

# **Does Trade Comply?**

## **The Economic Effect(iveness) of WTO Dispute Settlement**

*Very first draft. Comments most welcome.*

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### *Abstract*

This paper addresses the economic impact of the World Trade Organization's (WTO) dispute settlement process. It analyses the degree to which the settlement of a dispute affects trade between the formerly disputing parties. Building on a previous paper that addressed a surprising and serious gap in the existing literature on the politics and legal dimensions of WTO disputes, namely the lack of theoretical and empirical research on what happens after disputes are arbitrated through panel/Appellate Body rulings, we are now interested in the economic effects of compliance with WTO dispute rulings. We analyze whether WTO dispute rulings lead to trade recovery that can be observed in actual trade flows. Deriving hypotheses from existing 'trade creation vs. diversion' and endogenous trade policy models, we empirically test our theoretical arguments using an original data set that covers WTO disputes in the time period 1995-2010. Comparing the complex changes in trade flows pre- and post-compliance with panel/Appellate Body report recommendations, we examine the factors that condition the effects of WTO rulings on trade and assess the institutional effectiveness of the WTO's dispute settlement mechanism.

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## **Does Trade Comply?**

### **The Economic Effect(iveness) of the WTO Dispute Settlement Process**

Studying the effects and effectiveness of international institutions has a long tradition in international relations and sparked a number of debates over the last couple of decades. One prominent example is the ‘enforcement vs. management’ exchange between Chayes and Chayes (1995) and Downs, Rocke, and Barsoom (1996) in the mid-1990s, which raised many of the questions that are still debated today: what can and should we expect international institutions to accomplish, who joins and what motivates countries to join international institutions, how can we measure and compare the effectiveness of diverse international institutions, and what can we do to improve their effectiveness?

Since then, countless theoretical and empirical studies have investigated the effectiveness (or the lack thereof) of international institutions in specific issue areas or of individual international institutions. Mitchell (1994), Helm and Sprinz (2000), and many other have analyzed whether and how international environmental regimes save or improve the environment. Studies have scrutinized the impact of human rights treaties on the protection of human rights (Neumayer 2005, Hollyer and Rosendorff 2010), preferential trade agreements on bilateral trade (Baier and Bergstrand 2007), and investment treaties on flows of foreign direct investment (Peinhardt and Allee 2012). Scholars have even studied the effects of international institutions across policy areas, like the effects of preferential trade agreements on investment (Büthe and Milner 2008) or trade agreements on human rights (Hafner-Burton 2005).

Not surprisingly, there are also a large number of studies that has analyzed the impact of the General Agreement on Tariffs and Trade (GATT) and World Trade Organization (WTO) on trade (cf. Gowa and Kim 2005, Rose 2004, Subramanian and Wei 2007). What is more surprising, however, is that these studies have primarily focused on the question of whether the GATT/WTO as a whole matters or makes a difference (and for whom) and have not looked at what it is that drives the trade effects of the multilateral trade regime. With few exceptions (cf.

Bown 2004, Kucik and Pelc 2012, Bechtel and Sattler 2012), GATT/WTO and trade scholars have taken a broad, macro perspective and failed to empirically identify what aspect of the rules and regulations promote or hinder the GATT/WTO's effectiveness. Looking at this issue from a slightly different perspective, it becomes obvious that – more than 60 years after the original signing of the GATT and almost 20 years after the WTO has been established – we still do not know a lot about the effects and effectiveness of specific aspects of the trade regime on trade.

We focus on the effectiveness of such a specific aspect by analyzing the trade effects of one of the most prominent features of the WTO, namely the Understanding on Rules and Procedures Governing the Settlement of Disputes. The Dispute Settlement Understanding or DSU has been hailed as one of the main achievements of the Uruguay Round. It created a highly legalized institutional mechanism for the settling of trade disputes between members of the global trade regime (Guzman and Simmons 2002, Jackson 2001, Cameron and Campbell 1998). Various scholars have argued that the DSU has redressed many of the GATT's weaknesses in resolving trade disputes, most notably by providing for “the guaranteed right to a panel” (Grinols and Perrelli 2002: 338). While any of the disputing parties could veto the formation of a dispute panel or the adoption of a panel report following arbitration under the GATT system, disputing parties now have the right to request a panel following the failure of consultations (Young 1995, Jackson 2000, 1998, Bello and Holmer 1998). As well as providing institutional arrangements for the arbitration of disputes, the DSU also includes provisions for the monitoring of progress towards compliance with the terms of panel and Appellate Body reports adopted by the WTO's Dispute Settlement Body (DSB), which consists of all WTO members.

