayes, 1993).

A brief example illustrates how one dispute can unfold to clarify points of law that will be relevant to a wider range of parties. The victory of Brazil's challenge against U.S. agricultural subsidy policies held significance for both political importance and as a major ruling on subsidies.²⁶ The U.S. has prolonged its compliance in this case and only reached a settlement under threat of retaliation by Brazil that would have included both tariffs on U.S. products and suspension of intellectual property rights. In many ways the ruling was tailored to the specific U.S. cotton program that compensated domestic users for the high prices they paid to purchase domestic cotton and to the counter-cyclical payments given to U.S. cotton producers. Yet a minor aspect of the ruling that clarified how policies should be classified within the terms of the Agriculture agreement has been closely followed in countries that were not parties to the case or exporters of cotton. The ruling found that U.S. cotton subsidies could not be classified in the unrestricted

²⁶ "United States - Subsidies on Upland Cotton" (DS 267), complaint filed September 2004.

green box that is reserved for policies decoupled from production incentives because the U.S. subsidy program included a condition about non-production of vegetables.²⁷ A senior Japanese agriculture ministry official acknowledged that he carefully examined the ruling because Japan was in the process of introducing new direct payments to wheat, soybeans and other crops, and he was interested in the implication of the case.²⁸ This is an extreme example to the extent that Japan does not produce cotton, but highlights the relevance of cases to a much wider audience of member states as they view their own policies.

Not only governments, but also financial markets view the information from case rulings as relevant beyond the single case. In a fascinating new study, Kucik and Pelc (2016) show that the ruling against Canada's feed-in tariff support for solar power led to adverse market valuation of solar producers not only in Canada but also in India, where a similar policy was in place. They also identify spill-over across products as the ruling against U.S. cotton subsidies harmed both cotton and wheat prices. Investor responses show that rulings were relevant beyond the country and product listed.

Litigation also promotes compliance through deterrence as the dispute system increases the credibility of the threat to punish future violations. States that observe active use of the adjudication system may recognize the high probability that other states will file complaints against their violations. The *deterrent effect* would lead states to refrain from policies in order to avoid being challenged in court. The economics and law literature examines how decisions to take precautionary measures that avoid violation, settle before trial, or wait for trial outcome all are contingent on the cost and expectation for trial outcomes.²⁹ Evidence has shown that states frequently filing GATT/WTO complaints are less likely to be targeted in U.S. anti-dumping decisions (Blonigen and Bown, 2003).

²⁷ Appellate Body Report (WT/DS267/AB/R) adopted March 21, 2005 states: "we ... uphold the Panel's finding ... that production flexibility contract payments and direct payments are not 'decoupled income support' within the meaning of paragraph 6, are not green box measures exempt from the reduction commitments by virtue of Annex 2 of the Agreement on Agriculture, and are not, therefore, sheltered from challenge by virtue of paragraph (a) of Article 13 of the Agreement on Agriculture."

²⁸ Hidenori Murakami, advisor to the Minister for International Affairs of the Ministry of Agriculture, Forestry, and Fisheries (former Vice Minister for International Affairs), Interview by author, Tokyo, July 5 2010.

²⁹ For example, (Cooter and Rubinfeld, 1989, p. 1085) contend incentives for precaution to avoid being taken to court increase as such litigation is seen to be costly.

The deterrent effect of past cases and clarification of the law also reverberates within the domestic policy context. In a classic application of the two-level game logic, those within a government may use external pressure to overcome resistance (Putnam, 1988; Schoppa, 1993). Speaking about the U.S. experience, Joshua Bolten, who served as USTR General Counsel and later as White House Chief of Staff in the Bush Administration, acknowledged a role for WTO jurisprudence to shape policies:

It would make sense that governments would look at precedent to shape legislation. Of course there was the challenge that we could not say directly to Congress that a policy was WTO inconsistent. Otherwise those words would be quoted back to us later in front of a panel. Instead we would say with a wink that a policy was vulnerable to challenge in WTO and could spark litigation.³⁰

Just as a violation ruling helps to overcome domestic opposition and bring policy change, the prospect of a future ruling may increase pressure for change.

Willful Violations?

In some cases, however, the political dynamic underlying disputes overwhelms any role for rule clarification and deterrence. When a politically influential industry is at stake, governments knowingly impose violations in defiance of legal advice. Under these circumstances, ambiguity of the law is not the reason for noncompliance, and so no amount of clarification would prevent the imposition of the trade barrier. One such example would be the U.S. decision to impose safeguard measures on steel in March 2002 as a step to help a struggling domestic industry and satisfy an election promise. Here Bolten noted that it was understood when deciding the policy that it would be challenged as violation in WTO, but the administration went forward nonetheless to impose the measure, which would later be withdrawn after it had been ruled a violation.³¹

Despite disregard for the law by the defendant in these circumstances, earlier case precedents still matter. They lower the cost for other governments deciding to challenge a measure because they can see an easy victory. The obstacles for countries deciding whether to file complaint against a trade barrier include the uncertainty over the legal outcome. Just as jurisprudence informs

³⁰Interview by author, Princeton, 12 May 2010

³¹Interview by author, Princeton, 12 May 2010

governments about the status of their own policy, it informs those who have been considering whether to challenge the case. As the strength of the legal case against a measure improves on the basis of past precedent, governments on the complainant side will be more likely to go forward with the case. When the Chinese government export restrictions on raw materials were ruled to be a WTO violation in January 2012, it helped to finalize the decision by the United States, EU, and Japan to move forward with another complaint against Chinese export restrictions filed in March that year.³² The Japanese government spokesman gave the January ruling on the similar case as a major factor for going forward to file the complaint against China's rare earth exports.³³ Indeed, Pelc (2014) shows that states may engage in strategic behavior to file on an commercially unimportant issue in order to build case precedent that would strengthen their hand in subsequent cases where the commercial stakes may be greater.

