On the *Economic* Success of GATT/WTO Dispute Settlement

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Abstract

What features of the dispute settlement process help governments live up to their trade liberalization commitments? Exploiting data on GATT/WTO trade disputes initiated and completed between 1973 and 1998, this paper identifies economic and institutional determinants that help defendant governments commit to liberalizing trade. We find substantial evidence consistent with the theory that 'power' measures, including threat of retaliation by the plaintiff, yield credibility to allow defendant governments to live up to their commitments. We find little evidence, however, that particular procedural or institutional features beyond the basic GATT/WTO dispute settlement forum itself contributed to the successful *economic* resolution of trade disputes.

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1 Introduction

What features of the GATT/WTO dispute settlement process help governments live up to their trade liberalization commitments? As a government struggles to implement the liberalization commitments made in an earlier GATT negotiating round and finds itself faced with a trade dispute, are there particular features of the dispute settlement process that help it credibly commit with respect to the behavior of its private sector? For example, do defendant countries rely on the threat of retaliation by the 'plaintiff' trading partner? Does the stigma of a possible legal rebuke by the international community induce economic compliance?

This paper exploits data on formal GATT/WTO trade disputes over the period 1973-1998 to address these questions empirically for the first time. We focus on trade disputes involving allegations that the defendant country has either provided an increase in protection to its import-competing sectors above the maximum level to which it agreed in an earlier negotiating round, or that it has refused to liberalize in a sector as previously agreed.[1] Our analysis looks to determine what economic and institutional factors influence the *economic* outcomes of these cases, i.e., what features affect the ability of defendant governments to follow through with trade liberalization commitments.

International trade theorists have suggested that one potential role for the GATT/WTO institution is to provide a commitment device for governments otherwise lacking the ability to commit credibly to liberalization with respect to behavior of their private sectors.[2] An early and influential paper in this vein was the theoretical contribution of Staiger and Tabellini (1987), who illustrated how the optimal policy of free trade may not be time-consistent.[3] They show that when a government faces an incentive to "surprise" its private sector with unexpected protection to achieve redistributive

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[1] This approach requires, of course, that the allegations have legal merit. Our data, together with compiled estimates from Hudec (1993) and other formal GATT/WTO panel reports, suggest that in only 9 out of over 100 cases in which a formal trade dispute panel report was circulated did a panel fail to find the defendant "guilty." Of the 87 observations that did not result in a panel being established, compilations from Hudec (1993) and additional formal GATT/WTO correspondence provide evidence that in at least 40 of those cases the defendant admitted to some level of culpability by removing or reforming the alleged GATT/WTO violation. We will address this issue more formally in our empirical analysis below.

[2] Other literature on the efficiency-enhancing role of a trade agreement suggests it can assist countries to eliminate terms-of-trade driven restrictions that lead to a prisoner's dilemma-type outcome. This aspect is pursued in theoretical settings such as Bagwell and Staiger (1999). We will return to the linking of the two roles for a trade agreement in Section 5.

[3] A recent theoretical paper relating to political economy and the GATT/WTO as a commitment device is Maggi and Rodríguez-Clare (1999). In a recent empirical paper using U.S. data, Staiger and Tabellini (1999) compare the determination of sector exclusions in the Tokyo Round to the use of the escape clause and find evidence that GATT rules do help governments make domestic trade policy commitments that would not otherwise have been possible.

goals, the time-consistent policy will not be free trade, but a policy of protection to redistribute income from high income to low income workers. One implication of their results is that the time-consistent trade policy is suboptimal, and that the government could better achieve its objectives if it had access to an external commitment device that would force it to follow through with the optimal policy of free trade. This, of course, is one justification for an agreement or institution such as the GATT/WTO, and one area within the system where we would expect this commitment device to manifest itself would be in the dispute settlement provisions.

The Staiger and Tabellini theory thus provides a natural setting to frame our empirical exercise. Assume that a government has "negotiated" with its trading partners and the result is a tariff binding at the optimal policy of free trade. However, due to the time-consistency problem, the government imposes a trade restricting policy that is both suboptimal and at odds with its GATT/WTO commitments. Due to the conflict of this policy with its GATT/WTO obligations, the government then becomes a defendant in a formal trade dispute. We thus interpret the dispute settlement procedure as a forum the defendant government can use to credibly commit to trade liberalization in the disputed sector. Once involved in the trade dispute, the defendant government is faced with the following tradeoffs: the welfare gains it receives from the ability to "surprise" its private sector with protection versus the costs of the failure to liberalize that are imposed by the dispute settlement system. If the costs imposed by the system are larger than the welfare gain the government would achieve by surprising its private sector with protection, the government will be able to "commit" to liberalization. In such a case, the dispute resolution process will be an *economic success*, as it will have been instrumental in committing the defendant to the optimal trade liberalizing policy.

This paper is a first attempt to identify empirically which potential *costs* imposed by the trade dispute process allow defendant governments to overcome the commitment problem. In the estimation, we attempt to separate out the the impact of the cost of potential *retaliation* from what Kovenock and Thursby (1992) refer to as the cost of "international obligation," or the stigma associated with failing to liberalize in the face of GATT/WTO procedures and evidence that the defendant is not complying with the rules.[4] After controlling for adjustment and political economy costs in the estimation, we then interpret the economic success (i.e., trade liberalization) that results from the dispute settlement process as being due to the commitment power the defendant country enjoys through participation in the GATT/WTO system.

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[4]Kovenock and Thursby (1992) borrow this concept from international law and motivate it in their theoretical model by suggesting that "[i]n the political economy interpretation of the model, we can think of this disutility [of international obligation] as a loss of goodwill in the international arena or the political embarrassment that comes from being suspected of violation...." (p. 160)

A second motivation for this paper is to identify the fundamental determinants of economic success in formal trade disputes in the GATT/WTO system. Given the rate of growth in the number of formal disputes filed, the diversity of plaintiff countries initiating cases, and the number of cases resulting in adopted panel reports, the evidence certainly points to an increasingly efficient institutional structure and an increasingly "legalized" system.[5] However, researchers have yet to determine whether the dispute settlement process is contributing to the primary task of the GATT/WTO system, which is to liberalize trade. Here we do not assess whether the dispute procedures are *adequately* performing this role. However, by illustrating that the pattern of *economic* success in these cases is influenced by incentives that the framers of the dispute settlement provisions may or may not have envisioned, we can perhaps identify reforms that might lead to a more *economically* successful dispute resolution framework.[6]

It is perhaps useful to clarify and identify some areas that this paper does not address. First, we do not formally test the hypothesis that the GATT/WTO is providing commitment power that wouldn't otherwise exist, which is one of the aims of Staiger and Tabellini (1999). Instead, by looking at trade disputes involving a defendant country that has failed to live up to its obligations, we focus on a setting designed for a country to take advantage of whatever commitment power the GATT/WTO system can provide, and we look to determine the origins of this commitment power. Second, our analysis is also unable to comment on the economic success of the dispute settlement *system* itself. Clearly any measure of success of the dispute settlement system must consider not only the effectiveness of the provisions in liberalizing trade in disputes that occur but also the system's effectiveness at deterring countries from imposing policies that conflict with their GATT/WTO obligations.[7] Third, we do not

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[5] For a complete discussion of the legal and institutional aspects of the GATT/WTO dispute settlement system, including an analysis of the legal reforms implemented at the end of the Uruguay Round, see Petersmann (1997).

[6] It may also be important to understand whether the dispute settlement provisions of the GATT/WTO are successful in inducing behavior consistent with GATT/WTO rules, given the recent theoretical literature focusing on the efficiency-enhancing properties of these rules. For example, Bagwell and Staiger (1999,2000,2001a) have illustrated how the rules of MFN and reciprocity induce countries to negotiate sustainable multilateral trade agreements. An underlying assumption in these papers and others is the existence of a functioning dispute resolution mechanism capable of enforcing these rules in the presence of either violation or nonviolation complaints. To the extent that we can help identify what factors lead to a functioning dispute resolution mechanism, we can perhaps provide information on the scope of applicability of the results of this area of research as well.

[7] It is difficult to measure empirically the success of the provisions in dissuading behavior that would possibly lead to a trade dispute and potential retaliation, and thus we do not address that issue here. Bown (forthcoming,2001), however, provides a theoretical and empirical approach, respectively, that attempts to address this issue. The framework considers instances in which countries implemented *import protection* under the GATT regime, and when they chose to do so in a way which followed the GATT rules, by using the appropriate safeguards provisions, as opposed to some measure which allegedly violated the country's GATT obligations, resulting in a trade dispute.

attempt to determine what factors lead to a particular legal decision or legal outcome in these cases. While we analyze how particular legal decisions or legal outcomes may affect the *economic* success of trade disputes, we do not investigate the legal determinants of 'guilt' or 'innocence.'

Our approach complements and contributes to the existing empirical literature on trade disputes, which we characterize as falling into two categories. The first area of the literature also looks at the *outcomes* of trade disputes, but this research includes papers that focus exclusively on United States use of Section 301.[8] For example, Bayard and Elliott (1992,1994) and Elliott and Richardson (1997) examine U.S. use of Section 301 and when its use resulted in market opening versus market closing. Kherallah and Bhegin (1998) also focus on U.S. trade disputes and identify economic and political factors that increase the likelihood of the petition ending in a trade war as opposed to an agreement. In each of these papers, the outcome of the dispute was characterized as a categorical variable, interpreted by the researchers and from the perspective of the plaintiff country. Our approach differs in that we look at measures of resulting *trade liberalization* as our measure of the dispute's resolution, concentrating on measures of economic success taken from the perspective of the dispute settlement system.[9] Relative to papers that consider only cases in which the U.S. is a plaintiff, our approach is also much wider in scope in that we consider a set of trade disputes involving many developed and developing countries in the GATT/WTO system.