We previously noted (cf. Hofmann and Kim 2010, 2011) that scholarship on the WTO's dispute settlement process has devoted much attention to its legal aspects, the (dis)advantages of developing countries in utilizing the mechanism, and the political and economic factors associated with the initiation, escalation, and the outcomes of WTO disputes. Studies on the initiation of WTO disputes, for example, have found strong support for prior experience in trade adjudication, whether as a complainant or respondent, as a determining factor (Davis and Bermeo 2009). At the same time, these studies have yielded divergent findings for the impact of power and capacity, centered on the effect of gross domestic product (GDP) per capita as the key indicator (Horn, Mavroidis, and Nordström 1999, Reinhardt 2000, Guzman and Simmons 2005).

Other studies focused on the factors affecting the ‘early settlement’ or escalation of disputes from initial consultations to the formal panel stage (Busch and Reinhardt 2001, 2002, 2003). More recently, Busch and Reinhardt (2006) found, for example, that the participation of third-parties increases the likelihood that WTO disputes will escalate to the formal panel stage.

While Hofmann and Kim (2010) addressed the fact that surprisingly little attention had been directed to the compliance stage of the dispute settlement process, we are now interested in the understudied economic effects of WTO disputes. Having previously analyzed the causes of compliance and found that compliance is a function of the political importance of the domestic economic sectors that are benefitting from continued infringements on the international rules of trade, we now investigate the consequences of compliance. Does compliance with WTO dispute panel and Appellate Body reports and establishing or restoring the WTO consistency of national trade policies matter and make a measurable difference for international trade? Referencing the title of our paper, we ask: does trade comply with DSU rulings and what are the (un)expected and (un)intended effects of WTO dispute settlement on trade?

To answer these questions, we start out with a brief discussion of the compliance proceedings that are specified in the DSU and the existing literature on the effectiveness of WTO dispute settlement and dispute settlement’s effects on trade flows. Following this discussion, we develop two lines of argument that do not only provide a theoretical explanation for the direct trade effects of compliance with WTO dispute panel and Appellate Body reports for the countries involved in a trade dispute, but also the effects on compliance on third parties and the unintended consequences of dispute settlement that tend to reduce or even undermine the broader effectiveness of the DSU. Specifically, we present hypotheses that we derive from the long-standing discussion on ‘trade creation vs. diversion’ of preferential trade agreements and the existing endogenous trade policy literature. In the empirical section, we test some of the observable implications of our theoretical arguments. We conclude with an outlook on avenues for future research on compliance and effectiveness in the context of the WTO and other international institutions.

## *WTO Disputes and Compliance*

Compliance involves behavior that is consistent with provisions of an institutional agreement (Dai 2007, Young 1979, Fisher 1981, Mitchell 1994). Such provisions can come in the form of procedural obligations, substantive obligations, or just the general spirit of an agreement (Weiss Brown and Jacobson 1998). In the WTO context, compliance encompasses all behavior that is consistent with member states' obligations to adhere to the rules of trade that are enumerated in the GATT/WTO agreements. However, compliance really comes to the fore in the context and towards the end of WTO disputes.

The WTO's official compliance proceedings are initiated under the DSU following the circulation and adoption of a dispute panel or Appellate Body report and the 'convicted' country expressing its intention to implement the recommendations of the adopted report in a statement to the DSB. If immediate compliance is not practicable, a 'reasonable period of time' can be designated, at the end of which the respondent must demonstrate that it has implemented the required changes so that the trade measures at issue in the dispute are now WTO-consistent. According to DSU Articles 21.4, this reasonable period of time for implementation shall not exceed 15 months beyond the adoption of the dispute panel or Appellate Body report and may be determined through a proposal by the respondent and agreement by the DSB, mutual agreement between the disputing parties, or arbitration. The report that the respondent submits to the DSB at the end of the reasonable period of time contains detailed information on the changes to the particular policies, which had to be brought (back) into compliance with WTO provisions, and the dates, on which these changes were implemented.

Compliance is considered to be restored if the respondent's report is accepted by the complainant country. However, if the respondent fails to report compliance or if the report is contested, the compliance proceedings move on. The next step of the proceedings consists of negotiations for the compensation of the complainant. If the respondent fails to report compliance at the end of the reasonable period of time, DSU Article 22.2 provides for the respondent to enter into negotiations with the complainant to determine a mutually acceptable compensation, such as tariff reductions in a particular sector that is of interest to the complainant country. In cases where the complainant contests the respondent's report, DSU Article 21.5 provides the complainant with the right to request that a compliance panel be formed. More

specifically, the case may be referred to the original panel for the evaluation of the reported implementation of the recommendations by the adopted report dispute panel or Appellate Body report, i.e., for an assessment of the respondent's changes to the trade policy measures in question.

At this point, if compliance still fails to be established or if the disputing countries cannot mutually agree on the level of compensation for the complainant within 20 days, the complainant may request the DSB to authorize retaliatory measures. Under DSU Article 22, the DSB is required to authorize the complainant to suspend concessions or obligations equivalent to the amount of trade that is affected by the respondent's trade measures at issue within 30 days following the expiration of the reasonable period of time, unless opposed by consensus.

