

Does the WTO Exacerbate International Conflict?

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Abstract

The World Trade Organization provides states with a forum in which they can raise and resolve complaints about partners' unfair trading practices. To the extent that it provides a form of dispute resolution, it should be peace-enhancing for member states. However, this very mechanism also has the potential to aggravate dispute for two reasons. First, it removes the opportunity for states to use economic policies as instruments of structural linkage to resolve disputes. Second, it deprives members of powerful economic tools that could be used in lieu of militarized responses. Using the implementation of the WTO Dispute Settlement mechanism, as well as the subsequent expiration of Article 13 of the WTO Agreement on Agriculture (the so-called "peace clause"), we examine whether the opportunity to resolve trade disputes through the organization affects the likelihood that member states engage in militarized conflict with one another.

Keywords: conflict; trade; institutions; issue linkage; economic statecraft

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In sketching his idea for a perpetual international peace, Immanuel Kant argued that both institutions (a “federation of free states”) and economic interdependence (“[c]osmopolitan right shall be limited to conditions of universal hospitality”) were key conditions for the ultimate cessation of global conflict (Kant 2003 1795, 12–18). At first glance, this is unsurprising. Institutions provide fora for discussion and the redress of grievances, means for states to coordinate, and rules that govern their interactions. Trade introduces opportunity costs for fighting, and provides a means for states to signal resolve. Recent empirical work by international relations scholars has investigated the role played by both factors, finding overwhelming evidence that both institutions (Russett, Oneal & Davis 1998; Dorussen & Ward 2008; Shannon, Morey & Boehmke 2010) and trade (Polachek 1980; Oneal & Russett 1997; Gartzke, Li & Boehmer 2003; Polachek & Xiang 2010; Peterson 2013) tend to reduce interstate conflict.

At the same time, institutions restrict the set of foreign policy tools available to states. Institutional rules provide states with a set of behaviors considered acceptable, but they also limit the options available to aggrieved parties. What might previously have been a measured response to wrongdoing is now prohibited by agreement. States are then forced to find other tools to deal with bad behavior (particularly when an opponent’s actions violate only the spirit of the law). Moreover, issue linkage—a tactic used to resolve otherwise-intractable conflicts (see Wiegand 2009; Poast 2012)—can be rendered useless when institutions are able to force concessions on one of the dimensions of disagreement. Likewise, while evidence suggests that trade tends to be peace-inducing, recent studies demonstrate that this relationship may be conditional (e.g., Dorussen 2006; Peterson & Thies 2012; Chatagnier & Kavakli 2017). Additionally, granting or withholding trade privileges is commonly used by states to reward or punish others. Flexibility with such a tool can be a crucial component of the bargaining process.

We leverage the evolution of the international trade regime—in particular, the 1995 establishment of the World Trade Organization (WTO)—to evaluate the relative effects of trade, institutions, and mechanisms for issue linkage. The difference between the WTO and the General Agreement on Tariffs and Trade (GATT), which it replaced, creates an excellent opportunity for analysis. While

both are multilateral trade agreements that serve similar purposes, only the former has the institutionalization and legalization necessary to place real constraints upon actors. By using 1995 as a break point, we can determine whether conflict behavior between member dyads changed following the judicialization of the WTO, allowing us to evaluate how—if at all—the organization affects the likelihood of international conflict. We further test this logic by exploiting the uneven implementation of binding rules within the organization. Specifically, we use the expiration of Article 13 of the WTO (the “peace clause”) as a second break point, to search for differences between agriculture producers and non-producers.

This study makes an important contribution to our understanding of foreign trade, international institutions, and peace. The only previous study on the pacifying effects of GATT/WTO [Aaronson, Abouharb & Wang \(2015\)](#) combines the GATT and WTO into one institution, ignoring the structural differences between the two. We contribute by focusing on the effect of legal enhancements to the WTO system. Explicit consideration of this difference between the two international trade systems is critical for understanding the effect of trade regimes on peace. More generally, we use the WTO to illustrate a broader point: institutions can have unintended, contradictory effects. While such organizations and agreements have obvious, visible, and expected consequences (e.g., growth in trade and facilitation of amicable relations), they can affect other dimensions of interaction in less expected ways (such as removing bargaining tools). Though these tradeoffs may be ultimately be worthwhile, our findings suggest that all facets of an international agreement should be considered before it is put into place.