The second area of the empirical literature relates to the *initiation* of GATT/WTO trade disputes and includes investigations by Horn et al. (1999) and Bown (2001).[10] Bown (2001) uses data on disputes and safeguards measures under the GATT regime to determine what factors influence a country's decision whether to provide import protection through the agreement's safeguards provisions rather than through a measure that will lead to the initiation of a trade dispute. The results are consistent with those found here, that concerns for retaliation appear to affect trade policy decisions made by governments. On the other hand, Horn et al. (1999) do not find evidence of a bias in the pattern of disputes that have been initiated under the WTO. They use a probabilistic model to illustrate that the pattern of disputes can be explained fairly well by the value of trade and the diversity of trading patterns. They conclude that even though the U.S., E.U., Canada and Japan initiate over 60% of all complaints, these two factors cause them to be involved in more formal trade

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[8]Under Section 301 of the 1974 Trade and Tariff Act, American exporters can petition the government to conduct market-opening negotiations with foreign countries which they feel are unfairly impeding imports from the United States. For a discussion see Hudec (1990).

[9]For example, even though a defendant country may 'lose' a case, in our setting the defendant may see the dispute as a success if it yields credibility and the ability to commit to an otherwise time-inconsistent policy.

[10]Grinols and Perrelli (forthcoming) also focus on the political and economic factors affecting the probability that a trade dispute will be initiated, but they consider only U.S. disputes.

disputes, and therefore they find no evidence that measures of "power" affect the initiation of disputes. As will be discussed below, these results contrast with our findings that, when looking at the *economic outcomes* of these disputes, "power" measures, including the threat of retaliation, do matter.

As a preview of our results, we find substantial evidence that the threat of retaliation is an important influence determining a defendant country's ability to credibly commit to liberalization. In particular, our results suggest that, relative to the average dispute, a plaintiff country that receives a 50% greater share of the defendant country's exports will receive 75% more trade liberalization. We also find the somewhat surprising result that the threat of retaliation does *not* appear to be driven by the disputes in which the U.S. is the plaintiff country. Non-U.S. plaintiffs also obtain greater liberalization, the greater is their ability to threaten retaliation against the defendant, should the defendant refuse to liberalize. In fact, we find that the impact on trade liberalization of a marginal increase in "retaliation power" is much greater for non-U.S. plaintiffs than it is for the U.S. itself.

On the other hand, we find little evidence to suggest that the costs imposed by "international obligation" are sufficiently large to give defendant countries commitment power. Neither the establishment of panels, the adoption of panel reports, nor the determination of guilt by a panel appear to have any impact on the economic success of trade disputes. And these are all actions by the GATT/WTO system, which, when accompanied by the failure of the defendant to comply, might be politically costly to a defendant government. Thus even if the Uruguay Round reforms did create a more efficient "legalized" system, our results suggest that these reforms may have minimal *economic* impact on the resolution of disputes.

Finally, we feel that the questions addressed in this paper are important for at least two additional reasons. First, the dispute settlement in the GATT/WTO system is frequently cited as a model for areas of policy that require international cooperation. As an example, some groups are calling for a greater linkage between environmental or labor standards and the WTO because of the *perception* that the GATT/WTO dispute settlement provisions are a success (Destler and Baliant 2000). To the extent that these groups are concerned with the economic, political, and institutional factors affecting the *economic* success of the provisions, our results may shed light on the appropriateness of this dispute settlement model for other areas of international concern. Second, the implications of our results are important given the prospect of reform of the dispute settlement provisions of the WTO during the next negotiating round. Our analysis is designed to help identify the determinants of economic success in dispute resolution. To the extent that negotiators are concerned with establishing a system that leads to the *economically* successful resolution of disputes and augments the GATT/WTO's ability to liberalize trade, our results are potentially useful in determining where to target reforms. Our results indicate that when it comes to *economic* success, it is *economic* incentives that matter.

The rest of this paper proceeds as follows. Section 2 presents the basic theory of the tradeoffs facing a defendant country in a trade dispute and its liberalization decision, as well as a review of the GATT/WTO institutional background. Section 3 discusses the trade disputes data and our econometric framework. Section 4 illustrates the empirical results, and Section 5 concludes with a discussion of additional caveats and proposed areas for further research.

2 Theory and Institutional Background

In this section we briefly discuss the underlying theory and the institutional background of the GATT/WTO dispute settlement process that serves to motivate our empirical analysis.

We take as our setting the theoretical framework on the time-inconsistency of trade policy, proposed by Staiger and Tabellini (1987). In their model, a government with redistributive concerns presides over a small, open economy faced with a terms of trade shock. The timing of the model is then: (i) the government announces a trade policy, (ii) the terms of trade shock causes labor to move across sectors, and (iii) the government imposes the trade policy after observing the labor reallocation. In the model, the sectoral reallocation of labor is costly, and while the government has an initial incentive to *announce* a policy of free trade in order to induce the efficient reallocation of labor, it has a further incentive to "surprise" the import-competing sector with a positive tariff once labor has responded to the terms of trade shock. The free trade announcement is not time-consistent, and the "surprise" protection offered by the government compensates the losers in the private sector for their costly adjustment. The subgame perfect (time-consistent) equilibrium of this game involves the government announcing and yielding a positive level of protection, which thereby induces too little adjustment and is suboptimal relative to free trade.

We start our analysis from this setting with the additional assumption that the initial policy in the sector receiving the shock is "bound" at a level less than the time-consistent equilibrium tariff rate. For simplicity, assume the tariff binding is zero so that it coincides with the (nationally) optimal policy for a small country. The tariff binding refers to the GATT/WTO negotiating process by which a government agrees to limit its tariff to a certain level; any increase of the tariff beyond this point violates that country's GATT/WTO obligations. We start from the "time-consistent" equilibrium, which results in a positive tariff and too little adjustment relative to the optimal, free trade case.[11]

[11] While the Staiger and Tabellini setting is convenient and illustrative, it is certainly not the only time-inconsistency framework that can generate this type of outcome. The key elements are that a shock causes the defendant government to change its trade policy and violate its GATT/WTO obligations, and that there are costs to liberalizing so that the government balances those costs against the potential dispute settlement costs generated because of the failure to liberalize. In a political economy model, for example, a similar outcome could presumably result from a political

The additional assumption indicates that this tariff violates the country's GATT/WTO obligations, and we further assume that this violation results in a formal trade dispute initiated by one of its trading partners. In keeping with the GATT/WTO institutional structure, we assume that if the defendant country loses the case and refuses to liberalize in the disputed sector, it will face the costs imposed by the dispute settlement process. If the dispute settlement costs are large enough, they can offset the *potential* welfare gains to deviating from the announced, tariff binding to impose a protectionist policy that "surprises" its private sector. If the dispute settlement costs are large enough, the defendant government will be able to commit credibly to trade liberalization, and the dispute settlement process will thus be an *economic success*.[12]

The literature on dispute settlement suggests that there are two important costs facing a defendant government which has violated its GATT/WTO obligations.[13] The first such cost is any stigma attached to the failure to comply with GATT/WTO laws and to abide by GATT/WTO rulings - what Kovenock and Thursby (1992) term the cost of "international obligation." This cost may be realized through a weakening of the dispute settlement system; in future trade disputes where the current defendant is a plaintiff, the country may experience difficulty in obtaining *economic success* even though it has legally "won" its case. Alternatively, the cost may manifest itself in future GATT/WTO negotiations; for example, in a future negotiating round the defendant's interests may not take priority on the agenda. Given the defendant's refusal to liberalize, we would presume this cost to be increasing as the case advances through the stages of GATT/WTO dispute settlement: the refusal of the defendant to liberalize after the determination of guilt by a panel would be more costly than the refusal to liberalize after the public announcement (through the establishment of a panel) that the defendant is merely suspected of violating the rules, etc. Figure 1 illustrates the important basic features of the dispute settlement process under the GATT and WTO systems.[14]

The second cost to a guilty defendant facing dispute settlement proceedings would be the potential *economic* cost of retaliation by the plaintiff country that is authorizable by the GATT/WTO. As the

economy shock, instead of a terms of trade shock. See Bown (forthcoming) for a related setting.

[12]In keeping with GATT/WTO practice, we assume there are no compensatory or punitive damages for past illegal behavior in the dispute settlement process. The defendant government only faces costs (to be spelled out below) in the dispute settlement process if it refuses to comply with its obligations and liberalize. Under such assumptions, none of the earlier incentives of the Staiger and Tabellini (1987) model are affected, and it is therefore viable to commence our analysis from their time-consistent equilibrium.

[13]The resource costs of litigation are less relevant as the defendant could choose not to put up a fight.

[14]The differences between the GATT and WTO systems that we will address empirically are twofold. First, under the GATT regime, either country had the ability to veto the dispute process, at any step along the way. Second, under the WTO there is now a formal appellate procedure (and appellate body report) that the parties can resort to, and this was not available under the GATT regime.

defendant cannot be compelled to compensate the plaintiff government, in order for the defendant to be forced to face the *economic* costs of dispute settlement, the plaintiff must have the *capacity* to retaliate. Bown (forthcoming), for example, uses a simple bargaining framework of trade dispute negotiations to illustrate that when countries are large, a plaintiff's ability to affect the *terms of trade* will greatly influence its *capacity* to threaten retaliation. In that model, a tariff response by a large plaintiff country can both increase the plaintiff's welfare and decrease the defendant's welfare, thus having twice the effect on the critical benchmark or "threat point" that drives the outcome of the negotiations. A small plaintiff country's tariff that cannot affect the terms of trade will be less successful at improving the "threat point" bargaining position, even if it is able to impose adjustment costs on the defendant, as it will not be able to improve its own benchmark welfare relative to free trade.

In order for the defendant government to credibly commit to liberalization, the dispute settlement costs must be large enough to offset the potential gains to the defendant government of "surprising" its private sector with protection. Therefore, when confronted with the trade dispute, the defendant government must weigh the tradeoffs - the potential costs of the failure to liberalize generated by the dispute settlement process - against the adjustment costs involved in liberalizing as well as perhaps the political economy costs involved in failing to protect a preferred sector. These costs are likely to differ across sectors and across plaintiffs and defendants, thus generating the variation in liberalizing activity necessary to allow us to estimate the impact of these costs on the *economic success* of the dispute settlement process.