Repeat litigation on similar issues can also reflect the intervention of political pressure. The build-up of complaints could deter some future disputes, but the most politically sensitive cases will continue unrestrained by mounting plaintiff activity. An illustrative example would be the litigation on zeroing policies for calculation of anti-dumping duties. This specific practice within the methodology of anti-dumping duties has been the target of multiple rulings by WTO panels and the Appellate Body. A ruling against zeroing in the EC bed linen dispute (DS 141) resolved the one case as the EC ended the practice. Undeterred, the United States continued the practice. Several members have since challenged the U.S. policies with greater confidence in their probable legal victory based on the earlier precedent. Only after multiple rulings against the policy in separate cases did the United States finally amend its laws to comply.³⁴

³²“China Measures Related to the Exportation of Various Raw Materials” (DS 394, 395, 398); “China Measures Related to the Exportation of Rare Earths, Tungsten and Molybdenum” (DS 431, 432, 433). *Inside U.S. Trade* March 16 2012, p. 25.

³³“Taichugoku oubei to hochou (Stepping with America and Europe against China)” *Nihon Keizai Shimbun* March 14 2012.

³⁴The following cases have directly addressed issues related to zeroing (other disputes may have touched on the point more indirectly): U.S. - Mexican Stainless Steel AD Measures (DS 344 complaint by Mexico), U.S. - Continued Zeroing (DS 350 complaint by EU), U.S. - Zeroing (DS 322 complaint by Japan), U.S. - Zeroing of Dumping Margins (DS 294 complaint by EU).

No legal authority for binding precedent

Strictly speaking, WTO members are not obligated to change policies in light of new information from a ruling against another country. Indeed, states clearly rejected the notion of precedent when negotiating the treaty. Only the original agreement represents a binding commitment, which cannot be modified by subsequent judicial decisions. In this narrow sense, each ruling applies only to the specific country and matter that is subject to judicial review. Despite this restriction, there are still expectations that rulings carry meaning that extends beyond the single case.

There has been considerable discussion among legal scholars on the role of precedent. *Stare decisis*, the principle that a judicial body should follow its own previous decisions, opens up the possibility for judicial activism such as observed in common law systems because the court can itself become a source of law through setting precedents that fill gaps and shift interpretation of law. At the international level, states have been unwilling to delegate such authority to judicial bodies, and tribunals including the International Court of Justice explicitly reject a binding role for precedent (Brownlie, 1990, p. 21). Nevertheless, the goal of judicial consistency leads courts in practice to cite previous decisions. Jackson (2000, p. 127) describes GATT panels as following this more general practice to eschew the notion of binding precedent while often citing prior panel reports so that “there clearly is a *de facto* precedential effect operating, albeit not strictly.” The Marrakech Agreement establishing the WTO rules out any rule-making authority for WTO judicial decisions in Article IX:2, which declares that the Ministerial Conference and General Council “shall have the exclusive authority to adopt interpretations of this agreement and of the Multilateral Trade Agreements.” And yet WTO panels have continued GATT practice to cite prior reports on related legal points as evidence supporting decisions. Pelc (2014) identifies filing behavior by states that supports their strategic anticipation of precedent value from winning a ruling.

Several WTO rulings have explicitly discussed the nature of precedent effect. The 1996 Appellate Body report in the “Japan-Alcoholic Beverages II” case declared that a previous decision by a GATT panel should be considered as a definitive interpretation but did not represent a controlling decision that necessarily had to be followed (Palmer and Mavroidis, 2004, p. 53-54). The Appellate Body 2008 ruling in the case “United States-final anti-dumping measures on stainless steel from Mexico,” which was one of the cases finding against the U.S. practice of zeroing for

the calculation of anti-dumping measures, overturned a panel report that had countered previous precedent rulings by the Appellate Body on a similar matter.³⁵ The ruling is worth quoting at length here as the most comprehensive statement on the meaning of precedent within the WTO:

It is well settled that Appellate Body reports are not binding, except with respect to resolving the particular dispute between the parties. This, however, does not mean that subsequent panels are free to disregard the interpretations and the *ratio decidendi* contained in previous Appellate Body reports that have been adopted by the DSB. . . .

Dispute settlement practice demonstrates that WTO Members attach significance to reasoning provided in previous panel and Appellate Body reports. Adopted panel and Appellate Body reports are often cited by parties in support of legal arguments in dispute settlement proceedings, and are relied upon by panels and the Appellate Body in subsequent disputes. *In addition, when enacting or modifying laws and national regulations pertaining to international trade matters, WTO Members take into account the legal interpretation of the covered agreements developed in adopted panel and Appellate Body reports*[italics added]. Thus, the legal interpretation embodied in adopted panel and Appellate Body reports becomes part and parcel of the *acquis* of the WTO dispute settlement system. Ensuring “security and predictability” in the dispute settlement system, as contemplated in Article 3.2 of the DSU, implies that, absent cogent reasons, an adjudicatory body will resolve the same legal question in the same way in a subsequent case.³⁶

The commentary asserts that member states take into account WTO jurisprudence in their legislative process. The justices are aware that this is not always true – the statement is made in the context of a ruling after the United States refused to either heed precedent or rulings against its zeroing procedures. Nonetheless, the Appellate Body used member practice and not just legal principle as justification for the value of consistent rulings over time on similar matters.

In sum, the status of precedent within the WTO leaves states with the leeway to adopt a strict interpretation that panel rulings against another member do not impose any obligation for them even if their own policies would be implicated by the decision. Nonetheless, each panel ruling creates new expectations for the likely outcome of future rulings on related matters. Even investors watch these signals (Kucik and Pelc, 2016).

