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# The WTO Dispute Settlement Mechanism – Enforcement, State Power, and Dispute Recurrence

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# **The WTO Dispute Settlement Mechanism – Enforcement, State Power, and Dispute Recurrence**

## **Abstract**

There is a large body of literature that studies the World Trade Organization's (WTO) Dispute Settlement Mechanism. A somewhat neglected issue in this context, however, is dispute recurrence, i.e., which factors make it more likely that the same complainant files the same dispute against the same defendant? The following paper seeks to contribute to addressing this gap. More specifically, the authors argue that less powerful complainants should not opt for dispute recurrence after having weighed the additional costs from antagonizing the defendant against the unlikely benefit of settling an issue. Specifically, although re-filing a dispute may appear as cost-efficient *ex ante*, it also implies reputation costs for the defendant and, thus, a complainant will antagonize a defendant if it re-files a dispute. This aspect is especially important for less powerful complainants because the defendant has shown that it considers the issue important enough to hold out despite being accused in front of an international tribunal. The empirical analysis using newly compiled data on WTO disputes in 1995-2009 strongly supports the theoretical claims.

**Keywords:** Dispute Recurrence; Dispute Settlement; Quantitative Analysis; World Trade Organization

## Introduction

Most scholars, trade experts, and practitioners agree that the dispute settlement mechanism (DSM) of the World Trade Organization (WTO) is one of the key elements that has contributed to the organization's success by facilitating the exchange of goods and services between its member states (Bown 2009; Busch and Reinhardt 2002; Palmetier 2000; Steger and Hainsworth 1998). In short, the DSM – to which the current Director-General of the WTO, Pascal Lamy, commonly refers to when talking about “the jewel in the crown of the WTO” – provides an instrument for its members to peacefully solve their trade disputes: if a member perceives the trade policies of another member to violate WTO law, it can ask for litigation. The panel ruling then serves as an information provider and decides which of the parties is right (Busch and Reinhardt 2000). If the ruling is against the defendant, it should (re-) align its trade policies toward compliance with WTO law.

However, the WTO itself does not provide an enforcement mechanism to ensure that the defendant complies with a respective ruling. If the complainant believes that the defendant does not implement a ruling, it can use retaliatory measures, i.e. trade sanctions, to self-enforce compliance after an implementation dispute ruling has acknowledged the complainant's right to do so. The effectiveness of the WTO's DSM in the form of its ability to solve a trade dispute thus ultimately relies on members' capabilities to self-enforce trade rulings (Bown 2004). This reliance on self-enforcement is one of the reasons why the WTO DSM is often said to privilege developed over developing nations (Bown 2009; Busch, Reinhardt, and Shaffer 2008; Guzman and Simmons 2005)<sup>1</sup> – interestingly, also a point that has been raised by Director-General Lamy in a speech that marked the occasion of the 400<sup>th</sup> trade dispute brought to the DSM in November 2009.

In principle, developing countries might be disadvantaged when using the DSM due to two reasons: the lack of legal capacity as well as power asymmetry if they face a more powerful

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<sup>1</sup> The European Union (EU), while being a member of the WTO, is not a state or country in a legal sense. When referring to “member states” or “member countries,” however, we consider the EU as well.

complainant or defendant. While the scholarly literature has studied intensively how both legal capacity and power asymmetry affect developing countries' usage of the system (Bown 2009; Busch, Reinhardt, and Shaffer 2008; Guzman and Simmons 2005), there is no systematic analysis of whether developed and developing nations differ with respect to the strategies they use as a complainant to reinforce their case. In this paper, we focus on this aspect by studying how power asymmetry affects the decision of a complainant to file a follow-up dispute, i.e., dispute recurrence, in order to increase pressure on the defendant.

We define dispute recurrence as a case in which the same complainant files the same dispute by citing the same agreements against the same defendant. Arguably, this constitutes an act that stresses that the complainant perceives the dispute as yet unsolved. Hence our motivation to study dispute recurrence is given by the fact that filing a follow-up dispute is the only direct way within the WTO system to reinforce a filed dispute, apart from the use of retaliatory measures. Note, however, that the use of retaliatory measures to pressure a defendant should be an inadequate strategy for most developing nations, since they simply lack the necessary market power to make a credible threat (see e.g. Bown 2004). In contrast to retaliation, one might expect developing nations to be able to rely on dispute recurrence as a reinforcement strategy in the same way as developed actors do. As developing nations have already filed the respective dispute once, they have overcome the potential legal capacity hurdle attached to the filing of each new dispute. Hence, re-filing a dispute in order to increase pressure on a reluctant defendant is likely to be a relatively "cost-efficient" strategy to reinforce a case.

However, we argue against this admittedly plausible mechanism here. According to our theory, developing countries do not necessarily perceive re-filing a dispute a cost-efficient strategy and are likely to carefully evaluate the costs and benefits associated with it, especially if they face a more powerful defendant. Specifically, although re-filing a dispute may appear as cost-efficient *ex ante*, it also implies reputation costs for the defendant and,

thus, a complainant will antagonize a defendant if it re-files a dispute. This aspect is especially important for less powerful complainants, because the defendant has shown that it considers the issue important enough to hold out despite being accused in front of an international tribunal – otherwise the defendant would have cooperated already and re-filing would not be necessary. Hence, by not willing to compromise with the complainant although there is already considerable reputational pressure due to the fact that the case is already in front of the WTO, the defendant signals that it will not easily give in in the future. We argue as a result that less powerful complainants should not opt for dispute recurrence after having weighed the additional costs from antagonizing the defendant against the unlikely benefit of settling the issue.