Given the lack of uncertainty in the model, one question which must be addressed is, why would a potential plaintiff initiate a dispute if it knows the defendant will not liberalize? First, the mere initiation of a dispute by a plaintiff is not costly, and potential plaintiffs have an incentive to introduce disputes that may knowingly fail to result in liberalization in order to establish a record of such failures to support reforms in a future negotiating round. Alternatively, the cost of "international obligation" to the defendant may be unknown to the plaintiff, especially in an evolving dispute settlement system.

3 Data and Estimation

3.1 Econometric Model

For our empirical approach, we have constructed a dataset of formal GATT and WTO trade disputes that were started and completed between 1973 and 1998 and which involve allegations of excessive import protection. The trade dispute data are generated from a compilation of Hudec (1993),

WTO (1995,1997) and various panel reports. In terms of the basic data, each dispute involves a single plaintiff[15] and defendant government as well as a disputed sector. For each dispute n, we assume that its successful economic resolution is influenced by the following estimation equation:

$$IMP\_LIB \;=\; \alpha \;+\; \beta\, A_d^i \;+\; \gamma R_{d,p} \;+\; \delta I \;+\; \psi\, M_d \;+\; \theta\, D \;+\; \epsilon, \tag{1}$$

where the dependent variable, $IMP\_LIB \equiv IMP_{d,p,T+1}^i / IMP_{d,p,t}^i$, is the growth of the defendant (d) country imports from the plaintiff (p) country in the disputed sector i between the year of the start of the dispute (t), and the year after the end of the dispute ($T+1$). We define the end year (T) of the dispute to be: (i) the year the appellate body report was adopted, if the panel report was appealed, or (ii) the year the panel report was adopted, if it was adopted and not appealed, or (iii) otherwise the latest year that there was a formal correspondence between one of the parties and the GATT/WTO regarding the dispute. To construct the import data, we rely on GATT and WTO panel reports which identify the Harmonized System (HS) tariff lines of the products under dispute. We then use the 6-digit HS import data available from UNCTAD (1995,2001) to generate our measure of import liberalization.[16]

In terms of our dependent variable, we should further note that in a trade dispute the GATT/WTO does not formally assess a defendant's conformity with its GATT/WTO obligations by looking at trade volumes, but instead the panels are concerned with the conditions of competition, or *market access*, in the sector under dispute.[17] Thus, better measures of "economic success" would include detailed information on the change in the tariff or non-tariff barrier under dispute. Unfortunately, this data is not available for the countries and years necessary for our analysis, thus we proxy for this with data on bilateral trade volumes, under the assumption that increased trade is highly correlated with more competitive market conditions and greater market access.

With respect to the explanatory variables in equation (1), A_d^i is a matrix of industry-specific adjustment costs and political economy variables - both serving to capture the domestic costs to the defendant liberalizing. The $R_{d,p}$ matrix captures the plaintiff country's capacity to retaliate against

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[15] A few disputes have multiple plaintiffs filing jointly, but we separate these into individual disputes, given our interest and focus on bilateral negotiations. We address the empirical issue of multiple plaintiff cases in our discussion below. We discuss the implication of focusing on bilateral measures of trade liberalization and the associated caveats in Section 5.

[16] For disputes prior to 1990, the 6 digit HS data is not available and thus we use the 4 digit SITC import data of Feenstra, Lipsey and Bowen (1997) and Feenstra (2000). For cases that do not explicitly state which HS or SITC products are under dispute, we rely on a description of the product at issue and the concordance files of Feenstra (2000) and UNCTAD (1995,2001) to match the product description with the appropriate industry or tariff line number.

[17] For a discussion of the role of GATT/WTO in securing market access commitments, see Bagwell and Staiger (2001b).

the defendant, and thus measures one potential cost to the defendant of the *failure* to liberalize. The other potential cost of failing to liberalize, or the cost of "international obligation," is captured in the I matrix. M_d is a matrix of defendant country-specific macroeconomic control variables, and D is a matrix of dummy variables including sets of time, country, sector and allegation dummies that will be used as controls and discussed in more detail below. Finally, $\alpha, \beta, \gamma, \delta, \psi$ and θ are the vectors of parameters to be estimated, and ϵ is the additive error term.

3.2 The Explanatory Variables and Data Construction

We next turn to a discussion of a construction of the explanatory variables used in the estimation of equation (1).

3.2.1 Adjustment and Political Economy Costs of Liberalizing

With respect to the estimation equation (1), in considering the adjustment and political economy costs facing the defendant country that is contemplating liberalization, let

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\begin{aligned}
\beta A_d^i \ = \ & \beta_1 \ EMP\_SHARE_d^i \ + \ \beta_2 \ TARIFF_d^i \ + \ \beta_3 \ IMP\_SIZE_{d,t-1}^i \\
& + \ \beta_4 \ OTHER\_IMP_{d,p} \ + \ \beta_5 \ TOKYO \ + \ \beta_6 \ URUGUAY.
\end{aligned}
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Here $EMP\_SHARE_d^i$ is the share of industry employment in the disputed sector in total defendant country employment. The most comprehensive data available for the countries and years needed in the estimation is the 3 digit ISIC industry data provided by World Bank (2001b).[18] Based on the theory of adjustment costs we would thus expect $\beta_1 < 0$.

Next we have that $TARIFF_d^i$ is the disputed industry i tariff binding, and $IMP\_SIZE_{d,t-1}^i$ is the share of total imports of the disputed sector in the defendant country's real GDP. Political economy considerations suggest that $\beta_2 < 0$, and $\beta_3 > 0$. First, sectors which have already had their tariffs negotiated down and "bound" at low levels are likely to face additional liberalization, as this is an indicator of industries that are politically weak. On the other hand, sectors with a very small level of import penetration are indicative of sectors that are politically powerful.[19]

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[18]For disputes relating to agricultural and fisheries products, instead of the ISIC data which only covers manufacturing, we use instead the share of agricultural and fishing employment in total country employment, taken from ILO (2001). This unfortunately does not necessarily give us a common baseline as we do not have disaggregated, sectoral employment data within the agricultural/fisheries sector. We address this issue empirically beginning with Table 4 and our discussion in Section 4.2.

[19]A better measure would be the ratio of imports in sector i to the defendant's consumption of i, but unfortunately consumption data by the HS or even SITC categories necessary is not available.

Finally, we also include measures of *international* political economy. First $OTHER\_IMP_{d,p}$ is defined as the growth over the length of the dispute of defendant imports from the plaintiff in sectors *other than* the sector under dispute. If imports from the plaintiff in all other sectors are surging, the defendant may find it easier to refuse to liberalize because it can claim to be "compensating" the plaintiff by "allowing" its exports to increase in other sectors. Also $TOKYO$ and $URUGUAY$ are indicators that the dispute took place during the Tokyo or Uruguay Round negotiations. One claim is that many trade disputes are initiated during an ongoing negotiating round, not because the plaintiff is interested in following through with the case and obtaining liberalization through that forum, but instead it is a political maneuver to force the defendant country to allow the sector to be given priority in terms of the round's negotiating agenda.[20] Thus we would expect that $\beta_4 < 0, \beta_5 < 0$ and $\beta_6 < 0$.

3.2.2 Retaliation and the Costs of the Failure to Liberalize

Next we consider the retaliation costs of the failure to liberalize. Referring again to (1), suppose we have

$$\gamma R_{d,p} = \gamma_1 \, EXP\_SHARE_{d,p,T} + \gamma_2 \, AID\_DFP + \gamma_3 \, AID\_PFD + \gamma_4 \, MULT\_PLAINT.$$

Here $EXP\_SHARE_{d,p,T}$ is the share of the defendant's total exports sent to the plaintiff in T and is the primary measure of the plaintiff country's capacity to retaliate, as this captures its ability to impose costs on the defendant.[21] AID_DFP is the share of bilateral aid received by the defendant that is derived from the plaintiff to the total aid received by the defendant, while AID_PFD is the share of bilateral aid received by the plaintiff that is derived from the defendant to the total aid received by the plaintiff. $MULT\_PLAINT$ is an indicator that the dispute involved multiple plaintiffs, meaning it was either a case where multiple plaintiffs filed jointly, or there was at least one concurrent dispute involving the same defendant and disputed sector, with a different plaintiff.

Theory predicts that when considering the costs imposed by retaliation, we would have $\gamma_1 > 0, \gamma_2 > 0$, $\gamma_3 < 0$ and $\gamma_4 < 0$.[22] We would expect, however, that the estimate on γ_3 may be biased toward zero as it is unlikely that a potential plaintiff country would initiate a dispute against a defendant country from which it receives substantial aid assistance. Bias is likely in this variable and

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[20]For example, it has been suggested that this was the purpose of the U.S. initiating a variety of disputes with the E.C. over *Airbus*, in order to put the issue of aircraft subsidies on the agenda.

[21]In some specifications we also substitute $REAL\_EXP_{d,p,T}$ which is the real dollar value of defendant exports to the plaintiff.

[22]We might expect the estimate on $MULT\_PLAINT$ to be negative if we expect that multiple countries will file against a common defendant if each is bilaterally powerless in its ability threaten retaliation, and each is looking to share in the litigation costs. While this may seem like an attempt for the plaintiffs to potentially aggregate retaliatory power, the GATT/WTO only allows for countries to retaliate on their own behalf.

not in others, due to the fact that in this case, the potential plaintiff could suffer *additional* losses by initiating a dispute in that it could potentially lose aid.

3.2.3 International Obligation and the Costs of the Failure to Liberalize

We next turn to the costs of failing to liberalize that are generated by international obligation. Again referring to equation (1), suppose we have

$$\delta I = \delta_1 \ PANEL\_ESTAB \ + \ \delta_2 \ PANEL\_ADOPT \ + \ \delta_3 \ APPEALED \ + \ \delta_4 \ PANEL\_GUILT$$

Here the variables are indicators of either the *legal decision* made in a particular dispute or an indicator stating whether or not that dispute made it to a particular stage in the dispute settlement process. These variables are fairly self-explanatory, however, for a review of the process, see again Figure 1. The theory highlighting the role of "international obligation" would suggest that $\delta > 0$, i.e. that the potential cost of failing to comply with a GATT/WTO ruling should lead to more liberalization than would be possible without that cost.[23]

3.2.4 Other Controls

In our estimation of (1) we must also control for the fact that imports in the disputed sector may be rising due simply to income growth. Therefore, we assume $M_d = GDP\_GROWTH_d \equiv RGDP_{d,T+1}/RGDP_{d,t}$, which measures the real income growth of the defendant country between the beginning and the year after the end of the dispute. Therefore we expect that $\psi > 0$.