As in earlier stages of the WTO's dispute settlement process, compliance may be brought about during any part of the compliance stage through mutually agreed solutions among the dispute participants. That is, the disputing parties can agree at any step during the compliance proceedings to extend the reasonable period of time for the implementation of dispute panel or Appellate Body report recommendations or to lower the degree of change that satisfies the complainant that compliance is indeed established or restored.

### ***Beyond Compliance***

While the WTO's elaborate compliance proceedings clearly indicate that compliance is important, it is important to remind oneself that compliance as such is not an end in and by itself. Of course, an international institution that consistently fails to monitor and enforce compliance with its rules and regulations might lose reputation, legitimacy, and eventually collapse (cf. League of Nations). However, we care about the DSU and compliance with dispute panel and Appellate Body reports because of the role they are intended to play within the larger WTO framework, because of the consequences that compliance has for the effectiveness of the WTO at achieving the overarching goals of liberalizing and increasing global trade. So, what does the DSU contribute to the WTO's overall effectiveness? What do we know about the impact of dispute settlement and compliance on trade?

Few studies have examined the aftermath of dispute settlement. The ones that do exist have generally found that trade flows do increase as disputes are resolved. Among the earliest studies to examine the economic consequences of the multilateral regime's dispute settlement process is Bown (2004), which analyzed changes in imports of products at issue in the dispute after settlement. Settlement could take the form of the adoption of the panel/Appellate Body report or, in the absence of such resolution, the last official communication between the disputing parties. The study conceptualized changes in trade flows in the aftermath of a dispute in terms of the broader GATT/WTO objective of trade liberalization and whether the dispute settlement was successful in bringing about trade liberalization on the part of respondent countries that have lost their cases. In an analysis of 174 dispute dyads in the years 1973-1998, Bown (2004) found that the retaliatory capacity of the complainant/plaintiff was a strong and robust predictor of trade liberalization in the imports of defendant countries.

More recent studies have devoted attention to actual trade flows following dispute settlement. Kucik and Pelc (2012) highlight the trade-off in the economic success of dispute settlement by drawing attention to the distributive consequences. Their study finds that the settlements that are inferred from the trade flows following settlement at the consultation stage are discriminatory in favor of the complainant. They argue that the private nature of the consultations give rise to greater opportunism on the part of complainants. The study finds that settlements at the consultation stage are associated with greater economic gains for the complainant relative to other WTO members. However, the discriminatory effects are redressed when there is participation of third parties. The study concludes that while third parties may increase the chances of dispute 'escalation' through the formation of a panel, thus corroborating existing research on the role of third parties in WTO disputes (Busch and Reinhardt 2006), their presence in the consultation stage is also associated with economic gains that are more equitably distributed between complainants and the rest of the WTO membership.

Bechtel and Sattler (2012) also analyze the economic effects of the WTO dispute settlement process as they concern the economic gains made by complainants and third parties. Using a host of matching techniques to correct for the non-random selection of paneled WTO disputes, they examine trade flows between complainants and third parties vis-à-vis respondents in cases where a panel ruling was delivered. They find that complainants do indeed gain when

cases are paneled and a ruling is issued, as trade flows initially increase in the four years subsequent to the year of the ruling. However, the study also finds that complainants' exports to the respondent are not significantly different from those of third parties to the respondent. The study suggests that the WTO dispute settlement process may well generate positive externalities for paneled cases and increases the incentives for third parties to lobby for arbitration.

### *Theorizing the Effects of Compliance*

As indicated in the above review of the scant literature on the impact of WTO dispute settlement, the dispute settlement process does affect trade flows. However, two findings from the recent studies by Kucik and Pelc (2012) and Bechtel and Sattler (2012) stand out and warrant additional theorizing and empirical investigation. Kucik and Pelc (2012) find that the trade benefits of WTO disputes are (sometimes) unevenly distributed between complainants, third parties, and the WTO membership at large. Bechtel and Sattler's (2012) findings indicate that the benefits might be short-lived. While trade flows from complainants to respondents significantly increases in the first two years after cases are paneled and a ruling is issued, increases seem to disappear in the following years three and four. In the following paragraphs, we develop arguments that shed theoretical lights on both the unequal distribution of benefits and their disappearance.

### *Settlements as quasi-PTA*

What happens to trade flows once a WTO dispute has been settled? We argue that insights from Viner's (1950) static customs union theory and the extensive work on the trade-creating and trade-diverting effects of preferential trade agreements (PTA) can help us explain and predict the consequences of dispute settlement. While it might sound odd at first, the settlement of disputes has major similarities with the negotiation of GATT Article 24-conform custom unions and free trade areas. Compliance with dispute panel and Appellate Body reports can be compared to the implementation of such agreements. Disputes and negotiations are both about the removal of trade barriers between two or more WTO member states, with the settlement or agreement not supposed to impose any higher duties or more restrictive regulations on other parties.