While it is clear that the WTO follows precedent as a judicial body, do *members* adjust their policies as claimed in this ruling by the Appellate Body? This would open the possibility that the effect of one dispute settlement case will be broader than the simple change of policies by the

³⁵WT/DS344/AB/R pp. 66-67

³⁶During the Dispute Settlement Body meeting that adopted this ruling, the United States criticized the ruling as an attempt to establish rulings as binding precedent, but other members agreed the body of jurisprudence should be followed. *Inside U.S. Trade*, 23 May 2008.

targeted state. The previous analysis of section 2 could underestimate the effect of disputes by failing to consider the spill-over from one dispute for other members and future disputes.

Internalizing the law

For the adjudication process to prevent future disputes according to the informational logic of compliance presented at the beginning of this section, governments must be able to update their interpretation of commitments in light of emerging jurisprudence and be willing to reform policies on the basis of this information. Much has been written on the capacity limitations for developing countries that can inhibit their participation in WTO dispute settlement (e.g. Guzman and Simmons, 2005; Davis and Bermeo, 2009; Busch, Reinhardt and Shaffer, 2009). These states may also have less capacity to learn from jurisprudence. Busch, Reinhardt and Shaffer (2009) conducted surveys of officials from 52 country delegation offices and found that many developing countries lack a specialized WTO dispute settlement division and on average the developing countries have smaller numbers of professional staff, high personnel turnover, and attend WTO related meetings infrequently. Yet among repeat users of WTO dispute settlement, which includes some developing countries as well as most advanced industrial states, their own participation and large staff facilitates learning about emerging cases. Attending the dispute settlement body meetings and participation in disputes as third party provides information beyond cases with direct involvement.

There may be additional measures taken at the domestic level in states that have established a policy community with expertise on dispute settlement. Japan is noteworthy on this front. The Japanese trade ministry sponsors a study group composed of officials and scholars, which meets regularly to review panel rulings and write reports on their legal significance. These meetings help officials within the ministry section for handling dispute settlement to keep abreast of cases relevant for negotiations and future litigation, but also spread knowledge more broadly. A Japanese government official said about the meetings, “We will invite related divisions to attend for a particular case. In our role as legal counsel for other divisions, we think about the implications of a case for policies and take this into account when advising them on a policy, such as whether a subsidy would be consistent. We will invite them to attend for particular discussion when relevant. So for the recent TBT [Technical Barriers to Trade] decisions we have invited standards people to come since the cases have had implications for standard setting more generally with

enhanced national treatment obligation.”³⁷ China has also been active to build knowledge about WTO dispute settlement. The Shanghai WTO Affairs and Consultation Center is one such effort supported by local government that provides easy access to information for officials, scholars, and firms with interest. Brazil has used public-private partnership to build support for its strategy to use WTO adjudication as central element in its trade strategy (Shaffer, Sanchez and Rosenberg, 2008).

The WTO has increased the transparency about the process with on-line posting of all official documents related to the complaints that have been filed and any rulings issued by panels in a website that is readily accessed. Professional sources of legal commentaries on WTO rulings and academic studies are also abundant. In short, for governments that have sufficient capacity in terms of personnel to process the large amount of technical legal rulings, information about filing activity and the emerging jurisprudence is widely available.

Under what conditions would governments choose to act on this information? Given the lack of binding precedent in the WTO, rulings do not impose new obligations on members. This reduces the probability that governments would change a policy without having been directly overruled in the dispute. Existing policies benefit from vested interests and status quo bias in policy-making. While being dragged to court imposes the cost of litigation and any reputation cost associated with being found in violation, the process also buys time for industry adjustment and allows states to clear their reputation once they announce compliance with the ruling. We are unlikely to see the overturn of major policies or politically sensitive issues. However, for a measure with low economic and political stakes, officials could possibly decide to change a regulation to avoid potential future litigation. Administrative decisions will also adjust more easily to new information on obligations. More likely than policy reversals, however, would be instances when policy reform or new policy formulation would reflect the latest jurisprudence and avoid conflict of commitments. Those policies that have lower economic stakes, more autonomy of bureaucracy for decisions, and lie at areas of new policy formulation are most likely to exhibit deterrence patterns.

In summary, the rulings of the WTO enhance understanding of commitments and credibility of enforcement in ways that prevent disputes to the extent that they induce higher compliance levels. Whether this actually happens, however, relies on the assumption that states would not violate

³⁷Official of the Japanese Ministry of Economy, Trade, and Industry, interview by author, Tokyo July 4, 2012.

rules intentionally if only they fully understood their obligations. Political circumstances may lead states to support policies in full knowledge of their inconsistency with treaty obligations. In the absence of precedent, there is little pressure for states to constantly update their knowledge of treaty commitments through careful attention to jurisprudence. Nevertheless, the behavior of both the Appellate Body and members suggest that members do examine jurisprudence as a guideline for understanding legal commitments. On the margin, states may incorporate this information to shape future policies in ways that would avoid being found in violation on the same issue.

The empirical investigation of how one complaint influences the incidence of future disputes presents even greater data challenges than the earlier assessment of how the dispute process influences dispute outcome. Ideally, one would want to reexamine the potential disputes data while controlling for the underlying legal similarity between disputes in order to estimate whether a ruling on a given legal principle in one case contributed to the withdrawal of another trade barrier that was likely to be found in violation on the same legal principle. Unfortunately the description of the trade barriers in the government reports is cursory about legal status for those that are not raised in dispute settlement. Nevertheless, looking at descriptive trends in the frequency of disputes can offer insights about possible role of more generalized pattern.