Consider finally the D matrix, where in different specifications we also control for the nature of the *allegation* in the dispute (tariff versus non-tariff measures), the type of *sector* under dispute, the *countries* involved in the dispute, and other *institutional* features of the GATT/WTO system. For example, we will generally include an indicator for the few cases in which a panel failed to find the defendant guilty ($PANEL\_INNOCENT$).[24] A summary of all of the variables and the sources of the underlying data is available in the appendix.

This data collection approach leaves us initially with 199 trade dispute observations. Table 1 and 2 illustrate the summary statistics and other features of the data used in the estimation.[25]

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[23]Theory might also predict that, conditional on $PANEL\_GUILT = 1$, $\delta_3 > \delta_2 > \delta_1$ so that the "international obligation" cost of defying an appealed panel report is larger than the cost of defying an adopted panel report which is in turn larger than failing to liberalize after the establishment of a panel. Note that in some specifications we also include indicators such as $PANEL\_NOT\_ADOPT$ and $ADMIT\_GUILT$ to compare their influence against those found in I.

[24]We note as well that we have also included specifications in which we simply dropped the nine observations in which $PANEL\_INNOCENT=1$, and this had little impact on the results.

[25]For reasons discussed below, for much of the estimation we only have 192 observations due to problems with

4 Empirical Results

4.1 Initial Estimation Results and Basic Model Selection

Given our empirical approach, Table 3 provides our first sets of results of estimating equation (1). For now we put off an interpretation of the parameter estimates, returning to this in a focused discussion in the sections that follow. Here we consider the question of basic model selection.

First note that an OLS regression on the full sample of data yields a set of empirical results that we do not report here due to the problem generated by outlier values of the dependent variable. A careful inspection of the data reveals that for the full sample of data, while the median value for the dependent variable, IMP_LIB, was 1, the mean value was 4.79. This was the case even though 95% (190 out of 200) observations for which we had data had values of IMP_LIB which were less than 4.79.[26]

Therefore, in order to address the initial issue of basic model selection, we proceed in three steps and refer to Table 3. First we take the entire sample of data and convert the dependent variable into a binary choice where for any observation n we set $Y_n \equiv 1$ if $IMP\_LIB_n > 1$ (there was some liberalization) and $Y_n = 0$ otherwise. The estimates of the marginal effects of the binary probit model are given in models (1) and (2). Next take the outlying observations and rescale them and employ a tobit model. We use a two-sided, doubly censored tobit model to also address the potential concern that there are a non-trivial (10 out of 200) number of observations for which $IMP\_LIB = 0$. Furthermore, careful inspection of the data reveals a natural break in values of the dependent variable occurring between 5.5 and 9.5.[27] We present estimates of the marginal effects of the tobit model in models (3) and (4). Finally, our third approach is to simply drop the set of outliers, or those observations where $IMP\_LIB > 5.5$ where the natural break in the dependent variable data occurs. Estimation results of an OLS regression model with the dropped outliers is presented in models (5) and (6). Note finally that we are also controlling for defendant country fixed effects in each of the models employed.

Comparing the estimates generated across the different modeling approaches, we note a sustained

outliers.

[26]One minor problem with defining the dependent variable as we have done is that if at the start of the dispute (year t) the imports were close to zero, any positive increase in imports will lead to tremendously large measure for IMP_LIB. Alternative definitions induce similar problems, so we maintain this definition and address the problem of outliers by checking the robustness of our OLS results to the binary choice and tobit models discussed in the text.

[27]With respect to IMP_LIB, there are six observations between 4 and 5, two observations between 5 and 5.5, none between 5.5 and 9.5., and seven observations between 9.5 and 451. We thus set all values of the dependent variable that are greater than 5.5 equal to 5.5. Note that we have also verified our results against changes to this cutoff for the determination of outliers in the data.

pattern to the empirical results. While the statistical significance varies across the models, with the exception of the IMP_SIZE variable, the sign of the estimate is *unchanged* across modeling approaches. In particular, the estimates on the EXP_SHARE and GDP_GROWTH variables are statistically robust across modeling approaches. On the other hand, the estimates on IMP_SIZE and $OTHER\_IMP$ are not significant in any of the specifications of Table 3 and are thus excluded from the rest of the estimation.

Given the initial consistency of results across modeling approaches, we focus on the OLS model in the following sections to further investigate the determinants of *economic success* in dispute resolution. The OLS approach is obviously preferred to the binary choice in that use of the probit model requires that we give up information (variation in the dependent variable) that is useful in identifying precise estimates of the explanatory variables.[28] However, we will return to the issue of model selection as a final sensitivity analysis in Section 4.5.

4.2   Adjustment Costs and Political Economy

The next step is to investigate the role of adjustment costs and domestic and international political economy in the trade liberalization decision. Thus consider the shaded cells of Table 4. First, note that given the difference in data used to generate the EMP_SHARE variable (see again footnote 18), we find it necessary to separate out the employment data in those cases in which the dispute involved an agricultural or fisheries sector (AG/FI) from the other cases involving some industry in the manufacturing sector ($OTHER$). When compared with Table 3, the results, as illustrated first in model (7), are striking: the estimates for the EMP_SHARE parameters are now positive and statistically significant. This result is robust to various specifications of the OLS model, and is at odds with the theory that suggests that adjustment costs are an important influence in liberalization decisions.[29] If anything, this result suggests that disputes involving a larger number of employees in the disputed, import-competing sector tend to result in greater liberalization. It may be the case that instead of capturing adjustment costs, the EMP_SHARE variable is capturing the effect of the

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[28]Regarding the results of the OLS regressions of Tables 4 through 6, we have also checked our estimates against those of analogously constructed tobit models. The tobit estimates provide results that are virtually identical qualitatively, so we report only the OLS estimates below.

[29]Note two further items relating to these estimates. First, the underlying data in the two subsamples have the following statistical features: the mean of the agriculture and fisheries subsample's employment share is 0.05 (with a standard deviation of 0.04), while the mean of the other, 3 digit ISIC subsample's employment share is 0.005 (with a standard deviation of 0.006). Second, we also caution against reading too much into this result, given that the 3 digit ISIC and agricultural/fisheries employment data may also be too aggregated to accurately pick up the variation in adjustment costs across disputes. We return to this issue in Section 4.5.

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size of market demand of the defendant country. For example, if the sector was highly protected so that domestic demand was being satisfied almost entirely by a set of relatively inefficient domestic producers, there will be lots of "room" for liberalization, the larger is the number of inefficient, domestic producers and hence employees in that sector.[30]

Next we focus on the political economy implications of the $TARIFF$ variable. Consider model (8), where we first split the variable into two - estimating the impact of the tariff if the allegation under dispute in the case was a *tariff measure* (TM) versus the impact the tariff may play if the allegation under dispute in the case was a *non tariff measure* (NTM). Ceteris paribus, a higher industry tariff leads to *less* liberalization if the allegation was a *TM* and has no statistical impact if the allegation was a *NTM*. In the case of a *tariff measure*, a lower industry tariff binding will lead to more liberalization, suggesting that in the negotiations it will be easier to commit the defendant country to liberalize and reduce its industry tariff when it is with respect to a sector that has already been committed to substantially low tariff bindings. This is perhaps indicative of a politically weak sector in the defendant country. However, this is perhaps counter-intuitive to the pure economic argument that would suggest that one might expect more liberalization to be possible in disputed sectors that began with *higher* tariffs, as there is more "room" to negotiate towards free trade.

What is the *economic* significance of the $TARIFF$ binding variable in a dispute involving a disputed tariff measure? The mean of the $TARIFF$ variable in the TM disputes was roughly 10%, so compare the predictions of model (8) evaluated at the means of the data, with the prediction of the model with a value for the $TARIFF$ variable that is one half a standard deviation higher, or 18%. Comparing two otherwise identical (average) disputes, the dispute with the $TARIFF$ binding at 10% receives only 4% more liberalization than the dispute with the 18% tariff binding.[31] Thus while it is statistically significant, the *economic* significance of the $TARIFF$ variable is fairly small.

Compare this result to the economic significance of the *nature* of the allegation made in the dispute, i.e. whether the defendant has used a tariff or non-tariff measure. Once we have controlled for the differing influence of the $TARIFF$ variable across allegations, the estimate on the NTM indicator is negative and generally statistically significant across models. Consider for example, the economic significance of the coefficient estimate on NTM in model (8). When evaluated at the means of the data, the model suggests that a tariff measure will lead to a predicted value of $IMP\_LIB = 1.80$,

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[30]We also note that we obtain the same basic pattern of qualitative results if we use employment *levels* instead of shares, though the results are frequently statistically insignificant due to the lack of normalization across different sized defendant countries in the sample, where, for example, 1000 employees may be a 'large' number of employees to displace in one country and a 'small' number in another.

[31]The predicted values for IMP_LIB in this exercise would be 1.80 at the means of the data ($TARIFF = 0.10$) and 1.76 with a half a standard deviation increase of the tariff variable ($TARIFF = 0.18$).

while a non-tariff measure will lead to a predicted value of $IMP\_LIB = 1.10$. In other words, the average dispute involving a tariff measure results in roughly *eight* times more liberalization than does the average dispute involving a non-tariff measure!

In model (9) we further dissect the NTM variable into various subcategories: whether the NTM was an allegation of an inappropriate antidumping or countervailing duty or investigation (AD_CVD), an allegation of a subsidy that affected imports ($SUBSIDY$), or a licensing requirement, quantitative restriction, domestic policy or other type of NTM ($OTHER\_NTM$). Recalling that in (9), the omitted allegation category is a tariff measure, it is apparent that disputes involving each of these allegations yields less liberalization than does a tariff, though the estimates on the different NTM categories are not statistically different from one another.