For the empirical test of our argument, we analyze newly collected data on all WTO disputes that were filed between 1995 and 2009, using heckman-type probit selection models (Heckman 1976, 1979). The findings strongly support our theory: the likelihood of a follow-up dispute is substantially lower for those cases in which the complainant-defendant dyad is characterized by a high power asymmetry in the favor of the defendant. Paradoxically then, complainants that are more powerful are more likely to re-file a dispute, although they actually have higher chances in the first place to self-enforce a ruling, i.e., those actors least in need of a DSM ruling are more likely to use it. This somewhat constitutes “bad” news for the WTO system, since it clearly shows that certain countries are systematically disadvantaged.

The article proceeds as follows. In the next section, we review the existent literature on the WTO’s DSM, highlighting the roles of legal capacity and power asymmetries more thoroughly. This not only provides the basis for our following theoretical work, but also allows us to outline the gap in the previous work more directly that we seek to address. Afterwards, we develop our theoretical argument that focuses on reputation costs, signaling, and credible commitments of both the complainant and the defendant within the WTO’s DSM. We then describe our research design by discussing the newly compiled data, the

methodology, our dependent variable, and the explanatory items. After presenting the results and robustness checks, we finish the article by discussing our contribution and the associated implications of our work.

## **Literature Review**

A dispute in the WTO generally arises if one or more countries perceive another country's trade policies or actions as violating WTO rules (WTO 1994). As a first step, the complainant requests consultations with the defendant with the intention of settling the differences bilaterally. If the parties cannot reach an agreement by themselves, the complainant can request the establishment of a panel. The panel reviews the dispute under consideration and issues a report, which then needs to be adopted by the Dispute Settlement Body (DSB), a body that consists of all member governments. The panel report is automatically adopted unless the DSB decides by consensus not to do so, or if one or both parties appeal the panel ruling (WTO 1994). In the latter case, the appellate body will also issue a ruling. After the adoption of the panel or the appellate body report, the defendant is given a reasonable period of time, which is typically decided by agreement between the complainant and the defendant, to implement the panel's recommendations. If the defendant is unable or unwilling to comply within the given time period, negotiations over compensation for the complainant occur. As a final step, if the parties cannot agree on a compensation scheme, the complainant can ask the DSB to enact retaliatory measures, which entails the suspension of concessions or other obligations to the complainant (WTO 1994).

The scholarly literature has studied intensively how legal capacity and power asymmetry affect developing countries' usage of the dispute settlement system (Bown 2009; Busch, Reinhardt, and Shaffer 2008; Guzman and Simmons 2005). To the best of our knowledge, however, there is no systematic study that explicitly deals with dispute re-occurrence as a complainant's strategy to reinforce a case. In the following, we will discuss the literature on

legal capacity and power asymmetry that directly pertain to our research and, thus, provide the basis for our theoretical argument.

First, the literature argues that developing countries' lack of legal capacity makes it more difficult for them to take full advantage of the system due to the complexity of the WTO DSM. While earlier studies interpreted the relatively low number of developing countries using the dispute settlement mechanism as evidence in favor of this legalization challenge (Guzman and Simmons 2005; Kim 2008), more recent studies show that countries with little legal capacity do not necessarily face an apparent disadvantage in using the system (e.g., Elsig and Stucki 2012; Sattler and Bernauer 2010). In fact, especially with the creation of the Advisory Centre on WTO Law in 2001, which serves as a legal assistance center for developing countries, many legal challenges for developing countries to rely on the WTO DSM should at least in principle have been addressed (Davis 2012).

The second reason why developing countries might be at a disadvantage when using the DSM is related to the power asymmetries between a complainant and a defendant. In line with the literature, by power asymmetry, we understand an actor's power or capacity to retaliate (Guzman and Simmons 2002; Sattler and Bernauer 2010), which is typically measured as the difference in GDP between the complainant and the defendant. Several scholars deal more or less explicitly with how power asymmetry affects the various steps in the WTO DSM (Elsig and Stucki 2012; Francois, Horn, and Kaunitz 2008; Kim 2008; Sattler, Spilker, and Bernauer Forthcoming).

For example, Guzman and Simmons (2005) analyze complainants' choices of counterparts in filing WTO disputes and find that developing countries behave differently than industrialized states – however, not because of power asymmetries, but legal capacity constraints. More precisely, the authors show that poorer complainants, although filing fewer complaints in total, choose mainly richer defendants as counterparts. In contrast, richer complainants file disputes against all sorts of defendants – both more and less developed

WTO members. Guzman and Simmons (2005) interpret this result as evidence in favor of the capacity argument and against the power hypothesis. In contrast, a later study by Sattler and Bernauer (2010) finds no evidence for discriminatory effects against countries with a small legal capacity once the level of trade between the disputing parties, and thus the demand side of dispute settlement, is taken into account. Instead, their results point to a more complex form of power bias, namely a preponderance effect. More specifically, they suggest that disputes among complainant-disputant dyads exhibiting a strong power asymmetry, i.e., dyads including a much more powerful defendant than complainant or vice versa, are likely to be dealt with outside the WTO.

The studies that come closest to our research have been conducted by Bown (2004, 2005), who demonstrates that a complainant's capacity to retaliate is a crucial factor in understanding both a complainant's decision to ask for a panel and a defendant's decision to comply with an adverse ruling. His findings suggest that defendants are more willing to liberalize the disputed trade measure following a panel ruling when they face a complainant with the capacity to retaliate (Bown 2004, 2005). Note, however, that our analysis differs from Bown's (2004, 2005) approach in that we are not interested in analyzing actual trade effects of WTO dispute rulings, but evaluate whether power asymmetries affect the likelihood that complainants use the re-filing of a trade dispute as a means to solve an ongoing disagreement.