4 Analysis of WTO Dispute Frequency

The previous section explained why complaints could reduce future disputes, which would lead to an empirical pattern of declining frequency of disputes. As more complaints are filed, the enforcement mechanism gains credibility so that it should hold more deterrent value over time. States observe others taking action against inconsistent policies and recognize that there is accountability within the system. If disputes perform a substantial gap-filling role that clarifies the terms of the agreement, one would expect declining trend in the frequency of disputes. The growing body of jurisprudence will function to “complete” the contract.³⁸ As time passes, states can internalize

³⁸Maggi and Staiger (2011) show formally that precedent effects may induce an increase of litigation in period 1 by raising the stakes of litigation. The inefficiency of excess litigation in period 1 may under some conditions be offset by reducing future litigation in period 2. Their model explores the role of accuracy by the dispute body rulings and discount factors of governments to determine when precedent-setting authority for WTO panels would be optimal. More generally on the efficiency of precedent in common law legal systems and on the influence of

the lessons from earlier cases.

The fall in number of annual WTO complaints is readily apparent. The first five years of the WTO from 1995 to 2000 saw an average of forty-one disputes initiated per year compared to only twenty-one per year on average for the 2001 to 2008 period Bown (2009a, p. 65-66). Many factors could account for the decline of cases. Bown attributes this pattern to two factors: first, a surge of demand in early years as governments took up issues left over from Uruguay Round and sought to try out the newly strengthened dispute system, and lower demand after 2001 as macroeconomic conditions and export growth made enforcement actions appear unnecessary. In addition, the downward trend could represent evidence confirming the effect of dispute activity from early years. A senior U.S. trade official for the Bush administration defended the decline of cases under their watch with the explanation that “The surge of cases in early Clinton years reflects that there was overhang from the GATT years of cases. Many were filed and resolved. These precedents are out there so there is no need to file. This leaves the cases that are either blatant violations or those that are probing the law.”³⁹ I will explore these claims more closely by focusing on the variation across types of cases.

Differentiating Disputes by Legal Claims

Disaggregating complaints by agreement will provide additional leverage to assess the role of information in compliance. Both the nature of the contract and incentives of states vary over the different types of disputes that arise under each agreement. I argue that the agreements also differ in the level of uncertainty about the law and pressure from political shocks. One would expect there to be the most room for jurisprudence to complete the contract through reducing ambiguity for technical agreements related to standards (customs valuation, licensing, Technical Barriers to Trade, and Sanitary and Phytosanitary Measures). Priest (1977, p. 81) argues that litigation in areas of law where characteristic disputes remain consistent over time will evolve toward more efficient rules, and by implication lower rates of litigation. For example, a ruling that labeling should follow international standards would be readily applied for another labeling case such that the parties could more easily settle out of court.

precedent on settlement rates, see (Priest, 1977; Che and Yi, 1993).

³⁹Interview by author, 10 April 2010.

In contrast, trade remedy measures (e.g. safeguards, subsidies, anti-dumping) would be the least susceptible to precedent effects. Many of the decisions for these kinds of disputes are determined by detailed evidence on prices and imports and the practice of government as applied to the specific case. Governments find it more difficult to win the ruling and compliance for claims *as such* against the law, although these cases hold broader implications than the more common remedy disputes over law as applied. This makes disputes related to trade remedy agreements prone to case-by-case dynamic rather than consistent characteristics. Moreover, these measures are invoked by governments as a response to economic hard times and lobbying pressures (Knetter and Prusa, 2003; Hansen and Drope, 2004). Such factors could lead governments to implement barriers even knowing that they are inconsistent with agreements.⁴⁰ The United States decision to invoke steel safeguards in 2002 represented a political response by officials aware that a violation ruling would be issued.

The new agreements that broadened the scope of the trade regime to explicitly incorporate intellectual property rights, investment, and services were likely to give rise to the highest amount of uncertainty about interpretation of the law. In these areas, negotiators in the Uruguay Round had to write an entirely new contract as opposed to strengthen provisions in existing agreements such as occurred for trade remedy measures. There were deep divisions among members regarding the willingness to include these issues and depth of liberalization. Both conditions would have contributed to the tendency to write an incomplete contract with gaps and vague statements. There was no record of prior GATT panel rulings. Members would have had reason to be uncertain about the nature of their commitments and whether those commitments were going to be strictly enforced by other members. I will give less attention to the Agriculture Agreement, which crosses between a new and old agreement and includes aspects that are technical and others that are extremely sensitive to economic conditions and political demand.

⁴⁰Maggi and Staiger (2011) propose that a high discount factor by governments will make precedent-setting authority less optimal. Governments would have a high discount factor for trade remedy cases responding to pressing demands by domestic industry relative to low discount factor for standards.

The Success and Limit of Deterrence

I examine the pattern of filing complaints disaggregated by agreement for the period 1995 to 2015. Each complaint filed to the WTO states the legal claims challenging the barrier as inconsistent with specific agreements. Some complaints will be filed under only one agreement, while others will be filed under multiple agreements. The data represent the number of complaints filed under the specified agreement.⁴¹ The total number of complaints filed across the agreements would exceed total disputes because a single dispute could be counted as three complaints if it refers to three different agreements in the legal claims. For example, the case by Brazil against U.S. cotton subsidies (DS 267) makes claims under the GATT agreement, SCM agreement, and the Agriculture Agreement. Other cases would only cite one agreement, such as the U.S. complaint against Japanese tax policy for alcoholic beverages filed under GATT (DS 11) or the complaint by Antigua and Barbuda against U.S. restrictions on internet gambling that was filed under GATS (DS 285).