The remainder of the paper is organized as follows. We begin by reviewing the previous literature on both economic statecraft and international institutions. We then discuss the changes between the GATT and the WTO, demonstrating why this temporal break is so important. Next, we present our hypotheses and our investigation strategy. We use these to conduct our analysis and interpret results. Finally, we draw conclusions and suggest paths for future research.

Foreign Trade as a Tool of Economic Statecraft

Much of the work on economic interdependence and peace has looked at whether and how trade brings peace at the systemic and dyadic levels (Polachek 1980; Oneal & Russett 1997; Gartzke, Li & Boehmer 2003; Li & Reuveny 2009; McDonald 2009; Polachek & Xiang 2010; Peterson 2013).¹ This paper diverges from the previous literature by explaining the pacifying effect of trade in terms of economic statecraft (see Mastanduno 2003), which involves “the use of economic instruments by a government to influence the behavior of another state” (Blanchard, Mansfield & Ripsman 2000, p.3). These instruments (both positive and negative) include sanctions, trade, and foreign aid, and their use is dictated in part by security concerns (Hirschman 1945; Shiffman 2006; Mastanduno 1988, 2003; Davis 1999; Skålnes 2000; Newnham 2002). Positive economic statecraft—through inducements like trade concessions, technology transfer, or export credits—can provide incentives that mitigate underlying conflicts (Baldwin 1985). Of these options, foreign trade functions particularly well as a tool of economic statecraft (Mastanduno 1992; Blanchard, Mansfield & Ripsman 2000; Long 1996).

The basic theoretical framework of this paper draws on the insights of Hirschman (1945), Mastanduno (1992), and Copeland (1996, 2015). Hirschman argues that states can use an “influence effect” through the strategic cultivation of asymmetric interdependence. By gradually expanding economic interaction with another state, a less dependent state can create vested interests within its target’s government and society. In a dispute, individuals and firms with vested interests would then pressure their government to come to terms with the trading partner, helping to resolve conflicts (in the stronger state’s favor). While Hirschman’s argument that political influence stems from economic relations has generated surprisingly little applied work, this influence effect profoundly shapes issues of security and politics among states (Abdelal & Kirshner 1999).

Mastanduno (1992) makes an argument similar to Hirschman’s, positing that trade expansion can enhance a sanctioning country’s security by reorienting the behavior of a target government in

¹But see the critique by Levy (2003), who argues that the theoretical foundation of the liberal peace is underspecified.

a manner consistent with the preference of the sending country. Mastanduno calls this “structural linkage” and argues that “the unconditional expansion of trade in certain commodities, even with a potential adversary, can enhance a sanctioning state’s security by restructuring the choices, the incentives, and, ultimately, the behavior of a target government” (Mastanduno 1992, 55). This is a form of “economic warfare,” which attempts to address security issues by using long-term economic instruments.

In the same spirit, Copeland (1996, 2015) argues that trade concessions and export credits can function as instruments of economic engagement. These tools raise trade expectations for the recipient countries, increasing the opportunity cost of conflict. Therefore, positive forms of economic statecraft can mitigate military conflicts by lengthening the shadow of the future (Keohane 1984). It should be noted that the expected value of trade will be based upon the expectation of the stream of future trade levels, and not simply on the level of trade at a particular moment in time. A rational decision maker who obtains new market access or import routes will be less likely to initiate military conflicts against the country that provides this opportunity. However, because trade provides the expectation of a stream of benefits, even if its current volume is strong, the pacifying effect may diminish if the leader expects trade to decrease in the future. Therefore, the failure to sustain trade expectations of target countries with timely positive economic statecraft can increase the possibility of interstate conflicts. Moreover, from an informational perspective, it is important to consider that “intensive trading relationships have a positive impact on the information environment in which autonomous states design and execute security policy” (Simmons 2003, 35). Using trade to smooth information transmission between states can also make the interstate relationship more peaceful (Gartzke, Li & Boehmer 2003; Morrow 2003).