Davis and Borneo (2009) counter this power argument by stating that power asymmetries can be lowered as soon as developing countries overcome the initial costs of learning how to use the legal system of the WTO. They interpret the emergence of developing countries actively using the system, i.e., filing a dispute, as a sign that the WTO DSM gives all countries an equal chance. While we generally agree with this conclusion that the participation of developing countries in the WTO DSM is an important step toward reducing the role of power asymmetries, we argue that looking at who files disputes is only half of the



story. It is evidently important for the effectiveness of the WTO DSM that developing countries actively use the system – but it is at least equally important that they can enforce compliance once a panel ruling has been issued. Hence, we seek to extend the previous literature by proposing not only to study how power asymmetries affect the number of disputes filed by developing versus developed actors, but also to analyze how later stages in the dispute settlement process, in particular dispute recurrence, are affected by power asymmetries.

### **Theoretical Argument: Enforcement, State Power, and Dispute Recurrence**

As defined above, we observe dispute recurrence in the WTO DSM when a complainant re-files the same dispute against the same defendant. This constitutes an action that, in our opinion, underlines the fact that the complainant perceives the dispute as yet unsolved. We thus understand dispute recurrence as an enforcement strategy of the complainant to reinforce its original claim. Treating dispute recurrence as an enforcement strategy implies that a complainant should only rely on it if the defendant does not compromise (either due to unwillingness or the inability) and, thus, holds out until this issue passes. Under those circumstances, a complainant can either acknowledge defeat or it can try to increase pressure on the defendant to change its protectionist policies. In principle, there exist two options within the WTO system<sup>2</sup> that a complainant can use to increase pressure: retaliatory measures and re-filing a dispute. In contrast to retaliatory measures, however, re-filing a dispute does not require market power vis-à-vis the defendant (Bown 2004, 2009) and it should, therefore, be a suitable reinforcement strategy also for developing countries.

In general, filing a dispute within the WTO system implies costs for both the complainant and the defendant. These costs arise because settling a dispute through the DSM is associated

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<sup>2</sup> Needless to say that other options to increase pressure on the defendant outside the WTO system do exist, e.g., launching a media campaign, increasing political pressure, etc. (Bown 2009). However, we are primarily interested in the options that are available to disputing parties that are in line with the WTO DSM in this paper and, thus, refer to formalized means of international cooperation.

with various transaction costs for all disputing parties such as hiring trade lawyers, preparing the case, attending meetings, etc. (Bown 2009; Busch, Reinhardt, and Shaffer 2008). In addition to these general transaction costs that all disputing parties face, dispute settlement brings about several further costs, but also benefits, that differ for the complainant and the defendant. In the following, we discuss the costs and benefits associated with dispute settlement in general and in a more detailed fashion with filing a follow-up dispute, first from the perspective of the defendant and, secondly, from the perspective of the complainant. This allows us to derive theoretically informed expectations about how power asymmetry is likely to affect the likelihood of dispute recurrence.

First, being taken to the WTO DSM not only implies costs stemming from the litigation process for the defendant, but – more importantly – should also result in a severe loss in reputation. This loss is likely to arise as joining an international institution, such as the WTO, implies that members commit to the institutional rules and the establishment of a formal WTO dispute thus signals that the defendant (is at least perceived to have) failed to comply with its international obligations, i.e., in this case the trade laws established by the WTO, and therefore did not live up to its international commitment (Fearon 1994; Leeds 1999; Mansfield and Pevehouse 2006; Mansfield, Milner, and Rosendorff 2002; Martin 1993). Such negative reputation effects could, in turn, harmfully affect the defendant's ability to reach advantageous trade or other agreements in the future (Abbott and Snidal 1998; Moravcsik 2000; Simmons 2000).

Re-filing a dispute induces that the defendant should suffer from even more reputational damage. Facing an international tribunal in a case that a member has been accused guilty before should not so much lead to additional transaction costs stemming from an extension of the litigation process. While there will arise some transaction costs in the form of attending additional meetings and sustaining the team of lawyers to further pursue the case, the initial heavy investment of preparing the case and bringing it to the WTO DSM has been made

already (Busch, Reinhardt, and Shaffer 2008). However, dispute recurrence should clearly result in a further loss in reputation for the defendant: the act of re-filing signals that the defendant is obviously not willing to cooperate over this specific issue even after having faced an accusation in front of the same international tribunal before. Hence it seems plausible to expect that this potential reputational damage for the defendant is in turn likely to constitute an incentive for the complainant to consider re-filing a dispute, which it perceives as unsolved. From this perspective, dispute recurrence should constitute a readily available option for the complainant to increase reputational costs for the defendant thereby putting additional pressure on the defendant to change its trade policies. We argue, however, that the opposite outcome in the form of a decreased risk of dispute recurrence is likely to be the case, at least if the defendant is more powerful than the complainant.

In more detail, secondly, the complainant is likely to weigh the above-mentioned transaction costs for filing a dispute against the benefits that can be derived from the defendant ceasing the trade-distorting measures in question. Especially in the case of a developing state, the initial transaction costs of filing a dispute might be rather high due to legal capacity constraints. Poorer complainants simply have fewer resources to invest in preparing the legal case, hiring adequate trade lawyers, attending meetings etc. (M. L. Busch and E. Reinhardt 2003; Busch, Reinhardt, and Shaffer 2008; Kim 2008). They, therefore, need to carefully weigh this heavy investment against the chance to obtain concessions from the defendant. As soon as a developing country has filed a dispute, though, we argue that the cost-benefit calculation for re-filing a dispute if the country wants to reinforce its case looks different. While it seems unlikely that there are any significant transaction costs attached to re-filing a dispute since the initial investment has already been made, legal capacity constraints should not matter for dispute recurrence. Hence, re-filing a case may be a cost-efficient and rather attractive option, especially for developing countries, to reinforce their claim.