Consider next model (10) in which we assess the influence of differences in GATT/WTO periods in question. For example, for international political economy reasons, when a plaintiff initiates a dispute *during* a negotiating round, theory suggests this may be for political reasons unrelated to its interest in immediately resolving the actual dispute. Instead, the plaintiff may simply be employing a political maneuver designed to put the sector under dispute onto the agenda of the ongoing negotiating round. Recalling that in model (10), the omitted period is the 1980-1985 period, the results suggest that only the period of the $URUGUAY$ Round generates an estimate that is statistically different from zero, and the estimate is negative, as suggested by the theory.

Finally in model (11) we control for the potential impacts of different sectors in trade disputes. While we control for the eight sectors listed in Table 1, we only report the results of the statistically significant sectors and $AGRICULTURE$, given the particularly contentious nature of such disputes.[32] It is interesting to note that ceteris paribus, *textiles, clothing and footwear* disputes obtain slightly more liberalization and the *auto* sector slightly less, though in this second case we should note that there were only three disputes involving autos in the sample.

4.3   Retaliation

In this section we consider robustness checks to the variables representing one potential cost to the defendant of the failure to liberalize, i.e. retaliation. Thus far the estimates on the EXP_SHARE variable have been positive and statistically significant. Here we check the sensitivity of these results more formally by appealing to the shaded rows of Table 5.

To check the robustness of the retaliation cost we first introduce measures of bilateral aid received

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[32]We have also estimated a model similar to (11) where we differentiate between agricultural disputes involving the E.U. as a defendant and non-E.U. defendants in the attempt to control for the impact of the E.U.'s Common Agricultural Policy, but in this specification as well the estimates on the $AGRICULTURE$ variable came up insignificant.

by the defendant from the plaintiff (AID_DFP) and received by the plaintiff from the defendant (AID_PFD). In model (12) the estimates on the aid variables are not statistically significant, while in model (13) if we drop the EXP_SHARE and the $TARIFF$ variables, the estimate on AID_DFP is positive and statistically significant as suggested by the theory, which suggests some degree of collinearity between the retaliation variables. In models (12) and (13) we are not surprised that the estimate on AID_PFD is not statistically significant, as the estimates may be biased toward zero, given the low likelihood that potential plaintiffs would actually file a dispute against a trade partner (potential defendant) on whom they are heavily reliant for aid, as such a trade dispute could lead to additional losses to the *plaintiff* beyond its losses based on the defendant's failure to liberalize.

Across specifications, the parameter estimates on EXP_SHARE have been positive and statistically significant, suggesting that when the plaintiff country receives a larger share of the defendant's exports (and thus has the capacity to threaten retaliation) larger amounts of trade liberalization tend to occur. What is the *economic* significance of the estimates on the EXP_SHARE variable? Evaluating model (12) at the means of the data, our results suggest that a 50% increase in EXP_SHARE over its mean value will lead to an additional 75% increase in import growth.[33] Thus we argue that the potential cost of retaliation is not only statistically but *economically* significant.

Next, in model (14) we introduce a dummy variable for disputes in which there were multiple plaintiffs. This variable too appears collinear with EXP_SHARE and this is not surprising - the fact that a plaintiff files a joint or simultaneous dispute may be another signal of its bilateral "weakness" or inability to credibly threaten a costly retaliation against the defendant.

In model (15) we separate out the capacity for tariff retaliation into two subsamples - those cases involving the U.S. as a plaintiff and those cases involving non-U.S. plaintiffs. Perhaps surprisingly, the estimates suggest that it is not the U.S. that is driving the results on the EXP_SHARE variable, as in both subsamples the estimate is positive and statistically significant. To investigate whether the influence of EXP_SHARE is different between non-U.S. plaintiff and U.S. plaintiff cases, it is not as straightforward as looking solely at the parameter estimates, given that the underlying features of the data are different across the two subsamples. In the cases in which the U.S. is a plaintiff, the mean share of the exports of the defendant country that it receives is 29.8%, while in the non-U.S. plaintiff cases, the mean value for EXP_SHARE is only 6.1%.[34] To comment on the economic

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[33]By Table 2 the mean of EXP_SHARE is 11%, so a 50% increase in the capacity to retaliate would imply a value for EXP_SHARE of 16.5%. When evaluated at the means of the other variables, the predicted values for IMP_LIB are then 1.12 and 1.21, respectively, suggesting a nine percentage point (or roughly 75% over the mean of 1.12) increase in liberalization.

[34]In fact, in the U.S. plaintiff cases, the *minimum* value for EXP_SHARE is 5.9%, while for non-U.S. plaintiff cases the *maximum* value for EXP_SHARE is only 35.5% while the second highest value is only 28.6%, which is lower than

significance across subsamples, we again consider one at a time the thought experiment of comparing the predicted values of IMP_LIB when evaluated at the means of the data and after a 50% increase in the EXP_SHARE variables. For the average dispute involving non-U.S. plaintiffs, a 50% increase in EXP_SHARE (from 6.1% to 9.2%) leads to *three times* as much import liberalization as the mean dispute, with predicted values of IMP_LIB of 1.04 and 1.12, respectively. For the average dispute involving U.S. plaintiffs, a 50% increase EXP_SHARE (from 29.8% to 44.7%) has a smaller impact on import liberalization as it increases the predicted values of IMP_LIB by only four percentage points over the mean dispute, from 0.89 to 0.93, respectively.

Finally in models (16) and (17) we verify the robustness of our retaliation measure itself by substituting export *levels* ($REAL\_EXP$) for export shares. The pattern of qualitative results is unchanged, while the statistical significance falls. However, this is likely due to the fact that there is no implicit normalization, that a certain dollar value of trade may be large for one defendant country and small for another, given the difference in defendant country sizes in the sample.

4.4 International Obligation

We have not yet discussed the impact of the potential costs imposed by the GATT/WTO *system* itself on the determination of economic success in trade disputes, which we turn to next by appealing to the shaded portions of Table 6. The primary reason for the failure to discuss the impact of the measures of the cost of "international obligation" is because they generally do not appear to be statistically significant.

In model (18), we first consider a specification where we include only an indicator that a panel was established. The estimate is negative, though it is not statistically significant. In model (19) we add a dummy variable to control for the WTO disputes that have been appealed, but here as well we find no significant effect. In model (20) we separate out those panels which had a panel report adopted versus those in which a panel was started but the panel report was not adopted, and this too appears to have no impact. One theory is that those cases in which the panel report was vetoed may be particularly sensitive and thus less successful in obtaining liberalization for political reasons, though this does not appear systematically to be the case.

Next we separate out the cases based on the legal outcomes in model (21): including an indicator for those cases in which the panel found the defendant guilty ($PANEL\_GUILT$), those cases in which the panel found the defendant innocent ($PANEL\_INNOCENT$), and those cases in which the defendant admitted guilt outside of a panel forum ($ADMISSION\_GUILT$). In this specification the

the *mean* value of the U.S. cases. The standard deviation in each subsample is 9% and 23%, respectively.

omitted category is the outcomes that are unknown or unreported due to a settlement or withdrawal and the failure to notify to the GATT/WTO. The estimate on $PANEL\_INNOCENT$ is larger (in absolute value) than the others and negative, suggesting indeed that defendants that are innocent yield less liberalization than do defendants in cases with other outcomes. However, the estimates on each of these three indicators are not statistically different from zero or even statistically different from each other.

In model (22) we use an institutional break, to allow for the panel to play a different role under the WTO than was the case under the GATT regime, motivated by the Uruguay Round reforms which eliminated a country's ability to veto the establishment of a panel or the adoption of a panel report. However, interacting the $PANEL\_ESTAB$ variable with GATT and WTO indicators does not appear to matter, as there does not appear to be a statistical difference in the impact of having a panel established across regimes.[35]

To conclude this section, we therefore find little evidence that the cost of "international obligation" is sufficiently high so as to impact the *economic* success of dispute resolution. We have attempted to measure and account for this potential cost by looking at a variety of legal and institutional characteristics involved in the dispute settlement process. One reason for this failure may perhaps be due to mismeasurement, though it is not obvious how else to capture the cost of "international obligation." Another may perhaps be due to the evolving nature of the process and that this cost may be increasing over time. However, we find no empirical evidence of this trend, as there also does not yet appear to be a difference in the impacts of the institutional variables across the two (GATT and WTO) regimes, though of course this may be partially due to the short track record of the WTO regime.[36]

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[35]We have attempted many other specifications using these variables measuring "international obligation" that also failed to yield statistically significant results, so we do not report them here. For example, we also used a specification similar to model (22) where instead of separating out the GATT versus WTO effects on $PANEL\_ESTAB$ we separated out the GATT versus WTO effects on $PANEL\_GUILT$. The theory is that with the removal of the veto power, perhaps a guilty verdict under the WTO will lead to more liberalization than under the GATT, where a guilty verdict could still be legally disregarded as the defendant could veto the panel report. We have also looked at specifications in which we included both $PANEL\_ESTAB$ and $PANEL\_ADOPT$, but high collinearity between these variables leads to estimates that are not statistically different from zero. Finally, we have also included variables representing the duration of the case $(T+1) - t$ and whether the GATT was notified that the formal outcome to the case was a VER. The estimates on these variables were not statistically different from zero as well.

[36]Again we can also refer back to the specification in model (10) of Table 4. Ceteris paribus, the estimate on WTO suggests that if anything, there may be less liberalization under the WTO regime than under the GATT's 1973-1985 period, though this estimate is not statistically significant as well.

4.5 Final Robustness Checks

As a final sensitivity analysis, given what we have learned from the previous OLS specifications, it is useful to return to the binary choice model to verify that our primary results are not due to *excessive* variation in the IMP_LIB variable. In this section we thus address the potential concern that it is the *size* of the liberalization of some particular disputes and not the question of whether or not there was *some* liberalization that is driving our results.

Presumably if a plaintiff country files a dispute, it is signaling that its exporters have sufficient capacity to fulfill the increase in demand that would result from the defendant's liberalization and therefore the *limits* to liberalization are not due to supply side constraints. Nevertheless, we want to address the issue that certain plaintiff countries in our sample may obtain *more* liberalization than others, not because of the capacity for retaliation, but because their capacity for retaliation may be highly correlated with their *production capacity* in fulfilling those import orders due to size of their economies. To address this potential concern, in Table 7 we again use a binary choice model over the full sample of data, where the dependent variable takes on a value of one if there is some liberalization. Our results with respect to the *retaliation* variable are unaffected by this change, and therefore we conclude that the capacity for retaliation by the plaintiff affects both the *likelihood* and the *size* of the defendant's liberalization.