The obvious difference between the two is that the benefits from reducing or removing trade barriers are explicitly meant to accrue exclusively to the PTA members in the PTA case, while the benefits of compliance are not supposed to be discriminatory. If a responded loses a case and implements dispute panel or Appellate Body report recommendations, it does not only remove barriers to trade from the complainant, but all WTO member states. However, only because the trade liberalization as such is not discriminatory, this does not mean that benefits of compliance cannot be unevenly distributed. In fact, there might not just be winners and relatively bigger winners, but winners and absolute losers among the WTO members.

This conclusion can be derived from the literature on the effects of PTA on patterns of trade (cf. Lipsey 1960, Bhagwati and Panagariya 1996, Krueger 1999). Simply speaking, PTAs can create trade as the reduction or removal of tariffs or non-tariff barriers increases the competitiveness of companies from PTA-partner countries vis-à-vis inefficient companies in the home country and domestic consumers substitute local for foreign products and generally consume more of the now cheaper, imported goods and services. However, the benefit of companies from PTA-partner countries can also be the cost of companies from countries left outside the PTA. Trade diversion means that intra-PTA trade replaces trade with countries outside the agreement. PTA members abandon trade with third countries as the competitiveness of companies from PTA-partner countries increases vis-à-vis that of actually more efficient companies from the rest of the world. In short and sum, customs union theory makes us expect that – ceteris paribus – signing and implementing a PTA will increase trade flows between a country A and its PTA-buddy B, but can reduce trade flows between A and non-member C at the same time.

To show how and why WTO dispute settlement can have similarly unequal consequences, we can draw on a semi-hypothetical example. Take the long-standing WTO dispute (DS26, DS48) over the European Union's ban on imports of hormone-treated meat and meat products that pitted the complainant United States (U.S.) against the European Union (EU). While in reality, the parties involved in the dispute signed an agreement in May 2009 that allows for duty-free imports of hormone-free North American beef into the European Union from August 2012 in return for the U.S. suspending retaliatory duties on French cheese, Spanish ham, Italian mineral water, and other European imports, what if the EU had fully complied with the terms of

the panel and Appellate Body reports of 1997/1998? Undoubtedly, we would have seen trade-creation in the form of imports of beef from the U.S. and other hormone-beef producing countries, but we would also have seen an equivalent of trade-diversion. Some European consumers would not only have substituted expensive European beef, but also whatever foreign, hormone-free beef they used to consume for cheaper hormone-treated beef. Going back to reality, what can we expect to happen to global beef-trading patterns from August 2012? Now that 45,000 metric tons of U.S. (and 3,200 metric tons of Canadian) ‘high quality beef,’ i.e., beef produced without growth-promoting hormones, are free to enter the EU, we cannot only expect an increase in European imports of North American beef, but also stagnant or even declining European beef imports from the rest of the world. European trade liberalization, brought about by the global trade regime’s dispute settlement mechanism, benefits some of the European Union’s trade partners, but hurts others.

Just like PTA, WTO dispute settlement creates winners and losers by giving rise to trade-creation and trade-diversion. We hypothesize that the complainants (and ‘official’ third parties) in any given case<sup>1</sup> are more likely to benefit from the resolution of disputes than other WTO member states. More specifically, *if the dispute panel or Appellate Body rule in favor of the complainant and the respondent complies with the ruling, the respondent’s imports of the product(s) at the center of the dispute from the complainant will increase (H1a). At the same time, the respondent’s imports of the product(s) at the center of the dispute from other WTO members will increase significantly less than those from the complainant (H1b).*

### *Compliance switcheroo*

What are the (immediate) consequences of implementing the recommendations from dispute panel and Appellate Body reports? Based on our first hypothesis, we would expect the respondent’s imports of the product(s) at the center of the WTO dispute to surge. However, will those increases in imports last or will they be short-lived?

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<sup>1</sup> At least in any given case in which the responded is required to and agrees to remove import barriers or imposed anti-dumping measures.

As discussed above, dispute settlement and compliance leads to trade-creation. The reduction or removal of WTO-inconsistent tariffs or non-tariff barriers increases the competitiveness of foreign companies vis-à-vis inefficient companies in the home country and domestic consumers substitute local for foreign products and generally consume more of the now cheaper, imported goods and services. As a consequence, import-competing producers are faced with the new reality of tougher competition.

In Hofmann and Kim (2010), we showed that delays in policy change toward WTO-consistent trade practices depends on the relative political weight of domestic special interests benefiting from continued non-compliance. Delays in the implementation of WTO-recommended policies are the battles that opportunistic governments fight for politically influential, import-competing sectors of the economy in an effort to maximize their political support function. If delays are a battle, compliance with dispute panel or Appellate Body report recommendations is the admittance of defeat. However, losing a battle is not the same as losing the war and unconditional surrender. Compliance does not make politicians less opportunistic and import-competing industries less vocal, influential, and interested in protection.