However, we believe that this is only one part of this mechanism. We argue that due to the additional reputational costs that re-filing causes for the defendant, complainants will further antagonize a defendant if they re-file a dispute. This aspect should be especially important for less powerful complainants, because the defendant has shown that it considers the issue important enough to hold out – otherwise the defendant would have cooperated already and re-filing would not be necessary. Hence, we claim that less powerful complainants are unlikely to use dispute recurrence, because the defendant has shown that it considers the issue important enough to decide not to concede even if accused in front of an international tribunal. By not being willing to compromise with the complainant although there is already considerable reputational damage as the case is already in front of the WTO, the defendant signals that it will not easily give in (Fearon 1994). Ultimately, re-filing a dispute by a less powerful complainant is unlikely to lead to what she might perceive an effective or a beneficial outcome, i.e. concessions by the defendant. Instead re-filing will further antagonize the defendant without probably having a realistic chance that the issue will be solved – otherwise the defendant should have complied already.

In contrast, a more or equally powerful complainant might want to use, in addition to retaliatory measures, the re-filing of a dispute to increase pressure. This should be the case because a more powerful complainant can more realistically afford to antagonize a defendant in order to increase the pressure on its opponent to move closer to the solution of a dispute. Having enough market power vis-à-vis the defendant implies that a more or equally powerful complainant should not worry as much as less powerful complainants about increasing the reputational costs associated with dispute recurrence, and should thus perceive re-filing as a suitable means to increase the pressure on the defendant. Consequently, dispute recurrence should be more likely if the complainant is more powerful, but not if it is less powerful than the defendant.

## Research Design

### *Data and Dependent Variable*

For the empirical test of our hypothesis, we employ a cross-sectional data set on trade disputes that was originally compiled by Sattler, Spilker, and Bernauer (Forthcoming; see also Spilker 2011). These data are comprised of all disputes since 1995 for which a request for consultations has been filed until the end of 2006. By using official WTO documents,<sup>3</sup> Sattler, Spilker, and Bernauer (Forthcoming; see also Spilker 2011) also obtained information on the defendant and complainant(s) for each WTO dispute and its characteristics. For example, these scholars assigned to each dispute the corresponding economic sector and identified which trade policy instrument has been used to protect this industry sector, e.g., tariffs or subsidies. Following Sattler, Spilker, and Bernauer's (Forthcoming; see also Spilker 2011) coding rules, we extended the data by including all disputes for which a request for consultations has been filed until the end of 2009.

From our perspective, these data have the advantage over alternative sources<sup>4</sup> in that they cover the most recent disputes and rely on objective information directly compiled from official WTO documents. The data set ultimately contains 396 disputes between 1995 and 2009. We use the complainant-dispute as the unit of analysis. For example, a dispute over agricultural trade policies in 1995 involved the European Union as the defendant and (a) the United States, (b) Guatemala, (c) Mexico, and (d) Honduras as complainants. Thus, there are four observations for this dispute in our data due to the existence of four complainants. The final data comprise 425 observations in total.

Despite the cross-sectional setup of the data, some temporal dependencies may persist. As elaborated more thoroughly below, for instance, some disputes are unlikely to be independent from each other as they may involve the same disputants, evolve over the same issue, or are regulated by the same panel. In order to control for any potential bias in this regard, we

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<sup>3</sup> [http://www.wto.org/english/tratop\\_e/dispu\\_e/find\\_dispu\\_documents\\_e.htm](http://www.wto.org/english/tratop_e/dispu_e/find_dispu_documents_e.htm).

<sup>4</sup> Hudec (1993), for example, provides an alternative data set.

cluster the standard errors on the establishment of a common panel for a dispute, which accounts for intra-group correlations. Additionally, we include a time variable, i.e., the time elapsed since the last dispute has been filed between the same disputants on the same issue, as well as its squared and cubic terms ( $Time$ ,  $Time^2$ ,  $Time^3$ ) in the models (Carter and Signorino 2010).

In order to capture our theoretical rationale, we require a dependent variable that identifies if disputes within the WTO are linked to a follow-up dispute, i.e., whether we observe dispute recurrence or not. Given the information in Sattler, Spilker, and Bernauer (Forthcoming; see also Spilker 2011) and our extension of these data, we created one variable that measures if a current dispute is linked to a follow-up dispute in which (a) the same complainant files (b) the same dispute by (c) citing the same agreements against (d) the same defendant some time after an initial dispute. Put differently, this binary item (*Dispute Recurrence*) receives the value of 1 if a dispute in question was followed by another dispute afterwards. Alternatively, we assign the value of 0 if a dispute was not followed by another dispute, as defined by our coding rules, in the future. Table 1 gives an overview of those 17 cases that we coded as having a follow-up dispute.

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Table 1 in here

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### *Core Explanatory Variables*

Due to our interest in the risk of dispute recurrence depending on power asymmetries between a complainant and a defendant, we follow the existing literature that emphasizes that actors' capabilities affect the initiation of WTO disputes (e.g., Sattler and Bernauer 2010) or dispute escalation (Guzman and Simmons 2002). Unlike these studies, however, we focus on the risk of dispute recurrence. Powerful disputants generally seem to have an advantage in using the

WTO's DSM in order to advance their own interests (M. L. Busch and E. Reinhardt 2003; Davis and Blodgett Bermeo 2009; Guzman and Simmons 2005) and, according to our theory, we believe that this advantage should not vanish over the course of a dispute. More specifically, we argue that less powerful complainants should not opt for dispute recurrence after having weighed the additional costs from antagonizing the defendant against the unlikely benefit of settling the issue. With a first variable, we measure power by the difference in GDP between the defendant and the complainant. Higher values stand for a more powerful defendant and, thus, we expect this variable to be negatively signed. The data for this item (*Difference GDP (Defendant – Complainant)*) are taken from the Penn World Tables (Heston, Summers, and Aten 2009), while it is log-transformed to account for its skewed distribution.