The focus on complaints allows me to assess deterrent effect on the broader membership from plaintiff activity. This research design is less appropriate for the assessment of legal precedent completing the contract because not all complaints lead to rulings, and the legal ruling will follow in stages years after the complaint. But I argue that the informational role of adjudication is triggered by any dispute that enters the dispute settlement process when a formal complaint is filed.

In the area of trade disputes, one can see many cases of complaints that are resolved without a ruling but nonetheless clarify treaty interpretation. For example, Japan's challenge of U.S. unilateral sanctions against its auto exports (DS6) filed in 1995 was resolved before the establishment of a panel through a mutually agreed solution in which the United States withdrew its sanctions in exchange for a face-saving agreement from Japan for concessions on the request for improved market access. All members could observe that it would be difficult to justify unilateral sanctions in a legal setting so that even the United States had to back down in the face of certain defeat if it went forward to legal ruling. This experience had an important influence to restrain the United States from engaging in future threats of unilateral retaliation (see discussion of Kodak Fuji case in paper four for a good example of this restraint). Similarly, the EU agreed to change its labeling

⁴¹Source: <http://www.worldtradelaw.net/dsc/database/agreementcount.asp> accessed April 2016.

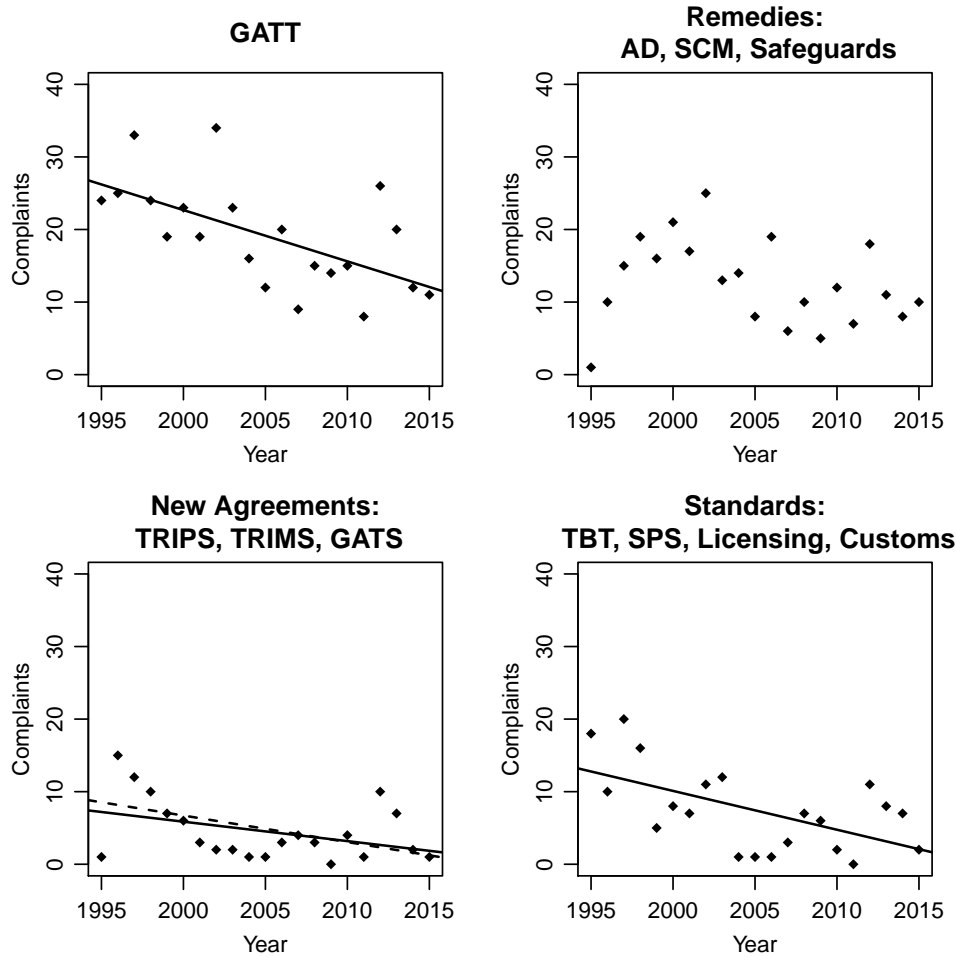


Figure 1: Time Trend for Complaint Frequency: *Each dot represents a complaint filed under one of the specified agreements. The line represents the linear regression line for GATT, New agreements, and Standards. A dashed line represents the regression for complaints filed under new agreements when removing the first year that could be an influential point.*

policy for scallops after seeing the interim panel report in order to avoid the formal precedent of a ruling that would hold implications for other policies (DS 7). The panel report never became public and so this appears in the data as a complaint but would not be listed as a ruling. Other members, however, were aware of the case and its implication that labeling policies would have to be revised to conform with international standards. In order to incorporate the influence of such cases, I examine the growing record of litigation related to particular matters rather than specific rulings on legal points.⁴²

⁴²This diverges from the emphasis in other studies on legal precedent that by nature depends on existence of a ruling. Kucik and Pelc (2016) note that investors respond to Appellate Body rulings but not the earlier panel rulings.