In less cryptic terms, we can expect that compliance with a dispute panel or Appellate Body ruling increases the respondent's imports. Increasing imports, in turn, leads import-competing producers to demand relief and protection in the form of new tariff or non-tariff barriers. While painful structural reforms would probably be the wiser choice and open up new avenue towards long-term competitiveness, governments tend to find supporting non-competitive industries to be politically more expedient. So, in response to lobbying pressure from import-competing industries, myopic and reelection-minded governments supply new protectionist policies that undermine the very trade liberalization that resulted from WTO dispute settlement and compliance.

Undercutting liberalization with new forms of protection is neither a new trick nor a WTO dispute settlement process-specific phenomenon. Before the WTO was even established, Marvel and Ray (1984) showed that GATT members used non-tariff barriers to counteract the trade liberalizing effects of the Kennedy Round. Kono (2006) provides evidence that democracies obfuscate their trade policies and hide their level of protection by switching tariffs and 'core' non-tariff barriers for less visible 'quality' non-tariff barriers, such as product standards.

Hofmann and Schaffer (2009) demonstrate that members of eurozone have substituted ‘natural’ barriers to trade – such as currency risk and transaction costs – with the more generous provision of subsidies to ailing industries following the launch of the single currency in 1999. Jagdish Bhagwati has even phrased a term for this protectionist switcheroo: “the law of constant protection” (Bhagwati 1988: 53).

Therefore, we should not be surprised that *if the dispute panel or Appellate Body rule in favor of the complainant and the respondent complies with the ruling, the respondent will introduce new protectionist trade policy instruments (H2a)* that ‘eat away’ whatever trade has been created as consequence of compliance. In other words, *if the dispute panel or Appellate Body rule in favor of the complainant and the respondent complies with the ruling, the respondent’s imports of the product(s) at the center of the dispute from the complainant will increase only temporarily (H2b)*.

## ***Research Design***

The present study engages and builds on the existing scholarship in several ways. As do the studies subsequent to Bown (2004), we examine the WTO, the current multilateral trade regime characterized by a highly legalized dispute settlement process with high levels of obligation, precision, and delegation (Abbott, Keohane, Moravcsik, Slaughter, and Snidal 2000).<sup>2</sup> Our major point of departure from existing studies, however, is that we examine trade flows in the years following the uncontested compliance by the respondent country with panel and Appellate Body rulings. This stands in contrast to existing studies that analyze pre- and post-dispute trade flows either at the consultation or panel stage.

We believe it is important to observe the effects of WTO rulings once the measure or measures in question have actually been removed by the respondent and this action goes uncontested by the complainant. The ruling itself may well generate an anticipatory trade surge in expectation of compliance by the respondent. This is certainly implied by findings of existing

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<sup>2</sup> Indeed, Abbott et al. (2000) place the WTO’s dispute settlement process at the highest level of legalization, approaching what they term “full legalization” (405).

studies that analyze trade flows in the years immediately following the ruling stage. However, the question remains open as to whether trade flows also respond to the institutional removal of trade barriers themselves when (and sometimes if) they do happen. Moreover, even if trade flows do increase as a response to the ruling (though it is unclear how this occurs when the offending trade barrier is still in place), this raises the question as to whether such short-term increases are sustainable and whether the removal of illegal trade barriers has a long-term positive effect on trade flows among disputing parties.

Focusing on the economic effects of compliance at the implementation stage, rather than earlier stages of the dispute, contributes to the current scholarship in several ways. First, it takes into account the fact that panel rulings are often appealed and subsequently turned over to the Appellate Body, which lengthens the dispute settlement process well beyond the time of the rulings and therefore delays formal resolution. Second, and more important, the implementation stage is also hotly contested, as often complainants charge that the respondent has not implemented panel rulings even if the latter has reported to the DSB that it has done so. Such cases are then referred to a ‘compliance panel’ consisting of the original panel members, who make a ruling on whether the respondent has indeed implemented reforms. As illustrated in the long-standing cases on bananas and beef hormones that pitted the U.S. against the EU, disputes thus are likely to persist for more than the four post-ruling years stipulated by existing studies as adequate for observing changes in trade flows.

The analysis employs a panel dataset that tracks trade between disputing parties across the litigation stages. The unit of analysis is the dispute-dyad year formed by pairing the respondent(s) with each of the complainants for a given year. We employ data on compliance dates from Hofmann and Kim (2010). We also rely on WTO disputes compiled by Horn and Mavroidis (2008) for identifying the Harmonized System (HS) codes of products that are at issue in the dispute. The dataset includes 426 cases that were settled in any of the forms as described above, including cases that were paneled, settled through a mutually agreed solution (MAS), or settled in the consultation stage. The analysis, however, is limited to those cases for which data were available.

The panel data cover the five years preceding the request for consultations, the years in which the dispute is ongoing, and the five years following the resolution of the dispute.