Second, an alternative measure that captures power asymmetries between disputants might be the export dependence of the complainant vis-à-vis the defendant and vice versa (Bown 2009). We operationalize this variable (*Export Dependence*) via the difference between the percentage of the complainant's total value of goods that are exported to the defendant and vice versa. In other words, we seek to proxy which disputant is relatively more dependent on exports to the other: higher values signify a stronger dependence of the complainant on exports from the defendant, which induces the expectation that this variable should also be negatively signed. The data for this log-transformed variable are taken from Barbieri, Keshk, and Pollins (2009).<sup>5</sup> Note that due to the high pair-wise correlation between *Difference GDP (Defendant – Complainant)* and *Export Dependence* (Pearson's  $r=0.86$ ), we consider these two variables in separate models.

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<sup>5</sup> We use data from the IMF DOTS for Hong Kong, which are not included in Barbieri et al. (2009). Values for the EU are the sum of the values for the individual EU member states. For total exports and imports of the EU, we subtracted intra-EU trade as, considering the EU as a single actor, we are interested in the EU's dependence on trade with non-EU countries. Data on intra-EU trade are also taken from the IMF DOTS.

### *Control Variables*

In addition, we control for a series of alternative factors that may also influence the likelihood of dispute recurrence. For these control covariates, we mainly follow Sattler, Spilker, and Bernauer (Forthcoming; see also Spilker 2011), and we take these variables from our extended data set of their data if not indicated otherwise. First, democracies are generally more respectful of international law than non-democratic regimes (Rickard 2010; Guzman and Simmons 2002; Mansfield, Milner, and Rosendorff 2002; Keohane, Moravcsik, and Slaughter 2000). However, the existing literature theoretically argues and empirically demonstrates that democratic institutions have a positive effect on dispute initiation (Davis and Blodgett Bermeo 2009; Rosendorff 2005; Busch 2000; Reinhardt 2000). This seems to stem from the fact that democracies supposedly perceive WTO disputes as legitimate and beneficial means of settling trade disputes (Davis 2008; Allee 2004). The data are taken from the Polity IV project (Marshall and Jaggers 2004), ranging from -10 (full autocracy) to +10 (full democracy). We use a weakest link specification, where the least democratic country in a dyad determines the likelihood of dispute recurrence.

Second, there is the salience of a dispute in the form of audience costs a government might face at the domestic level. The influence of the industry seems predominantly high for the agriculture sector, since it has a strong ability to organize politically, form alliances with other stakeholders, publicize the dispute, or lobby for trade-restricting policies here (see also Olson 1971). In line with the existing literature, we thus expect disputes particularly involving the agriculture sector to last longer than, e.g., disputes on manufacturing services (Bernauer 2003; Bernauer and Meins 2003; Davis and Shirato 2007; Elsig and Stucki 2012). To this end, we consider a dummy variable (*Agricultural Dispute*) capturing whether the dispute in question is about the agriculture sector (1) or not (0).

Another dichotomous variable (*Complex Instrument*) measures if a dispute in question refers to a complex trade-protective instrument, such as technical barriers to trade, anti-



dumping, or subsidies (*Complex Instrument*=1). In contrast, tariffs and quotas are arguably less complex (*Complex Instrument*=0). This approach follows the rationale given in Guzman and Simmons (2002) who argue that it should be less difficult to settle tariff and quota cases, since these refer to a continuous issue in contrast to, e.g., a ban that is generally characterized by an “all-or-nothing outcome.”

Fourth, we incorporate the number of agreements cited in the request for consultations. This count variable captures the degree of extensiveness of implementation for the defendant in case there might be a panel ruling over the course of a dispute. Put differently, the more agreements are covered by a particular dispute, the more extensive the implementation of a panel ruling might be. In turn, this should increase the risk that a dispute will break out over an issue in question again (Sattler, Spilker, and Bernauer Forthcoming).

Fifth, we control for disputes that broke out between the EU and the US, since their disagreements commonly involve high stakes (M. Busch and E. Reinhardt 2003). This should also increase the chances that a dispute will recur.

Finally, a last variable (*Panel Ruling*) identifies whether a panel ruling has been established for a dispute (1) or not (0). Disputes with a ruling should differ in important and predictable ways in their likelihood of seeing a follow-up dispute from those disputes without a panel (see discussion in the following section). Table 2 presents the summary statistics of the introduced variables.

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Table 2 in here

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## **Empirical Findings**

For testing our theory, we rely on a series of models in order to demonstrate that our findings do not depend on econometric specifications or included control variables. Note, however,

and as indicated in Table 2 above, 183 out of 425 observations (43%) in our data set have seen the establishment of a panel and a corresponding ruling. Disputes in which a panel has been established are unlikely to be a random set. In other words, disputes with a panel should differ in important and predictable ways in their likelihood of having a follow-up dispute from those disputes without a panel. More precisely, the likelihood of re-filing should increase once a panel ruling has been issued and it becomes evident that a defendant is probably not going to implement the respective ruling. Ultimately, we face a selection problem that – if not addressed and if our explanatory variables influence both the first stage of a panel establishment and the second stage of dispute recurrence – may either underestimate the impact of our explanatory variables or exaggerate it. Regular probit models, which might be the obvious choice given our dichotomous dependent variable, may yield biased estimates if selection is an issue, though.

In order to address this problem, we use heckman-type probit models with sample selection (Heckman 1976, 1979). For these models, we have to define two different dependent variables: one for the outcome equation and one for the selection equation. Consequently, the dependent variable in the latter equation is whether a panel that made a ruling (*Panel Ruling*) has been established or not.<sup>6</sup> The second equation using dispute recurrence as the outcome variable is then estimated simultaneously, while taking into account the correlation in the equations' error processes. Table 3 and Figure 1 summarize our findings here.<sup>7</sup> Model 1 and Model 2 in Table 3 report our findings pertaining to *Difference GDP (Defendant – Complainant)*, while the difference between these two calculations is the exclusion of the control covariates in Model 1. Clarke (2005, 2009), for example, shows that adding controls in empirical models may actually increase the bias instead of decreasing it. Model 3 and

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<sup>6</sup> We also include variables for temporal correction in this equation, i.e., the time elapsed since the last panel has been established for a disputant dyad as well as its squared and cubic terms.