Drawing upon these arguments, we posit that economic statecraft facilitates peace by enhancing or sustaining the economic expectations of target countries in the short term, and by creating vested interests and reorienting their foreign policy in the longer term. Even though economic engagement does not always work smoothly or without risk (Mastanduno 2003), positive economic

statecraft can be and has been used to mitigate political and military conflicts between countries. This relationship between economics and foreign policy suggests that economic statecraft can accomplish two (possibly related) goals: it can provide influence over a partner's foreign policy, and it can help to defuse conflict. This latter function is consistent with [Morgan's \(1990\)](#) argument that economic compensation is a potential means of mitigating tension and conflict between great powers (see also [Gulick 1955](#)). Indeed, while territorial compensation was common during the 19th and early 20th centuries, trade concessions have functioned as one of the most important instruments for dealing with opposing countries (whether allies or enemies) since the onset of the Cold War.

Positive economic statecraft is multifaceted by nature. States can use capital tools, providing foreign aid, investment guarantees, favorable taxation, or encouragement of private capital exports or imports. Indeed, the use of credit has often been an economic inducement to pacify adversaries ([Newnham 2002](#)). For example, during the Cold War, Germany granted credits to eastern European countries, such as Poland and Hungary, "to promote the extraction or import of raw materials" and to facilitate "other special 'state interests'" ([Davis 1999](#), 57). Leaders can also enhance bilateral cooperation through the use of technology transfer ([Long 1996](#); [Davis 1999](#)) or foreign direct investment (FDI) in the form of joint ventures ([Urdinez et al. 2016](#)). But the most common form of positive economic statecraft has its roots in trade, including the granting of Most Favored Nation (MFN) treatment, tariff reduction, trade discrimination, direct purchase, subsidies to exports and imports, or simply the promise of any of these instruments ([Baldwin 1985](#)). Indeed, trade concessions in particular represent a key area for potential linkages (see [Morgan 1984](#)), which tend to satisfy the issue-linkage criteria put forth by [Morgan \(1990\)](#). Trade is important for states, and the opening of foreign markets often represents a domestic win for leaders. This makes it a worthwhile dimension for both parties. Moreover, opening markets rarely affects reputation or prestige, allowing leaders to make concessions without losing face.

Thus, it should come as no surprise that the empirical record contains numerous cases in which states have linked trade relations to issues of high politics. For example, the British

used trade concessions during the Interwar period in an attempt to prevent rearmament and reduce aggressive militarism in Germany (Lobell 2008). The U.S. government began using trade as a strategic weapon during the early postwar era (Mastanduno 1988). While it generally used trade policies as its grand strategy to grant economic concessions to allies (Skålnes 2000) during the Cold War, it enacted similar policies to appease opponents. Indeed, the Nixon Administration attempted to use the authority contained in what would become the Trade Act of 1974 to link trade and security issues between the U.S. and USSR by allowing MFN treatment and Export-Import Bank credits to certain “non-market economies.” And, in fact, the Soviet Union moderated its foreign policy expecting that détente would lead to a loosening of U.S. trade restriction (Copeland 1999). However, the Jackson-Vanik amendment introduced secondary conditions, which nullified this diplomatic effort at détente between the superpowers, causing the Soviet Union—who had been hoping to acquire strategic goods through trade with the United States (Kriesberg 1992, 161–163)—to cancel the entire trade deal (Gaddis 2006, 179–184). Contemporaneously, when Nixon visited China in 1972, the U.S. lifted economic sanctions on the country, in order to normalize diplomatic relations (Chen 2006), and finally conferred contingent MFN status on China in 1980 (Wang 2013). Like the Soviets before them, the Chinese were anxious to import goods from the United States, with a strong emphasis on strategic products. Similar strategies could be found in West Germany during the Cold War, where they employed economic linkage to bring peaceful change in Poland (Davis 1999). They used both commercial trade promotion and credit extension to achieve these political ends. In more recent years, the Chinese have made use of a dispute with Japan over the Senkaku Islands as a means to extract trade agreements from the latter (Wiegand 2009, 2011). Finally, economic-security linkages can even be applied with respect to friends: the Japanese leveraged their strategic position and their alliance relationship with the British in the early 20th century to extract a variety of economic gains, including beneficial trade agreements. In each of these cases, the ability to build a link between economic and security issues helped to promote cooperation and to avoid conflict. However, we argue that this tool has been weakened significantly in recent years, as international trade institutions have evolved.