A secondary issue is that the estimates for EMP_SHARE face a similar concern. Perhaps a few large defendant countries with substantial employment shares in the disputed sectors are driving the results relating to the size of import liberalization. Compared to the estimates of the OLS regressions of Tables 4 through 6, the estimates on the EMP_SHARE variables in Table 7 are no longer statistically significant. However, the *sign* of the estimates does not change and yield the *adjustment cost* interpretation that theory might suggest. Our other result that is not statistically robust when comparing the OLS and probit models are the estimates on the $TARIFF$ variables. This may be partially due to the fact that there were only 18 disputes in which the allegation was a tariff measure, suggesting there may not be sufficient variation (when the dependent variable is a simple binary choice) to identify $TARIFF \cdot TM$ as being statistically different from zero. We also do not have an economic explanation as to why the estimate on $TARIFF$ interacted with the NTM allegation indicator is positive and significant, when in the OLS models it was not significantly different from zero.

The other results that are robust when comparing the OLS and probit models are the estimates on the NTM variables, which are negative and statistically significant. Thus, allegations of non-transparent *non-tariff measures* are both less likely to see liberalization and they tend to yield less

liberalization than the disputes involving disputed *tariff* measures. As well, in the various specifications of Table 7, it is apparent that the potential cost of "international obligation" does not affect the *likelihood* of liberalization, as the estimates on those variables continue to be statistically insignificant (and generally *negative*) as well.

5   Conclusion

This paper provides a first attempt at empirically identifying the features of the dispute settlement process that give governments the ability to commit to trade liberalization. We use data on formal GATT/WTO trade disputes between 1973 and 1998 and conclude that it is the potential costs of retaliation that allow governments to commit. Thus while Horn et al. (1999) conclude that the *initiation* of disputes may not be influenced by "power" measures, our results suggest that the successful economic *resolution* to disputes is influenced by the concern for retaliation. The results have economic significance, and they are present in both U.S. plaintiff and non-U.S. plaintiff cases. On the other hand, we find no evidence to suggest that the cost of "international obligation" or the stigma associated with failing to comply with various features of the dispute settlement system's procedures are sufficiently large so as to affect a defendant's liberalization decision.

Our results have straightforward implications linking the two areas of the theoretical literature concerning the role of trade agreements such as the GATT and WTO. First, recall that trade agreements have been identified as serving as a potential commitment device to provide external power to governments who are unable to commit with respect to their private sector. Second, trade agreements may also serve as as a device to provide commitment power to governments of large countries who, for terms of trade reasons, are unable to unilaterally liberalize and would therefore find themselves in a prisoner's dilemma-type outcome. Our empirical results confirm the complementarity between a trade agreement's two roles. We find that when a government seeks to rely on the GATT/WTO to give it the power to commit with respect to its private sector, the usefulness of the GATT/WTO may be limited to the instances in which the trade involves two countries that are also using the GATT/WTO system to neutralize the terms of trade impact of their trade policy adjustments.

For a government that seeks to use the GATT/WTO as a commitment device with respect to its private sector but is unable to do so given that the trading partner from whom it derives the imports in bilaterally weak, one potential remedy has been identified by Maggi (1999). He has identified an additional feature to a *multilateral* institution such as the GATT/WTO which has the capacity to coordinate "power-sharing" in the presence of bilateral imbalances of power. In its current state, we have documented that reliance on the *GATT/WTO system* itself does not appear to be sufficient.

With respect to evidence from trade disputes, a government's ability to commit with respect to its private sector appears to be derived from the power of the defendant's (plaintiff) trading partner.

Our results also have a direct implication for questions concerning the evolution of dispute settlement in the GATT/WTO system and its role as a dispute settlement model for other areas of international concern. The evidence suggests that when it comes to the economic success of dispute settlement, it is economic incentives that matter. Thus reforms targeting legal or institutional efficiency and not economic incentives may have a small economic impact. This is not to say that the reforms of the Uruguay Round that improved the efficiency of the dispute settlement process were counter-productive, it is simply that they may not be sufficient to achieve economic success. It may be the case that as the system evolves, the cost of "international obligation" will increase to the point where it begins to have an impact on trade liberalization. We have not been able to find any evidence however, to suggest that this has so far been the case.

The results presented in this paper are, however, subject to some additional caveats. In particular, our measure of the *economic success* of dispute resolution has focused exclusively on measures of bilateral trade liberalization. We have also said nothing about the potential *trade diversion* that may be occurring, if there is no *net* liberalization and what is happening in these "successful" disputes is that the plaintiff is simply reallocating imports toward 'powerful' defendant trading partners and away from other exporting third countries. Bagwell and Staiger (2000) have identified an efficiency-enhancing feature of the GATT/WTO rules that in theory attempts to prevent such *bilateral opportunism* from occurring. The empirical question is an open area for future research.

Appendix: Variable Definitions and Data Sources

- **AD_CVD**: Indicator if the allegation by the plaintiff was that the defendant was nullifying benefits through an antidumping or countervailing duty or investigation. Data compiled by the author from Hudec (1993) and WTO (2001).

- **ADMISSION_GUILT**: Indicator if the case resulted in the GATT/WTO being notified that the defendant had voluntarily (without suggestion by a panel) engaged in the reform of a policy that the plaintiff had alleged to be nullifying benefits. Data compiled by the author from Hudec (1993) and WTO (2001).

- **AID_DFP**: Bilateral share of aid received by the defendant from the plaintiff. Ratio of bilateral aid to the total annual aid received by the defendant. Data taken from OECD (2001).

- **AID_PFD**: Bilateral share of aid received by the plaintiff from the defendant. Ratio of bilateral aid to the total annual aid received by the plaintiff. Data taken from OECD (2001).

- **APPEALED**: Indicator if the case resulted in having a formal panel report that was appealed. Data taken from WTO (2001).

- **EMP_SHARE**: Ratio of industry employment to total employment in the defendant country. ISIC 3 digit manufacturing employment statistics taken from the World Bank (2001b), agricultural sector employment data taken from ILO (2001).

- **EXP_SHARE**: Ratio of defendant annual exports to the plaintiff country to total defendant country annual exports. Data taken from Feenstra, Lipsey and Bowen (1997) and Feenstra (2000).

- **GATT**: Indicator if the case was initiated during the GATT regime.

- **GDP_GROWTH**: Ratio of defendant real GDP in $T+1$ to defendant real GDP in t. Data taken from World Bank (2001a).

- **IMP_LIB**: Ratio of defendant annual imports in the disputed sector from the plaintiff in $T+1$ to defendant annual imports in the disputed sector from the plaintiff in t. For 1990-1998 cases, import data is 6 digit HS taken from UNCTAD (1995,2001). For 1973-1989 cases, import data is 4 digit SITC taken from Feenstra, Lipsey and Bowen (1997) and Feenstra (2000).

- **IMP_SIZE**: Ratio of defendant imports from all sources in the disputed sector to defendant's real GDP. For 1990-1998 cases, import data is 6 digit HS taken from UNCTAD (1995,2001). For 1973-1989 cases, import data is 4 digit SITC taken from Feenstra, Lipsey and Bowen (1997) and Feenstra (2000).

- **MULT_PLAINT**: Indicator if the dispute was a "multiple plaintiff" case, e.g. if there was another concurrent dispute involving the same defendant and disputed sector and a different plaintiff.

- **NON_US_PLAINT**: Indicator if the plaintiff in the dispute was not the U.S.

- **NTM**: Indicator if the allegation by the plaintiff was that the defendant was nullifying benefits through a non-tariff measure. Data compiled by the author from Hudec (1993) and WTO (2001).

- **OTHER_IMP**: Ratio of defendant annual imports in the non-disputed sectors from the plaintiff in $T + 1$ to defendant annual imports in the non-disputed sectors from the plaintiff in t. For 1990-1998 cases, import data is 6 digit HS taken from UNCTAD (1995,2001). For 1973-1989 cases, import data is 4 digit SITC taken from Feenstra, Lipsey and Bowen (1997) and Feenstra (2000).

- **OTHER_NTM**: Indicator if the allegation by the plaintiff was that the defendant was nullifying benefits through a non-tariff measure that was not a AD or CVD measure or a subsidy. Data compiled by the author from Hudec (1993) and WTO (2001).

- **PANEL_ADOPT**: Indicator if the case resulted in having a formal Article XXIII (GATT regime) or DSU (WTO regime) panel report adopted. Data taken from WTO (1995,1997,2001).

- **PANEL_ESTAB**: Indicator if the case resulted in having a formal Article XXIII (GATT regime) or DSU (WTO regime) panel established. Data taken from WTO (1995,1997,2001).

- **PANEL_GUILT**: Indicator if the case resulted in having a formal panel determine that the defendant had nullified or impaired benefits expected by the plaintiff. Data compiled by the author from Hudec (1993) and individual panel reports.

- **PANEL_INNOCENT**: Indicator if the case resulted in having a formal panel determine that the defendant had not nullified or impaired benefits expected by the plaintiff. Data compiled by the author from Hudec (1993) and individual panel reports.

- **PANEL_NOT_ADOPT**: Indicator if the case resulted in having a formal Article XXIII (GATT regime) or DSU (WTO regime) panel report not adopted, in a case where a panel had been formally established. Data taken from WTO (1995,1997,2001).

- **REAL_EXP**: Real ($ 1992) value of defendant annual exports to the plaintiff country. Data taken from Feenstra, Lipsey and Bowen (1997) and Feenstra (2000).

- **SUBSIDY**: Indicator if the allegation by the plaintiff was that the defendant was nullifying benefits through a domestic subsidy that impeded imports. Data compiled by the author from Hudec (1993) and WTO (2001).

- **TARIFF**: Tariff binding (averaged over disputed sectors) of the defendant country. Data taken from UNCTAD (1995,2001).

- **TM**: Indicator if the allegation by the plaintiff was that the defendant was nullifying benefits through a tariff measure. Data compiled by the author from Hudec (1993) and WTO (2001).