Resolution of the dispute may take several forms. It can be resolved (i) at the consultation stage, without recourse to a formal panel; (ii) at the panel or appeal stage as the complainant loses the case; (iii) or at the implementation stage when the respondent, who has lost the case, implements rulings and is not challenged by the complainant on implementation. This form of resolution is inclusive of cases in which disputes are lengthy due to non-compliance and complainants are authorized to take retaliatory action. Last but not least, in any stage of the dispute, (iv) parties may come to a MAS. The analysis focuses on the period following implementation, or compliance with the panel/Appellate Body report by the respondent.<sup>3</sup>

### *Dependent variable: Product-level trade flows*

Economic effectiveness of WTO rulings is measured in terms of trade flows before, during, and after the end of the dispute. We utilize the information compiled by Horn and Mavroidis (2008) on the products, classified according to the HS, which are mentioned in the request for consultations. Annual trade flows between the respondent and each complainant on these products were obtained from the UN Comtrade database.<sup>4</sup> Product-level data were aggregated for each respondent-complainant pair. The analysis employs the constant (2000) U.S. dollar value of imports reported by the respondent country from the complainant country or countries for a given year.

### *Independent variables of interest*

*Implementation of recommendations of panel/Appellate Body report.* The analysis uses implementation of dispute settlement recommendations as the ‘treatment’ variable.

*Implementation* equals 1 from the year in which the respondent reports to the DSB that it has complied with the recommendations of the pane/Appellate Body, the implementation report is

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<sup>3</sup> In cases where MAS occurs during the compliance stage, we take the date of the MAS agreement as the compliance date.

<sup>4</sup> <http://comtrade.un.org/>.

uncontested, and this report marks the last official communication/documentation on the dispute. The measure makes use of the dates of compliance as originally compiled by Hofmann and Kim (2010). We examine whether the post-compliance period functions as a ‘structural break,’ and imports by the respondent country from the complainant country of products at issue in the dispute increase vis-à-vis previous levels. Use of the complainant date thus compares trade flows from the five pre-dispute years and the years of the dispute itself with trade in the post-compliance period. Consistent with the first hypothesis, the effect of compliance should be positive to indicate the rise of trade flows due to removal of the trade measure that launched the formal dispute settlement process.

*Trade policy substitutes.* Consistent with the second hypothesis, we also examine the impact of trade policy substitutes, or the availability of policy alternatives to which governments may resort to address continued pressures for protectionism from domestic interest groups. We employ several measures to investigate the role of trade policy substitutes in influencing product-level trade flows. First, we employ the import-weighted average applied tariff rate of the respondent country in a given year. This is an imperfect proxy, but the measure does offer wider temporal coverage than other available indicators that did not provide enough data points.<sup>5</sup> Data on tariff rates were obtained from the World Development Indicators (WDI). In addition, we employ the number of trade remedy actions for which the respondent has additional WTO disputes initiated for the current year. The actions include usage of antidumping, countervailing duties, and safeguards that result in a request for consultations. Data were obtained from the Temporary Trade Barriers Database compiled by Bown (2010).<sup>6</sup> The idea is that countries with a record of high protectionism through tariffs and trade remedy actions are more likely to appeal to them again, employing alternative measures from this menu of protectionist policies and even other less visible non-tariff barriers in the post-compliance period to meet domestic pressures.

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<sup>5</sup> A more suitable measure would have been the record of stages’ usage of ‘core’ non-tariff barriers compiled by (Nicita and Olarreaga 2006). However, the database did not contain sufficient data points to make the analysis feasible.

<sup>6</sup> <http://econ.worldbank.org/ttbd/dsud/>.

## *Control variables*

The analysis also controls for factors that may affect both trade flows and the independent variables of interest: compliance and the availability of trade policy substitutes. The control variables include trade openness, as a proxy for general economic openness and a liberal foreign economic policy regime more broadly. In addition, the size of the economy, indicated by the disputing countries' GDPs and the level of development, measured in terms of per capita GDP, are also included.

*Trade openness.* The analysis controls for trade openness, measured as the sum of exports and imports as a proportion of GDP. The data were obtained from the WDI. Trade openness is an indicator of a country's economic integration into the global economy. The expectation is that countries with high levels of trade openness are more likely to comply with dispute settlement provisions. In addition, where the countries involved in the dispute are both characterized by high levels of economic openness, trade flows are likely to respond quickly and to be sustained in the post-compliance period.

*Market size.* The size of the economy is measured as the dollar value, in constant (2000) U.S. dollars, of the disputing countries' gross domestic product figures. Data were obtained from the WDI (World Bank). The model differentiates between the respondent's GDP and that of the complainant. The complainant's GDP is an indicator of its relative power vis-à-vis the respondent. The expectation is that the higher the GDP of the complainant, the more successful the complainant is likely to be in compelling the respondent to comply, as it will involve access to a larger market and the possibility of exclusion in the event of noncompliance. The larger the respondent's GDP, on the other hand, affords the respondent with greater capacity to resist compliance and the government greater flexibility in catering to protectionist pressures.