Institutions and the Evolution of International Trade

States utilize international institutions for a variety of reasons ([Abbott & Snidal 1998](#)), chief among which is the facilitation of international cooperation. Institutions play important roles in reducing transaction costs, providing information, and furnishing solutions to collective action problems ([Keohane 1984](#); [Keohane & Martin 1995](#)). For this reason, American and European governments turned to the construction of institutions to shape global interactions in the wake of the two world wars. Amid fears that the destabilization of the Great Depression had been precipitated in part by protectionist trade policies, leaders sought to establish an institution that could facilitate trade liberalization and end trade wars. To this end, in 1947, they created the General Agreement on Tariffs and Trade. The GATT was a multilateral agreement between a number of states (initially twenty-three, but more than 100 by the agreement's end) to reduce tariffs and other trade barriers substantially and to eliminate preferential treatment among signatories.

The intent of the GATT was to lubricate the process of cooperation, making it easier for states to deal with one another economically. In so doing, it fulfilled several of the natural functions of international institutions. Most obviously, the agreement furnished states with a set of agreed-upon rules. This is a way of reducing transaction costs while also communicating norms and expectations to other member states. International institutions often foster socialization ([Russett, Oneal & Davis 1998](#); [Fausett & Volgy 2010](#)), particularly for new states, which helps to increase their propensity to cooperate with others and adhere to the spirit of the law, and not simply the letter.

International institutions also provide a forum for negotiation, acting as an arena for settling disputes among countries ([Russett, Oneal & Davis 1998](#); [Fausett & Volgy 2010](#); [Dixon 2007](#)). Through this process, institutions create the possibility of “diffuse reciprocity of issue linkages, permitting trade-offs and side payments to facilitate agreement” ([Russett, Oneal & Davis 1998](#), 446). In the case of the GATT, when one member state believed that another was in violation of the agreement, it could invoke provisions in Articles XXII and XXIII of the agreement that called for consultation and dispute settlement. While this allowed parties to form an investigative panel to assess and resolve

the dispute, [Zangl \(2008\)](#) points out three major obstacles to settlement: panel composition was determined by the disputants ([Jackson 1997](#)); panel reports were the result of *political negotiation*, rather than legal decisions ([Zangl 2008](#)); and both empanelment ([Hudec 1993](#)) and sanctions ([Rosendorff 2005](#)) required unanimous approval, meaning that the defendant effectively held veto power. Such a system is ultimately predicated on compromise and the negotiation of self-enforcing agreements. Under the GATT, aggrieved parties had no recourse but to persuade violators to alter their behavior.