<sup>7</sup> Figure 1 is based on Model 2 and Model 4 of Table 3. The results for Model 1 and Model 3, respectively, are virtually identical.

Model 4 in this table follow the same rationale, but we now replace *Difference GDP (Defendant – Complainant)* by *Export Dependence* here.

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Table 3 in here

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According to Table 3, our estimate for the  $\rho$  parameter in all models is negative and highly significant, i.e., unobserved features that increase the likelihood of selection (i.e., the establishment of a panel) actually decrease the probability of dispute recurrence. Focusing then on Model 1 and Model 2 first, we obtain support for our hypothesis. The coefficient of *Difference GDP (Defendant – Complainant)* is negatively signed and statistically significant at least at the 10% level, independent from the inclusion of the control variables. However, coefficients in non-linear models like the probit model with sample selection cannot be interpreted as slopes or elasticities. Only their signs and standard errors allow for a direct reading. We therefore calculated the conditional predicted probabilities as the quantity of interest,<sup>8</sup> which are summarized for Model 2 and Model 4 in Figure 1 below. Substantially then, this figure demonstrates that the probability of dispute recurrence decreases from slightly less than 10% if the complainant is most powerful to approximately 0% if *Difference GDP (Defendant – Complainant)* is at its maximum, i.e., if the defendant is most powerful. As a result, these findings highly support our theoretical argument. According to our theory, less powerful complainants should not opt for dispute recurrence after having weighed the additional costs from antagonizing the defendant against the unlikely benefit of settling the issue.

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<sup>8</sup>  $Pr(\text{Dispute Recurrence}=1 \mid \text{Panel Ruling}=1) = Pr(\text{Dispute Recurrence}=1, \text{Panel Ruling}=1)/Pr(\text{Panel Ruling}=1)$ .

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Figure 1 in here

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Coming to our second core variable, also *Export Dependence* is statistically significant at conventional levels in Model 3 and Model 4. In other words, we obtain again strong support for our theoretical claim: powerful actors can advance their own interests more strongly (Busch and Reinhardt 2003; Davis and Blodgett Bermeo 2009; Guzman and Simmons 2005). The higher the power difference in favor of the defendant as measured by export dependencies, the less likely it is that we observe a follow-up dispute. Similarly to the effect of our first core variable, the risk of dispute recurrence decreases by about 10%-points when moving from the minimum toward the maximum of *Export Dependence*.

Table 3 also reveals interesting findings with regard to the control variables. Due to space limitations, we largely restrict our discussion to the statistically significant items. First, as expected, disputes over complex instruments are more likely to see future disagreements over the same issue the original dispute broke out. The item is statistically significant in the outcome equation independent from model specifications. Unreported calculations show that the risk of dispute recurrence increases by about 2%-points as soon as technical barriers to trade, anti-dumping, or subsidies are part of a disagreement between a complainant and a defendant. It thus seems that more complex instruments are more difficult to address. If these are part of a dispute, the chances of a robust solution to a dispute in the first place are likely to be lower, which, in turn, increases the risk of conflict recurrence.

Second, the variable on the number of agreements cited in the request for consultations has a significant impact at both stages of the model. On the one hand, we argued that the more agreements are covered by a particular dispute, the more extensive the implementation of a panel ruling might be. According to Table 3, while this seems to increase the probability that a panel is established that also issues a ruling, the risk of dispute recurrence actually

decreases. More substantially, the likelihood of a panel establishment and an associated ruling increases on average from 34.5% to 76% if *Number of Agreements Cited* is raised from its minimum to its maximum value. The impact on dispute recurrence in the outcome equations of our model is smaller as we see a drop from 3% to 1% if *Number of Agreements Cited* is raised from its minimum to its maximum value. We interpret this finding as an indication for the effectiveness of the WTO's panels: if a panel is established and has to deal with an extensive issue as captured by a high number of cited agreements, it is able to broker this issue and eventually prevent that a dispute breaks out again.

### **Robustness Checks**

To test the robustness of our findings, we also employed other econometric specifications that are not reported here due to space limitations, but can be replicated with the supplementary materials. First, in order to examine in how far multicollinearity influences the precision of our estimates, we calculated the variables' cross-correlations and variation inflation factors. Moreover, and as indicated above, Clarke (2005, 2009) demonstrates that the inclusion of control variables may actually increase the bias instead of decreasing it. However, all those robustness tests did neither produce significantly different results than those summarized above nor indicate that our main results have to be interpreted with caution.

Second, we selected the heckman-type probit model due to theoretical considerations over a selection process pertaining to two stages. The estimate of the  $\rho$  parameter further empirically supports this choice. That being said, and as demonstrated in Table 2, there is a large over-dispersion of zeros and our dependent variable receives a value of 1 only in about 4% of the observations. Regular probit models and also the heckman-type probit estimator may then overestimate the probability and frequency of the "non-zero" events. We thus used also a rare-events logit model (King and Zeng 2001, 2001). Again, though, employing this

estimator instead of our setup leads to coefficient estimates that are virtually identical to those reported in this paper.

Third, we also calculated bivariate probit models, using the specifications outlined in Greene (2003, 710) and Maddala (1983, 122). More specifically, the heckman-type estimator we use above assumes that we observe the outcome in the second equation if and only if a dispute actually sees a panel establishment as if  $y_{selection}=0$ , then we have no information about  $y_{outcome}$ . Thus, the first probit equation is completely observed, but we have only a selected (censored) sample for the second. This assumption may be too strong, making it necessary that we also obtain similar results to our Table 3 when using an alternative selection estimator. In the bivariate probit model, there are separate probit models with correlated disturbances. The two probit equations pertain to two different, yet interrelated decisions or processes, which is somewhat similar to the heckman-type probit model. The difference of the bivariate probit model to the latter is, however, that it does not impose the strict “if-and-only-if” assumption for observing outcomes in the second equation. Having said that, when replicating our results with a bivariate probit model, our results are very similar to those reported above – both in terms of significance and substance. Surprisingly, though, the estimate of the  $\rho$  parameter is no longer significant, which suggests that selection may not be that much of a problem actually. In light of this, we also re-estimated our models with regular probit models. Again, the results remain robust.