Table 5 in the appendix shows the complaints listed separately by each agreement. For the purpose of comparison, figure 1 displays four groups of complaints in a scatterplot with a dot for each complaint. The linear regression line for the correlation between year and complaints is significant for the GATT agreement, new agreements, and standards. Complaints filed under the trade remedy agreements do not show any kind of linear pattern. The downward trend exhibited for complaints filed under GATT is less informative for our purposes here since so many complaints will cite the GATT agreement in addition to another agreement directly implicated by the measure (e.g. a case about a technical barrier will often cite both GATT and TBT, and a case about an anti-dumping measure would also cite both GATT and the AD agreement). More important is the pronounced decline in the frequency of complaints over standards relative to the nonlinear distribution of complaints about trade remedies. Indeed, after observing routine complaints filed during the first decade of the WTO under the agreement on licensing that regulates the processing of import licenses, no complaints have been filed under the agreement in the past four years. The major new additions to the trade regime, regulation of intellectual property rights (TRIPS), services (GATS), and investment (TRIMS), also fit the pattern of declining frequency. There were no direct GATT precedents to reduce uncertainty for these rules and one could also expect more gaps in the treaties in new areas of law. The frequent complaints under these agreements in the early years may have helped to clarify these aspects of the agreements and demonstrated that members would be held accountable in these new areas.

In contrast, trade remedies surged during the middle years of the period. This is most apparent for the complaints filed under the safeguards agreement. The 11 complaints under the safeguards agreement in 2002 partly reflects the U.S. steel safeguard initiation, which triggered individual complaints by nine countries against the measure. Moreover, the year 2002 brought the highest number of safeguard initiations by members to date. The anti-dumping (AD) and subsidies (SCM) agreements also show a nonlinear distribution of complaints over time. The agriculture agreement, which is not displayed in the graph but can be seen listed in the table, has been subject of complaints with decreasing frequency. The rate of decline and significance of the linear time trend is smaller than either the new agreements or the standards agreements.⁴³

Figure 2 shows the data as a cumulative count for complaints filed to date under each group

⁴³The coefficient for the agriculture complaints is -0.35 (p-value: 0.05), compared to -1.06 (p-value: 0.006) for GATT, -0.96 (p-value: 0.004) for the standards agreements, and -0.63 (p-value: 0.01) for the new agreements.

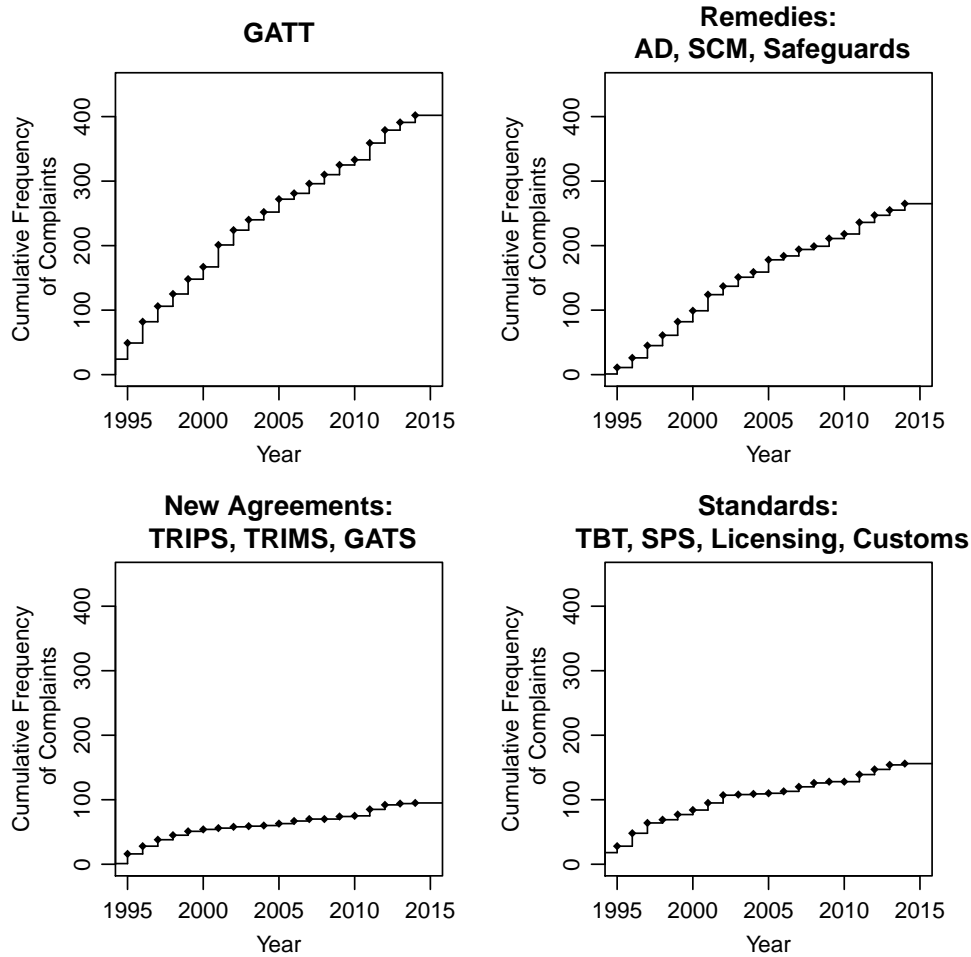


Figure 2: Cumulative Complaints By Agreement: *The figures show the cumulative total complaints under the specified agreement.*

of agreements. Here the expectation would be that the buildup of litigation would eventually produce a leveling off effect. The rate of increase in cases each year for complaints filed under GATT has slowed as each step becomes smaller. There is the beginning of a leveling off trend for the remedies agreements, but it is the new agreements and standards that exhibit a more pronounced flattening out.

The data here remains too aggregate to make conclusive inferences. One cannot distinguish whether the variation in complaint pattern results from exogenous changes that would influence underlying protection and bargaining dynamics between trading partners. What we can learn is that the system-wide trend toward less frequent complaints has been more pronounced in some areas of law than others. Over time, members have found reduced need to seek third party involvement for disputes over technical agreements and new agreements, while the demand for

adjudication remains strong in the areas that are more responsive to macroeconomic trends and lobbying pressure. The growing record of adjudication has provided information for members that inconsistent policies will be challenged. Where possible, states are learning to avoid inconsistent policies and work out disputes without formal action. Nevertheless, political needs over-ride in some cases. Even after another decade of adjudication working to fill gaps of understanding about the legal agreements and raising the certainty about enforcement, the system will probably still encounter disputes driven by political necessity.