While the agreement was imperfect, these functions generally enabled the GATT to increase the ease with which states cooperated economically, paving the way for more positive interactions. The agreement not only enabled the institution to play a direct role with respect to economic cooperation; it also increased trade among member states ([Goldstein, Rivers & Tomz 2007](#)), which tends to have a pacifying effect on international conflict ([Hegre, Oneal & Russett 2010](#); [Aaronson, Abouharb & Wang 2015](#)). This association might only have increased in the mid-1990s, with the establishment of the WTO which solved the aforementioned problems of the GATT and deepened the institution. The establishment of the WTO introduced a highly legalized dispute settlement mechanism (DSM), with independent judicial bodies charged with rendering verdicts and authorizing sanctions ([Goldstein & Martin 2000](#); [Rosendorff 2005](#)). Under the present system, complainants have significantly increased power, and they are no longer restricted to negotiating in order to convince defendants to comply with the rules.² With this change in leverage, compliance has generally increased following the judicialization of the institution ([Jackson 1997](#); [Zangl 2008](#)). On its face, this again should have a positive effect on the likelihood of peace.

However, institutions also bind states with rules. This is especially true for highly-formalized institutions, like the WTO. These rules circumscribe the action space for member states, reducing the number of tools at their disposal in a given situation. Strategies that might previously have been effective means for dealing with issues that arise may be rendered prohibitively costly, or even off limits, because of institutional constraints. This is particularly relevant when it comes to the types

²Of course, negotiation still occurs within the WTO DSM. However, disputants make deals in the shadow of the panel, significantly increasing the complainant's bargaining leverage ([Poletti, De Bièvre & Chatagnier 2015](#)).

of issue linkage strategies mentioned above. By reducing the set of actions available to member states, the WTO reduces their tools of economic statecraft. Thus, the increased institutionalization that came about in 1995 carried with it an important downside in that it deprived countries of certain diplomatic solutions. This point is well explained by [Alter \(2003, 791\)](#):

WTO dispute resolution exacerbates conflict by creating expectations that are unfulfilled, while breeding legal suits, supplanting diplomacy with crafty lawyering, focusing attention on differences and widening the circle of disgruntled domestic actors. [...] This system stands in contrast to the GATT system, where the requirement of unanimity forced states and panellists to rely on diplomacy in the resolution of disputes, avoiding damaging retaliation, and helping to ensure that legal rulings did not run roughshod over politically sensitive issues

By increasing the institution's degree of legalization, the newly-formed WTO brought itself closer to the Kantian ideal of a federation of free states.³ At the same time, the increase in the organization's power has limited the options of its constituent actors. WTO members are required to behave in a non-discriminatory manner and to abide by agreed-upon standards. Failure to comply with these rules can lead to sanctions. While many of these behaviors were prohibited under the GATT as well, the much more credible threat of punishment today likely reduces a state's economic toolkit to a greater degree.

While many trade-related measures that are prohibited under the WTO were also forbidden by the GATT, favorable trade concessions were pervasive and practically unchecked during the GATT era, as seen in the examples of positive statecraft above. However, such measures are punished under the WTO. For example, in 2001 (DS146), a WTO panel ruled that India failed to comply with MFN rules in providing exclusively favorable automobile concessions to South Korea. In this and other instances, when the respondent was found to engage in trade practices inconsistent with WTO rules, it was forced to bring the policy into compliance (or compensate the complainant)

³Kant's federation is actually something more akin to the Wilsonian League of Nations, but the WTO is certainly closer to this concept than the GATT.

or face sanctions. Therefore, states are stripped of a range of options that could “sweeten the deal” in negotiations. A state that attempted to offer favorable terms of trade in exchange for concessions on a different dimension would be unable to do so without offering the same terms to all other trading partners; a state that offered to rein in a trade violation would have no leverage as the opponent could appeal to the DSM to have the trade-distorting measure removed without providing any reciprocal concessions. Thus, states are left with fewer options for issue-linkage in bargaining scenarios, reducing their means of staving off conflict.