Fourth, we clustered the standard errors on disputes’ common panels to account for intra-group dependencies. However, one may also cluster the standard errors at the complainant-defendant dyad or the dispute level as such. All our findings remain robustly significant if we employ such alternative clustering in any model of Table 3.

Finally, although our data are of cross-sectional nature, we pointed out that some temporal dependencies are likely to be given between disputes. Data using a binary dependent variable as in our case are very similar to discrete duration data under those circumstances. Hence, we

also verified the robustness of our results using duration models. Specifically, we defined the dependent variable as the time (in months) between the date a dispute has been settled and the date dispute involving the same actors over the same issue breaks out again. This approach has also econometric benefits as it gives more variation across disputes than simply estimating the likelihood of dispute recurrence (Schneider and Urpelainen 2013, 19) and we can also consider the different time lags that are characteristic for states' decisions in this regard. We did not impose a particular functional form of the baseline hazard and, thus, estimated Cox proportional hazards models. This leaves the duration dependency unspecified and focuses the empirical analysis on how the covariates shift the baseline hazard. The results obtained from the Cox models are virtually identical to the findings from the heckman-type probit models, although the former do not take into account selection effects.

## **Conclusion**

Is re-filing a dispute a cost-efficient option for complainants in the WTO dispute settlement process to increase pressure on a defendant and thus to emphasize their case? This paper has shown that the actual use of this reinforcement strategy is clearly limited to settings in which the defendant is not more powerful than the complainant. This finding might seem counter-intuitive at first sight, since, in contrast to retaliation (the other option within the WTO dispute system to reinforce a case), dispute recurrence should be a readily available strategy for developing and developed actors alike. Since re-filing a dispute does not directly depend on market size and developing nations have overcome the potential legal capacity hurdle attached to the filing of each new dispute by already filing the respective dispute once, dispute recurrence should be a relatively "cost-efficient" strategy to reinforce a case also for developing countries.

However, we argue by analyzing the cost-benefit calculation a complainant faces when deciding whether to re-file a dispute or not that it should be careful in using this strategy

especially if it faces a more powerful defendant. The reason is that re-filing a dispute implies reputation costs for the defendant and, thus, a complainant will antagonize a defendant if it re-files a dispute. This aspect is especially important for less powerful complainants, because the defendant has shown that it considers the issue important enough to hold out despite being accused in front of an international tribunal. Hence less powerful complainants should not opt for dispute recurrence after having weighed the additional costs from antagonizing the defendant against the unlikely benefit of settling the issue.

Our findings thus constitute somewhat “bad” news for the WTO system since they show that less powerful countries are systematically disadvantaged in their use of dispute recurrence as an enforcement strategy. Paradoxically, our results support the conclusion that those actors least in need of this strategy are more likely to use it: complainants that are more powerful are more likely to re-file a dispute, although they actually have higher chances in the first place to self-enforce a ruling.

While re-filing a dispute is next to retaliatory measures the only option within the WTO system that a complainant can use to reinforce its case, other options to increase pressure on the defendant outside the WTO system do exist, e.g., launching a media campaign, increasing political pressure, etc. (Bown 2009). While in this paper we were primarily interested in the options that are available to disputing parties that are in line with the WTO DSM and, thus, refer to formalized means of international cooperation, future research could evaluate whether less powerful complainants can rely on this outside options to compensate for their apparent disadvantage in using the inside strategies.



**Table 1.** Overview of Re-filed Disputes

Dispute ID	Complainant	Defendant	Start	Stage	Case
3	United States	South Korea	April 1995	Consultations	Measures Concerning the Testing and Inspection of Agricultural Products
52	United States	Brazil	Aug 1996	Consultations	Certain Measures Affecting Trade and Investment in the Automotive Sector
55	Japan	Indonesia	Oct 1996	Ruling	Certain Measures Affecting the Automobile Industry
60	Mexico	Guatemala	Oct 1996	Ruling	Anti-Dumping Investigation Regarding Portland Cement from Mexico
74	United States	Philippines	April 1997	Consultations	Measures Affecting Pork and Poultry
85	European Union	United States	May 1997	Consultations	Measures Affecting Textiles and Apparel Products
87	European Union	Chile	June 1997	Ruling	Taxes on Alcoholic Beverages
101	United States	Mexico	Sep 1997	Consultations	Anti-Dumping Investigation of High-Fructose Corn Syrup (HFCS) from the United States
106	United States	Australia	Nov 1997	Consultations	Subsidies Provided to Producers and Exporters of Automotive Leather
138	European Union	United States	June 1998	Ruling	Imposition of Countervailing Duties on Certain Hot-Rolled Lead and Bismuth Carbon Steel Products Originating in the United Kingdom
257	Canada	United States	May 2002	Ruling	Final Countervailing Duty Determination with respect to certain Softwood Lumber from Canada
270	Philippines	Australia	Oct 2002	Consultations	Certain Measures Affecting the Importation of Fresh Fruit and Vegetables
300	Honduras	Dominican Republic	Aug 2003	Consultation	Measures Affecting the Importation of Cigarettes
301	South Korea	European Union	Sept 2003	Ruling	Measures Affecting Trade in Commercial Vessels
316	United States	European Union	Oct 2004	Panel	Measures Affecting Trade in Large Civil Aircraft
317	European Union	United States	Oct 2004	Panel	Measures Affecting Trade in Large Civil Aircraft
325	Mexico	US	Jan 2005	Consultations	Anti-Dumping Determinations regarding Stainless Steel from Mexico