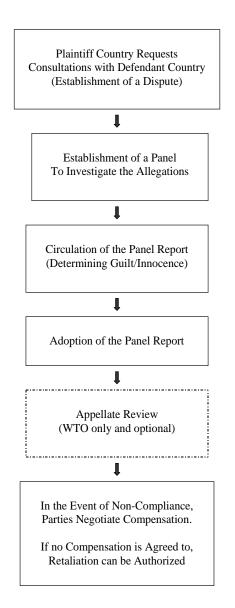- **TOKYO**: Indicator if the case was initiated during the Tokyo Round negotiations (1973-1979)

- **URUGUAY**: Indicator if the case was initiated during the Uruguay Round negotiations (1986-1994).

- **US_PLAINT**: Indicator if the plaintiff in the dispute was the U.S.

- **WTO**: Indicator if the case was initiated during the WTO regime.

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Figure 1: The Basic Elements of the GATT/WTO Dispute Settlement Process

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┌─────────────────────────────────────┐
│       Plaintiff Country Requests     │
│  Consultations with Defendant Country│
│       (Establishment of a Dispute)   │
└─────────────────────────────────────┘
                   ⬇
┌─────────────────────────────────────┐
│        Establishment of a Panel      │
│      To Investigate the Allegations  │
└─────────────────────────────────────┘
                   ⬇
┌─────────────────────────────────────┐
│      Circulation of the Panel Report │
│     (Determining Guilt/Innocence)    │
└─────────────────────────────────────┘
                   ⬇
┌─────────────────────────────────────┐
│       Adoption of the Panel Report   │
└─────────────────────────────────────┘
                   ⬇
┌ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ┐
          Appellate Review
        (WTO only and optional)
└ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ┘
                   ⬇
┌─────────────────────────────────────┐
│    In the Event of Non-Compliance,   │
│    Parties Negotiate Compensation.   │
│                                      │
│     If no Compensation is Agreed to, │
│      Retaliation can be Authorized   │
└─────────────────────────────────────┘
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Source: Derived from Petersmann (1997. p. 184)

Table 1: A Breakdown of the Data in the Sample, 192 Observations

		Defendant Countries (20)		Plaintiff Countries (38)	
Measures					
TM	18	E.U.*	71	U.S.	42
AD_CVD	42	U.S.	56	E.U.*	33
SUBSIDY	15	JAPAN	22	CANADA	23
OTHER_NTM	117	CANADA	11	INDIA	10
		ARGENTINA	5	BRAZIL	9
		AUSTRALIA	4	CHILE	8
		BRAZIL	3	MEXICO	7
		NORWAY	3	ARGENTINA	6
Sectors		KOREA	3	AUSTRALIA	6
		CZECH/SLOVAK	3	JAPAN	4
AGRICULTURE	87	CHILE	2	COLOMBIA	3
TEXT/CLOTHING/FOOTW	19	MEXICO	1	THAILAND	3
FISH/MARINE PRODUCTS	14	PERU	1	PHILIPPINES	3
TOBACCO	11	VENEZUELA	1	HONG KONG	3
ALCOHOL	9	GUATEMALA	1	GUATEMALA	3
AUTO INDUSTRY	3	NEW ZEALAND	1	KOREA	2
STEEL	3	TURKEY	1	NEW ZEALAND	2
OTHER	46	INDIA	1	NICARAGUA	2
		MALAYSIA	1	PERU	2
		POLAND	1	HUNGARY	2
				SWITZERLAND	2
				SINGAPORE	1
				PAKISTAN	1
Institutional Aspects		**GATT/WTO Period**		INDONESIA	1
				MALAYSIA	1
PANEL_ESTAB	110	TOKYO	14	SRI LANKA	1
PANEL_ADOPT	82	1980-85	38	PANAMA	1
PANEL_NOT_ADOPT	28	URUGUAY	73	DOMINICAN REP	1
APPEALED	25	WTO	67	CUBA	1
				HONDURAS	1
				EL SALVADOR	1
				COSTA RICA	1
				VENEZUELA	1
Outcomes		**Other**		NORWAY	1
				URUGUAY	1
PANEL_GUILT	77	MULT_PLAINT	55	ECUADOR	1
PANEL_INNOCENT	9			ZIMBABWE	1
ADMISSION_GUILT	38			SOUTH AFRICA	1
OTHER/UNKNOWN	68				

* For this table only, 'E.U.' includes any dispute involving any member of the current 15 country E.U. at any point in the sample. For example, while a 1989 cases involving Sweden as the defendant would use the Sweden-only information in the estimation, to simplify and for illustrative purposes in this table we lump this into an 'E.U.-observation' since it joined the E.U.-15 in 1995.

Table 2: Summary Statistics for the Estimation Variables, 192 Observations

Variable	Median Value	Mean Value	Standard Deviation
IMP_LIB	1	1.126	1.012
EXP_SHARE	0.022	0.111	0.162
REAL_EXP	0.007*	0.032	0.044
TARIFF	0.062	0.104	0.168
EMP_SHARE	0.027	0.029	0.037
IMP_SIZE	0.018**	0.072	0.215
OTHER_IMP	1.027	1.083	0.359
GDP_GROWTH	1.055	1.063	0.052
AID_DFP	0	0.021	0.125
AID_PFD	0	0.073	0.184

Notes: *scaled such that 0.007 is equivalent to $7 billion ($1992)
       **scaled such that IMP_SIZE=(IMPORTS^i)/RGDP) x 10^5, so .018 is .00018 percent of total GDP.

Table 3: Initial Estimation Results and Basic Model Selection

	Probit Model* ML Elasticity Estimates		Tobit Model** ML Elasticity Estimates		OLS***	
	(1)	(2)	(3)	(4)	(5)	(6)
EXP_SHARE	0.847‡ (0.32)	0.923‡ (0.32)	1.827‡ (0.74)	1.857‡ (0.72)	1.623† (0.82)	1.702‡ (0.78)
TARIFF	0.800‡ (0.38)	0.826‡ (0.39)	0.885† (0.52)	0.882† (0.52)	0.261 (0.35)	0.291 (0.33)
EMP_SHARE	2.353† (1.48)	2.028 (1.46)	1.713 (3.16)	1.677 (3.13)	5.607† (3.51)	5.356† (3.52)
IMP_SIZE	0.177 (0.20)	---	-0.110 (0.23)	---	0.128 (0.32)	---
OTHER_IMP	-0.178 (0.12)	---	-0.084 (0.17)	---	-0.146 (0.22)	---
GDP_GROWTH	4.665‡ (0.99)	4.611‡ (0.97)	5.891‡ (1.56)	5.831‡ (1.56)	6.144‡ (2.04)	6.150‡ (2.03)
URUGUAY	-0.125 (0.08)	-0.113 (0.08)	-0.062 (0.13)	-0.062 (0.14)	-0.209 (0.15)	-0.197 (0.15)
PANEL_ESTAB	-0.093 (0.09)	-0.090 (0.09)	-0.050 (0.13)	-0.051 (0.13)	-0.107 (0.17)	-0.102 (0.17)
PANEL_INNOCENT	-0.048 (0.18)	-0.069 (0.18)	-0.365 (0.24)	-0.360 (0.24)	-0.159 (0.30)	-0.169 (0.29)
NTM	-0.167 (0.12)	-0.197† (0.13)	-0.726‡ (0.30)	-0.721‡ (0.31)	-0.381 (0.31)	-0.406 (0.30)
CONSTANT	-3.017‡ (0.82)	-3.101‡ (0.83)	-4.414‡ (0.04)	-4.461‡ (0.05)	-5.719‡ (2.33)	-5.853‡ (2.34)
Observations	199	199	199	199	192	192
	Pseudo R^2: 0.19	Pseudo R^2: 0.18			Adjusted R^2: 0.10	Adjusted R^2: 0.10

Notes: (i) All models estimated with defendant country fixed effects whose parameter estimates are suppressed,
(ii) White heteroscedasticity consistent standard errors in parentheses, (iii) ‡ and † indicate t-statistics such that
|t|>2 and 2>|t|>1.5, respectively, (iv) * Probit model dependent variable is defined as 1 if IMP_LIB>1, (v) **
Doubly censored Tobit model: 10 observations at zero and 7 outliers rescaled to 5.5 if IMP_LIB > 5.5, (vi) ***
OLS model with outliers (defined as observations where if IMP_LIB > 5.5) were dropped.

Table 4: Regression Results: Investigating Adjustment and Political Economy Costs

	Fixed Effects* Regression Models: Dependent variable is IMP_LIB				
	(7)	(8)	(9)	(10)	(11)**
EXP_SHARE	1.706‡ (0.80)	1.638‡ (0.79)	1.614‡ (0.78)	1.631‡ (0.78)	1.555‡ (0.76)
TARIFF	0.255 (0.31)	---	---	---	---
TARIFF •TM	---	-5.635† (3.68)	-6.029† (3.69)	-5.559† (3.66)	-8.023† (4.02)
TARIFF • NTM	---	0.319 (0.32)	0.290 (0.31)	0.338 (0.32)	0.145 (0.38)
EMP_SHARE • AG/FI	7.533‡ (3.51)	8.052‡ (3.40)	7.674‡ (3.40)	8.197‡ (3.50)	11.977‡ (4.70)
EMP_SHARE • OTHER	38.720‡ (19.22)	41.407‡ (19.00)	44.660‡ (18.75)	41.341‡ (19.30)	53.104‡ (22.64)
GDP_GROWTH	5.527‡ (2.08)	5.487‡ (2.06)	5.704‡ (2.06)	5.189‡ (2.03)	4.898‡ (1.91)
TOKYO	---	---	---	-0.083 (0.31)	---
URUGUAY	-0.216† (0.14)	-0.245† (0.15)	-0.209 (0.15)	-0.340† (0.20)	-0.264† (0.17)
WTO	---	---	---	-0.151 (0.21)	---
PANEL_ESTAB	-0.029 (0.18)	0.012 (0.17)	-0.023 (0.17)	0.032 (0.17)	-0.005 (0.19)
PANEL_INNOCENT	-0.259 (0.29)	-0.282 (0.29)	-0.221 (0.29)	-0.319 (0.29)	-0.334 (0.31)
NTM	-0.358 (0.31)	-0.787† (0.48)	---	-0.776† (0.48)	-1.023† (0.51)
AD_CVD	---	---	-0.986† (0.51)	---	---
SUBSIDY	---	---	-0.796 (0.57)	---	---
OTHER_NTM	---	---	-0.741† (0.48)	---	---
CONSTANT	-5.171‡ (2.04)	-4.376‡ (2.06)	-4.576‡ (2.06)	-3.991† (2.04)	-3.665† (2.01)
TEXT/CLOTHING/FOOTW	---	---	---	---	0.383† (0.24)
AUTO	---	---	---	---	-1.320‡ (0.51)
AGRICULTURE	---	---	---	---	0.066 (0.47)
Observations	192	192	192	192	192
Adjusted R^2	0.09	0.10	0.09	0.09	0.10

Notes: (i) *Defendant country fixed effects, (ii) White heteroscedasticity consistent standard errors in parentheses, (iii) ‡ and † indicate t-statistics such that |t|>2 and 2>|t|>1.5, respectively, (iv) **estimates for sector dummies for other sectors suppressed.