*Post-implementation year counter.* We include a measure that counts the number of years since implementation of the panel/Appellate Body rulings. This measure is motivated by Bechtel and Sattler's (2012) interesting finding that the increase in trade flows following dispute settlement may only be temporary, as the trend reverts downward after two odd years after the issuance of the panel report. We examine a continuation of this trend by including the counter variable to indicate the number of years passed in the post-implementation period.



### *Methodology: Panel model with selection*

The analysis employs a fixed effects panel model to examine changes in trade flows before and after the dispute that accounts for the idiosyncratic features of both the dispute itself and the country pair within this dispute. The major transition point is the year of implementation (accepted by the complainant(s)), which functions as the ‘treatment’ on trade flows. The analysis thus examines whether trade flows are significantly different between the two time periods for respondent-complainant pairs in the dispute, controlling for the confounding factors described above. The first part of the analysis employs a standard fixed effects model without selection, including both paneled and non-paneled cases and examines the general impact of compliance. The second part of the analysis focuses on the compliance period only and in particular the paneled cases. The analysis examines the extent to which post-compliance trade flows are influenced by a respondent’s protectionist tendencies. As this part of the analysis looks more closely at states’ behavior in paneled disputes, we also test for selection bias that may be driving particular states toward the paneling of disputes.

### *Findings*

We report two main findings from the empirical analysis. First, there is a strong and statistically significant difference in the trade patterns of paneled and non-paneled cases. Second, for paneled cases, trade flows in the post-compliance period are strongly influenced by the existence and usage of alternative policy instruments. We discuss each of these findings in turn below.

### *Comparing pre- and post-settlement trade flows*

Table 1 shows the results of a baseline analysis comparing trade flows before and during the years of the dispute with those after the dispute is settled, whether through consultations at the first stage or through formal arbitration through a panel. As noted above, the analysis examines, for each dyad of a given WTO dispute, whether the respondent’s imports of products at issue in

the dispute change as a result of the settlement of the dispute. The results show that pre- and post-dispute trade patterns differ across non-paneled and paneled cases.

Trade flows in non-paneled cases are not affected by settlement while paneled cases see a significant drop in trade flows. The coefficient for non-paneled cases, captured in the main effect for *post-dispute*, is positive but not statistically significant, while the estimate for the interaction term *paneled\*post-dispute* is negative and statistically significant. The comparison of the two indicates that trade flows remain unchanged with the settlement of a dispute at the consultation stage, while those that move on to panels actually see a decrease in trade flows following the implementation of the panel/Appellate Body recommendations.

The analysis also controls for the number of years in the post-dispute stage (*post-dispute year counter*) and the average level of trade openness within the dyad. The passage of time following dispute settlement has no impact on trade patterns between the disputing countries, though this result is inclusive of both paneled and non-paneled cases. Overall trade openness amongst the disputing parties, however, has a positive effect on trade flows, whether or not the dispute is paneled.

### *Trade after Implementation in Paneled Disputes*

Table 2 reports the results for trade flows following implementation of panel/Appellate Body recommendations for paneled cases. This part of the analysis focuses on paneled cases.<sup>7</sup> The previous preliminary analyses present an interesting puzzle, namely that trade flows are lower in the post-implementation period for paneled dispute. Unlike for non-paneled cases, the resolution of paneled disputes does involve explicitly stated recommendations (binding) for policy changes as contained in the reports, whereas the non-paneled cases do not result in an officially delivered settlement record. For paneled cases, the respondent must not only deliver a report to the DSB on the implementation of the panel/Appellate Body recommendations but also subject them to approval by the complainants themselves. Given the characteristics of the implementation

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<sup>7</sup> We conducted similar analyses on non-paneled cases, which we do not report in this paper. We find only weak effects for all the

process for paneled cases, the fact that trade flows are lower after dispute settlement than before the initiation of the dispute is surprising.

We examine one possible explanation for the decline in trade flows in the post-dispute period: the existence and usage of trade policy alternatives. Table 2 reports the results for two main measures: the average trade-weighted applied tariff rate of the respondent in a given year (*respondent\_tariff*) and the number of trade remedy-related investigations (anti-dumping, countervailing duties, safeguards) initiated by the respondent (*respondent\_TRractions*) in a given year of the post-dispute period. Estimates for both variables are negative and statistically significant. Substantively, an increase of one percent in the respondent's average applied tariff rate results in about a 9.5 percent decrease in the respondent's imports from the complainant. For every additional trade remedy investigation initiated by the respondent in a given year, its imports from the complainant drop by about 1.8 percent. These measures certainly do not exhaust the range of policy instruments available to governments that are facing continued pressures from domestic interest groups. However, they reflect the impact of a country's degree of protectionism in a given year on trade flows.