5 Legal Design and Deterrence

The question of deterrence also implicates the nature of the legal system. Lower levels of legalization support weaker deterrence. Few would expect *stare decisis* to hold across ad hoc arbitration decisions. Absent rights to guaranteed legal recourse with standing judges, individual events would be unlikely to shape expectations of others for different cases. Both standing judges and guaranteed access to due process form the legal foundation for the logic of deterrence.

This distinction can be tested in the case of the trade regime evolution from GATT to the WTO. Under the GATT there was less predictability about rulings given that complainants could not count on the right to a panel nor appeal to a standing body of judges. In contrast, the WTO ended the practice to allow defendant veto of complaints and established an Appellate Body that would serve as a check on the panels and institutional memory for jurisprudence. Therefore, one would expect to see behavior consistent with the logic for deterrence only after establishment of the WTO.

I examine this question through a test of complainant patterns over the period 1975 to 2012 for 134 GATT/WTO members with available data on covariates.⁴⁴ I draw on a baseline model for when countries will file individual complaints according to their economic and political characteristics (Davis, 2012b). A systemic measure for number of prior cases filed across the full set

⁴⁴Use of the historic data on GATT complaints means that observations in 1975 incorporate the prior ten years filing record without any censoring of the data. The data for the GATT period disputes were generously provided by Marc Busch and Eric Reinhardt, and are described in their analysis (Busch and Reinhardt, 2003). The data for the WTO disputes are from the World Trade Law database summary of all WTO disputes available at <http://www.worldtradelaw.net/>.

of member states serves as the proxy for past jurisprudence. As in the previous section, this is an aggregate count of all requests for consultations rather than rulings on specific legal principles. Under the logic of deterrence, higher levels of enforcement actions during time t will lower the likelihood of additional complaints during time $t+1$. Both legal clarification and credible enforcement could lead past cases to lower the number of barriers that would generate complaints going forward. Given the likely diminution of effects over time, I will focus on a ten year period of past litigation to assess the basic pattern. This variable for system disputes is interacted with the indicator for the WTO period (and both base terms are included as separate measures). My deterrence hypothesis suggests that prior complaints will induce a reduction of filing under the WTO rules, but not do so under the GATT rules.

The unit of analysis is the country year with the outcome as a count of the number of complaints. To address over-dispersion, I use a negative binomial distribution to estimate the effect of past system disputes on the likelihood of an individual country filing a request for consultations. Standard errors are clustered by country in the main analysis shown here, and results are robust to instead modeling with country fixed effects.⁴⁵ The control variables include the count of own country past complaints, which could introduce countervailing effects through the channel of litigation experience (Davis and Bermeo, 2009). Other measures capture the domestic political institutions that shape the propensity to file (democracy and institutional checks and balances) and core economic conditions related to capacity (GDP and per capita GDP) and trade profile (number of bilateral PTAs, Agriculture exports as share of GDP, total exports share of GDP, and trade balance).

The results are consistent with expectations. The WTO period saw an overall increase in the average member probability to file a complaint. But the system level trend differs across the GATT and WTO period with the accumulated count of past disputes in the prior ten years holding a small positive effect during the GATT period and reversing to have a larger negative effect during

⁴⁵The results are similar when using a zero-inflated negative binomial regression to estimate zero complainant observations as a separate process determined by capacity of states and the count of complaints as a function of the full specification.

Variable	Coefficient	(Std. Err.)
WTO period	1.446	(0.311) **
System Disputes X WTO	-0.010	(0.002) **
System Disputes	0.005	(0.002) **
Country complaints	0.032	(0.007) **
Democracy	0.809	(0.249) **
Checks	0.318	(0.163)*
GDP (log)	0.734	(0.068) **
Income per capita (log)	-0.149	(0.064) **
PTA	0.021	(0.020)
Agriculture percent	0.027	(0.004) **
Export percent GDP	0.009	(0.004) **
Trade balance	0.002	(0.000) **
Intercept	-21.630	(1.893) **
N	2451	

Table 3: Negative Binomial Regression of Complainant activity and Past Cases. The coefficients estimate the likelihood a given country filed a complaint during a year. Robust standard errors (clustered on country) are in parentheses. *Significant at the 10 percent level. **Significant at the 5 percent level.

the WTO period.⁴⁶ To consider the substantive size of the marginal effect of past complaints, consider the following simulated estimation of the first difference when holding control variables at their mean values and setting WTO period value to one: during the WTO period with moderate rate of dispute record (140 in past ten years as observed in 1995) the model estimates indicate a country would have an 89 percent predicted probability of not filing a case (confidence interval 0.86 – 0.92). After a surge of litigation by other countries (243 in past ten years as observed in the year 2000), there would be an additional 7 percent reduction in the likelihood of filing (0.04 – 0.10).⁴⁷

It is very difficult to pinpoint deterrence as a causal relationship because the posited mechanism of gap-filling and credibility are unobserved. I am also assuming that the complaints filed respond to underlying protection without modeling the trade barriers themselves. In the future, the trade

⁴⁶If one instead splits the sample into two periods instead of modeling the interaction, there is a significant positive coefficient on system disputes in the GATT period and a significant negative coefficient on system disputes in the WTO period.