Table 5: Regression Results: Investigating Measures of the Capacity for Retaliation

	Fixed Effects* Regression Models: Dependent variable is IMP_LIB					
	(12)	(13)	(14)	(15)	(16)	(17)
EXP_SHARE	1.613‡ (0.78)	---	1.561† (0.83)	---	---	---
EXP_SHARE • US_PLAINT	---	---	---	1.250† (0.83)	---	---
EXP_SHARE • NON_US_PLAINT	---	---	---	3.289‡ (1.43)	---	---
REAL_EXP	---	---	---	---	3.698† (2.44)	---
REAL_EXP • US_PLAINT	---	---	---	---	---	2.872 (3.07)
REAL_EXP • NON_US_PLAINT	---	---	---	---	---	5.150† (3.24)
AID_DFP	0.983 (0.91)	1.650‡ (0.70)	---	---	---	---
AID_PFD	0.159 (0.33)	-0.041 (0.36)	---	---	---	---
MULT_PLAINT	---	---	-0.100 (0.21)	---	---	---
TARIFF •TM	-3.769 (4.54)	---	-5.372 (3.87)	-4.624 (3.79)	-6.399† (3.66)	-6.336† (3.67)
TARIFF • NTM	0.376 (0.32)	---	0.298 (0.32)	0.423 (0.32)	0.234 (0.34)	0.258 (0.33)
EMP_SHARE • AG/FI	7.816‡ (3.52)	8.653‡ (3.70)	8.162‡ (3.48)	8.272‡ (3.70)	8.782‡ (3.57)	8.928‡ (3.64)
EMP_SHARE • OTHER	42.016‡ (19.36)	39.974‡ (19.62)	39.366‡ (19.32)	40.127‡ (18.76)	41.172‡ (19.34)	41.096‡ (19.20)
GDP_GROWTH	5.452‡ (2.02)	5.239‡ (2.14)	5.404‡ (2.02)	4.914‡ (2.04)	5.248‡ (2.09)	5.150‡ (2.11)
URUGUAY	-0.262† (0.15)	-0.207 (0.16)	-0.234† (0.15)	-0.241† (0.15)	-0.215 (0.15)	-0.215 (0.15)
PANEL_ESTAB	0.008 (0.18)	0.030 (0.19)	0.039 (0.19)	0.044 (0.18)	0.045 (0.18)	0.065 (0.18)
PANEL_INNOCENT	-0.236 (0.28)	-0.147 (0.27)	-0.317 (0.29)	-0.319 (0.31)	-0.282 (0.31)	-0.289 (0.32)
NTM	-0.678 (0.53)	-0.385 (0.35)	-0.738 (0.51)	-0.723† (0.48)	-0.826† (0.49)	-0.832† (0.50)
CONSTANT	-4.480‡ (2.04)	-4.392‡ (2.12)	-4.310‡ (2.03)	-3.919† (2.04)	-4.056† (2.11)	-3.974† (2.13)
Observations	192	192	192	192	192	192
Adjusted R^2	0.09	0.06	0.09	0.11	0.08	0.08

Notes: (i) *Defendant country fixed effects, (ii) White heteroscedasticity consistent standard errors in parentheses, (iii) ‡ and † indicate t-statistics such that |t|>2 and 2>|t|>1.5, respectively

Table 6: Regression Results: Investigating International Obligation

	Fixed Effects* Regression Models: Dependent variable is IMP_LIB				
	(18)	(19)	(20)	(21)	(22)
EXP_SHARE	1.611‡ (0.77)	1.594‡ (0.79)	1.626‡ (0.80)	1.657‡ (0.80)	1.581‡ (0.79)
TARIFF •TM	-5.527† (3.66)	-5.552† (3.64)	-5.534† (3.67)	-5.292 (3.67)	-5.565† (3.61)
TARIFF • NTM	0.321 (0.32)	0.308 (0.33)	0.309 (0.32)	0.341 (0.33)	0.288 (0.34)
EMP_SHARE • AG/FI	8.142‡ (3.36)	8.352‡ (3.40)	8.076‡ (3.37)	7.877‡ (3.38)	8.503‡ (3.46)
EMP_SHARE • OTHER	40.025‡ (18.57)	40.277‡ (18.48)	39.874‡ (18.82)	38.289† (20.16)	40.678‡ (18.43)
GDP_GROWTH	5.722‡ (2.01)	5.741‡ (2.02)	5.723‡ (2.02)	5.931‡ (2.13)	5.642‡ (1.98)
URUGUAY	-0.237† (0.15)	-0.269† (0.15)	-0.240† (0.14)	-0.224 (0.16)	-0.285† (0.16)
PANEL_ESTAB	-0.120 (0.17)	0.013 (0.17)	---	---	---
PANEL_ESTAB • GATT	---	---	---	---	0.033 (0.19)
PANEL_ESTAB • WTO	---	---	---	---	-0.099 (0.22)
PANEL_ADOPT	---	---	-0.033 (0.19)	---	---
PANEL_NOT_ADOPT	---	---	0.014 (0.23)	---	---
PANEL_GUILT	---	---	---	-0.133 (0.22)	---
PANEL_INNOCENT	---	---	---	-0.350 (0.29)	---
ADMISSION_GUILT	---	---	---	-0.128 (0.22)	---
APPEALED	---	-0.111 (0.26)	---	---	---
NTM	-0.774† (0.48)	-0.779† (0.48)	-0.776† (0.48)	-0.761† (0.48)	-0.778† (0.48)
CONSTANT	-4.633‡ (2.01)	-4.643‡ (2.02)	-4.629‡ (2.02)	-4.786‡ (2.15)	-4.540‡ (1.97)
Observations	192	192	192	192	192
Adjusted R^2	0.10	0.09	0.09	0.09	0.10

Notes: (i) * Defendant country fixed effects, (ii) White heteroscedasticity consistent standard errors in parentheses, (iii) ‡ and † indicate t-statistics such that |t|>2 and 2>|t|>1.5, respectively

Table 7: Final Robustness Checks

	Probit Model*: ML Elasticity Estimates				
	(23)	(24)	(25)	(26)	(27)**
EXP_SHARE	0.889‡ (0.32)	0.832‡ (0.30)	0.774‡ (0.30)	0.776‡ (0.30)	0.787‡ (0.30)
TARIFF •TM	-0.934 (1.87)	-0.966 (1.87)	-1.036 (1.93)	-1.124 (1.90)	-1.693 (2.03)
TARIFF • NTM	0.885‡ (0.41)	0.755† (0.39)	0.631† (0.35)	0.686† (0.35)	0.722† (0.38)
EMP_SHARE • AG/FI	2.179 (1.56)	1.991 (1.45)	1.882 (1.35)	1.797 (1.35)	1.814 (1.88)
EMP_SHARE • OTHER	6.922 (8.17)	6.784 (8.38)	6.541 (8.60)	6.965 (8.88)	6.462 (11.22)
GDP_GROWTH	4.488‡ (0.96)	4.623‡ (0.94)	4.669‡ (1.02)	4.709‡ (1.05)	4.593‡ (1.08)
TOKYO	---	---	---	-0.129 (0.15)	-0.098 (0.16)
URUGUAY	-0.125† (0.08)	-0.108 (0.08)	-0.086 (0.08)	-0.134 (0.11)	-0.090 (0.12)
WTO	---	---	---	-0.056 (0.13)	-0.059 (0.13)
PANEL_ESTAB	-0.065 (0.09)	0.130 (0.09)	---	---	---
PANEL_GUILT	---	---	-0.163 (0.11)	-0.163 (0.12)	-0.158 (0.11)
PANEL_INNOCENT	-0.089 (0.17)	-0.018 (0.18)	-0.119 (0.16)	-0.129 (0.16)	-0.160 (0.15)
ADMISSION_GUILT	---	---	-0.103 (0.13)	-0.112 (0.13)	0.097 (0.14)
NTM	-0.337† (0.17)	---	---	---	---
AD_CVD	---	-0.370‡ (0.14)	-0.375‡ (0.14)	-0.379‡ (0.13)	-0.430‡ (0.11)
SUBSIDY	---	-0.405‡ (0.08)	-0.403‡ (0.08)	-0.417‡ (0.07)	-0.425‡ (0.06)
OTHER_NTM	---	-0.270 (0.18)	-0.267 (0.18)	-0.268 (0.18)	-0.333† (0.17)
CONSTANT	-4.671‡ (2.01)	-4.682‡ (2.02)	-4.659‡ (2.03)	-4.336‡ (2.04)	-4.471‡ (2.04)
Observations	199	199	199	199	199
Pseudo R^2	0.19	0.20	0.22	0.22	0.23

Notes: (i) Defendant country fixed effects, (ii) White heteroscedasticity consistent standard errors in parentheses, (iii) ‡ and † indicate t-statistics such that |t|>2 and 2>|t|>1.5, respectively, (iv) * Probit model dependent variable is defined as 1 if IMP_LIB > 1, (v)** Sector dummies included in the estimation but elasticity estimates suppressed as none were statistically significant.