Among the control variables, the complainant's GDP is positively associated with a boost in trade flows, but this is just shy of statistical significance. More interesting is the result for the counter variable *post-dispute year counter*, which is significant at the 10 percent-level. The result suggests that for each year after dispute settlement, the respondent's imports from the complainant of the product at issue in the dispute continue to decline. This is largely consistent with Bechtel and Sattler (2012) who also find that trade flows start to drop after two odd years following a dispute and is indicative of long-term effects.

Overall, the results suggest several observations. First, the WTO's dispute settlement process in general does not effectively recover trade that has been lost between disputing countries. Indeed, for those cases that do advance to the panel stage, trade flows continue to decline even as the dispute is resolved in the legal arena. Second, declining trade flows between disputing parties in the post-dispute stage are strongly associated with availability of trade remedy actions and the general protectionism of a respondent country as indicated in tariff levels. This suggests trade disputes are also enduring conflicts, as states continue their trade

fights beyond the confines of the DSU, compensating the withdrawal of one trade measure with the imposition of another in its place.

### *Testing for selection effects*

Column 2 in Table 2 reports the results of the analysis that tests for selection. As we observe trade flows following formal and binding arbitration only for cases that were paneled, the analysis tests for a selection effect for the paneling of a dispute. The analysis employs the method in Wooldridge (2005, 581-585) that applies to selection effects for panel models. The selection equation includes both countries' GDP and GDP per capita, distance, and common membership in a regional trade agreement (RTA).<sup>8</sup> The *lambda* coefficient, which captures the selection effect, is not statistically significant, indicating that there are no systematic differences between dispute cases that go on to the panel stage and those that do not.

### **Conclusion**

While the WTO's dispute settlement process had yielded a positive record of juridical compliance, the focus of this study has been on 'economic' compliance, whether the legal resolution of a trade dispute and the implementation of the rulings and its judicial success is matched in the economic realm by the resumption of trade between complainants and respondents. This paper analyzed pre- and post-dispute trade flows among disputing dyads, differentiating between cases that were paneled and those that were settled at the consultation stage. We found that trade flows do not recover through dispute resolution. They remain unchanged for non-paneled cases and decline for cases that go through formal arbitration.

Our assessment of the economic effectiveness of the WTO's dispute settlement system is less sanguine than the positive pronouncements regarding the *aquis* accumulated in the case history of the WTO's DSU. The rate of legal compliance appears high, as noted in the interaction of respondents with complainants as the former make their reports of implementation to the

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<sup>8</sup> Data were obtained from CEPII: <http://www.cepii.fr/anglaisgraph/bdd/gravity.asp>.

Dispute Settlement Body of WTO members. It seems likely that indeed there is successful legal implementation of panel and/or Appellate Body reports. Measures are withdrawn or adjusted to meet the implementation requirements of WTO dispute settlements. However, the economic impact is less than ‘compliant,’ as trade flows continue to remain depressed even after implementation. This paper suggests that a respondent country’s level of protectionism, i.e., tariff levels as well as the existence and heavy usage of alternative policy instruments that expand the menu for protectionism for respondent countries, may well be the explanation for economic non-compliance and low trade flows. Future work will benefit from a closer look at the range and composition of policy substitutes and how they influence states’ economic compliance with WTO disputes when facing continued domestic pressures for protection.

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Table 1. Pre- and Post-Dispute Trade Flows: All Cases

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<i>Non-paneled Cases</i>	0.133 (0.108)
<i>Paneled Cases</i>	-0.283** (0.124)
<i>Post-Dispute Year Counter</i>	0.013 (0.022)
<i>Trade Openness</i>	0.014** (0.005)
Constant	16.378*** (0.260)
N	1562
Dispute Dyads	161

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F(model): F(4,1397)=4.895, Prob > F= 0.001

F test that all  $u_i=0$ : F(160, 1397) = 68.47, Prob > F = 0.0000

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\* p<0.10, \*\* p<0.05, \*\*\* p<0.001

Table 2. Post-Implementation Trade Flows: Paneled Cases

		<i>With Selection Effect</i>
<i>Tariff rate</i>	-0.106** (0.044)	-0.105** (0.044)
<i>Respondent Trade Remedy Investigations</i>	-0.016** (0.006)	-0.016** (0.006)
<i>Complainant Trade Remedy Investigations</i>	0.002 (0.006)	0.002 (0.006)
<i>Year Counter</i>	-0.116* (0.067)	-0.115* (0.068)
<i>Respondent GDP</i>	1.104 (1.900)	0.302 (4.557)
<i>Complainant GDP</i>	3.505 (2.135)	3.351 (2.285)
<i>Lambda (selection)</i>		-4.318 (22.283)
Constant	-109.692 (71.006)	-79.147 (172.958)
N		229
Dispute Dyads		52

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F (model): F(6,171)=3.624, F(6,171)=3.62

F test that all  $u_i=0$ : F(51, 171) =37.37, Prob > F = 0.000

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\* p<0.10, \*\* p<0.05, \*\*\* p<0.001