⁴⁷One could instead compare the shift from one standard deviation below mean value of 192 system disputes over ten years to one standard deviation above the mean value while holding constant the WTO period variable; this shift from 101 prior disputes to 283 prior disputes yields a very similar 7.5 percent first difference estimate (0.03 - 0.13).

barrier data updates from the first section will allow a more precise test of whether past complaints reduce the frequency of barriers and facilitate testing within a more defined scope of policies. In the analysis here, the past disputes introduce potential spurious relationship with other factors that shape overall trends in protection and enforcement actions. Nevertheless, these preliminary results follow the expected direction consistent with the evolution of the legal system. Under low levels of legalization in the GATT period, there is no evidence that past complaints reduced subsequent actions. The increase of legalization in the WTO, however, supported the emergence of deterrence. The high use of complaints in the early years of the WTO has contributed directly to the lower number of disputes in the later years.

6 Conclusion

This paper has shown evidence supporting the role of international institutions as a conflict resolution mechanism. I demonstrate that WTO dispute settlement is effective to bring progress to change the trade barrier. Given that politicized cases are channeled into the WTO forum, it is remarkable that the dispute system has been relatively successful to resolve trade disputes.

Yet looking at observed disputes alone would miss the broader role of the system to prevent conflict. The expanding body of jurisprudence represents a major contribution of the institution (Jackson, 2001, 209). As each ruling clarifies ambiguities in the agreement, it may prevent future disputes on similar matters by removing uncertainty about what policies would be in compliance with the agreement. Deterrence represents another mechanism for preventing disputes. Beyond legal rulings, plaintiff activity demonstrates that states are likely to enforce the contract and increases the credibility of the rules-based system. In this sense, each dispute continues to matter long after the original problem has been resolved.

Deterrence stretches beyond the role of legal precedent. First, by means of deterrence effects, legal actions can influence actor expectations without having to proceed to the final release of a legal ruling. Second, where legal precedent exercises its influence through subsequent legal actions, deterrence is greatest when it obviates the need for further legal actions.

The effect of adjudication to improve compliance across members and over time would be on top of the directly observed effects for specific disputes. The declining frequency of complaints over time is consistent with expectations that early cases reduce subsequent disputes through

clarification of the law and greater credibility of enforcement. The trend was strongest for disputes over agreements related to standards and new areas of regulation for the trade regime. The trade remedy measures that respond more to immediate economic and political pressures show little evidence of any time trend. Moreover, the variation over time demonstrates that increased legalization in the WTO dispute settlement design has supported deterrence more than the weaker legal system of the GATT. Future research should examine this puzzle with better measurement of legal precedent and factors that influence demand for both protection and enforcement.

7 Appendix

	Mean Diff.	eQQ Med	eQQ Mean	eQQ Max
Contributions	58.9	64.7	51.2	11.0
Section 301	9.4	0.0	8.3	0.0
Production (log)	53.9	95.4	88.6	91.7
Exports (log)	81.7	88.3	73.4	14.1
MPEN (partner)	77.2	78.9	16.1	22.0
Import policy	60.6	0.0	62.5	0.0
Distortion	19.9	0.0	17.6	0.0
EU	100.0	0.0	100.0	100.0
Japan	100.0	0.0	100.0	100.0
Korea	100.0	0.0	100.0	100.0
Mexico	100.0	0.0	100.0	100.0
Non-OECD	100.0	0.0	100.0	100.0
Duration	11.8	0.0	9.4	20.0
Propensity score	15.2	7.9	13.8	12.5

Table 4: Percent Improvement in Covariate Balance due to Matching: Each column shows percent improvement in covariate balance in terms of mean difference, the median, mean, and maximum values of differences in empirical quantile functions. The exact restrictions on trade partners are reflected by improvements of 100.

Agreement	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	Total
GATT	24	25	33	24	19	23	19	34	23	16	12	20	9	15	14	15	8	26	20	12	11	402
AD	1	3	3	6	8	11	6	7	6	8	4	8	1	5	3	5	5	6	6	5	5	112
SCM		7	10	11	3	7	4	7	6	6	2	9	5	5	1	3	2	7	4	3	3	105
agriculture	4	5	13	5	6	5	2	7	6	2	1	1	2	2	5	0	0	3	4	3	0	76
TBT	8	5	4	5	0	2	3	2	4	0	0	0	1	3	3	1	0	4	4	1	1	51
SPS	5	3	3	5	0	2	1	5	6	0	0	0	1	2	3	1	0	3	0	2	1	43
safeguards		0	2	2	5	3	7	11	1	0	2	2	0	0	1	4	0	5	1	0	2	48
licensing	2	1	13	5	4	1	2	4	1	1	1	0	0	0	0	0	0	4	3	3	0	45
TRIPS		6	5	4	5	3	1	0	1	0	0	0	1	0	0	2	0	3	2	0	0	33
TRIMS		6	5	3	1	1	1	2	0	0	1	3	2	0	0	1	1	6	5	1	1	40
GATS	1	3	2	3	1	2	1	0	1	1	0	0	1	3	0	1	0	1	0	1	0	22
customs	3	1	0	1	1	3	1	0	1	0	0	1	1	2	0	0	0	0	1	1	0	17
ROO		0	2	1	0	0	0	1	0	0	0	1	0	2	0	0	0	0	0	0	0	7
GPA		0	3	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
Total	48	65	98	75	54	63	48	80	56	34	23	45	24	39	30	33	16	68	50	32	24	1005

Table 5: WTO Complaints by Agreement: The rows show complaints filed under the specified WTO agreement. Many complaints involve more than one agreement such that the total number of complaints under each agreement is greater than the number of complaints that have been assigned a dispute number by the WTO as a distinct case. Complaints filed under the Agreement on Textiles and Clothing are not included because the agreement expired in 2005.

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