**Table 2.** Descriptive Statistics

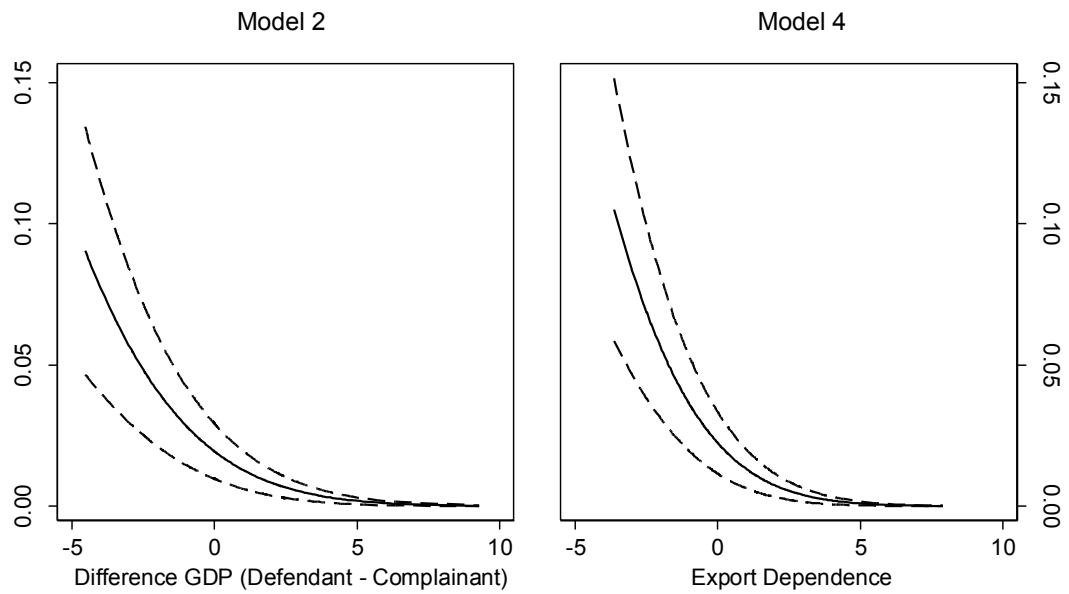
Variable	Obs.	Mean	SD	Min	Max
Dispute Recurrence	425	0.04	0.20	0	1
Difference GDP (Defendant – Complainant)	425	0.31	2.49	-4.53	9.26
Export Dependence	424	0.70	2.07	-3.64	7.89
Democracy	425	7.29	4.49	-7	10
Agricultural Dispute	425	0.40	0.49	0	1
Complex Instrument	425	0.57	0.50	0	1
Number of Agreements Cited	425	9.31	7.48	1	40
EU – US Dispute	425	0.12	0.32	0	1
Panel Ruling	421	0.43	0.50	0	1
Time	425	2.28	3.00	0	14
Time <sup>2</sup>	425	14.20	29.72	0	196
Time <sup>3</sup>	425	114.67	337.28	0	2744

**Table 3.** The Recurrence of WTO Disputes – Probit Models with Sample Selection

	Model 1	Model 2	Model 3	Model 4
<b>Outcome Equation</b>				
Difference GDP (Defendant – Complainant)	-0.05 (0.03)*	-0.12 (0.04)***		
Export Dependence			-0.08 (0.03)**	-0.12 (0.05)**
Democracy		-0.01 (0.02)		0.01 (0.02)
Agricultural Dispute		0.01 (0.26)		-0.01 (0.26)
Complex Instrument		0.34 (0.19)*		0.35 (0.20)*
Number of Agreements Cited		-0.03 (0.02)**		-0.04 (0.02)**
EU – US Dispute		-0.05 (0.27)		-0.07 (0.28)
Time	-0.17 (0.18)	-0.18 (0.19)	-0.19 (0.20)	-0.20 (0.21)
Time <sup>2</sup>	0.06 (0.06)	0.06 (0.05)	0.06 (0.06)	0.07 (0.06)
Time <sup>3</sup>	-0.01 (0.01)	-0.01 (0.01)	-0.01 (0.01)	-0.01 (0.01)
<b>Panel Ruling Selection Equation</b>				
Difference GDP (Defendant – Complainant)		0.07 (0.03)**		0.04 (0.04)
Export Dependence				
Democracy		-0.01 (0.02)		-0.01 (0.02)
Agricultural Dispute		-0.22 (0.17)		-0.19 (0.17)
Complex Instrument		-0.22 (0.18)		-0.22 (0.18)
Number of Agreements Cited		0.03 (0.01)**		0.03 (0.01)***
EU – US Dispute		0.22 (0.20)		0.23 (0.20)
Panel Ruling Time	0.02 (0.11)	0.06 (0.12)	0.02 (0.12)	0.06 (0.13)
Panel Ruling Time <sup>2</sup>	-0.01 (0.03)	-0.01 (0.04)	0.01 (0.03)	-0.01 (0.04)
Panel Ruling Time <sup>3</sup>	-0.01 (0.02)	0.01 (0.01)	-0.01 (0.01)	0.01 (0.01)
Constant	-0.17 (0.09)*	-0.20 (0.21)	-0.18 (0.09)*	-0.24 (0.21)
Obs.	421	421	420	420
Log Pseudolikelihood	-312.59	-297.89	-311.31	-299.29
Wald $\chi^2$	4.89	21.57	6.79	16.17
Prob > $\chi^2$	0.30	0.01	0.15	0.06
$\rho$	-0.96***	-0.95***	-0.96***	-0.94***

Note: Table entries are coefficients; robust standard errors in parentheses.

\* significant at 10%; \*\* significant at 5%; \*\*\* significant at 1% (two-tailed)

**Figure 1.** Conditional Predicted Probabilities of Dispute Recurrence

*Note:* Predicted probabilities calculated while holding all other variables at their mean value; dashed lines signify 90% confidence intervals.

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