Hypothesis 1. *The establishment of the WTO significantly increased the probability of militarized conflict among member states, relative to joint membership in GATT.*

Additionally, the founding of the WTO came with an interesting institutional peculiarity. While January 1, 1995 generally marked the date at which states would find themselves more tightly bound by international trade rules, this was not true for all types of trade. In particular, during the Uruguay Round, states negotiated a separate Agreement on Agriculture, which entered into force alongside the organization itself. Article 13 of this agreement contains what is commonly referred to as the “peace clause,” which prohibited states from bringing forth claims (in most cases) over export subsidies and domestic supports for agricultural goods. This clause was intended to last nine years from its effective date, expiring on December 31, 2003. Therefore, while states could freely challenge one another on unfair trade practices in other areas from 1995 onward, this same liberty did not hold for agricultural goods until 2004.⁴ Building on our issue-linkage argument from above, we can derive separate hypotheses for two groups of states:

Hypothesis 2. *The expiration of the peace clause significantly increased the probability of militarized conflict among member states with at least one major agricultural producer, relative to joint membership in GATT, while the establishment of the WTO did not.*

Hypothesis 3. *The establishment of the WTO significantly increased the probability of militarized conflict among member states with no major agricultural producer, relative to joint membership in*

⁴Additional information on the peace clause, its implementation, and its expiration is available at the WTO's website: https://www.wto.org/english/tratop_e/agric_e/negs_bkgrnd13_peace_e.htm.

GATT, while the expiration of the peace clause did not.

Research Design

Our hypotheses concern the effect of IGO institutionalization and the ability to link issues across different bargaining spaces. The rapid institutionalization of the WTO, compared to a process of gradual evolution, facilitates the isolation of the effects of the change. We leverage the fact that member states were under the GATT regime from January 1, 1948 through December 31, 1994,⁵ and under the WTO from January 1, 1995 to today, in order to distinguish between the two. If Hypothesis 1 is correct, then we should expect to see a significantly different trend in conflict behavior following the establishment of the organization. To test Hypotheses 2 and 3, we use a second break point at January 1, 2004, which marks the separate judicialization of rules on agriculture.

We examine our hypotheses using dyad-year data, drawn from the Militarized Interstate Disputes (MID) dataset (Palmer et al. 2015). Our unit of analysis is the dyad-year, for the period 1980–2009. Although data exist prior to 1980, we restrict our timespan to these three decades surrounding the event of interest, in order to ensure greater symmetry and comparability, and to isolate the effect of institutionalization more clearly. In addition, we restrict our sample of dyads in two ways. First, we look only at politically relevant dyads (see Weede 1976; Bremer 1992; Maoz & Russett 1992; Lemke 1995)—defined as dyads that are contiguous or include at least one major power—as these are the pairs of states with the opportunity to fight. We also restrict the sample to pairs of states for which one of the following two conditions was fulfilled: (1) both were GATT member states in 1980 and maintained membership in GATT/WTO throughout the period under analysis, or (2) at least one member of the dyad never joined GATT or WTO.⁶ This ensures that our member and non-member samples are constant throughout the analysis and that the effects

⁵The GATT remains in effect, but the institutional shift took place in 1995.

⁶While we use formal GATT/WTO membership in our analysis, our results remain substantively similar when we use Goldstein, Rivers & Tomz's (2007) "participant" criteria.

are not contaminated by changes in the sample of dyads.

Our dependent variable is the onset of a militarized interstate dispute. Initially, this variable takes a value of one if the dyad becomes engaged in a dispute in a given year, and zero otherwise. However, because many of our coefficients are small, we rescale its value by multiplying by 100. This makes the results easier to display, without altering the substance. The result of this coding decision is to change the interpretation of a given coefficient from the effect of a one-unit shift in X on the *probability* of conflict onset to the effect of a one-unit shift in X on the *percent chance* of conflict onset. We concentrate on the set of all MIDs, as we expect some conflicts to be relatively low level. However, we include a second model in which we examine only hostile MIDs (those in which force was used by one side against another) as a robustness check.

We exploit the sharp breaks in institutional capacity by employing a difference-in-differences approach.⁷ Specifically, for any dyad i in year t , we estimate a linear probability model of the following form:

$$Y_{it} = \alpha + D_{it}\beta + T_t\gamma + D_{it}T_t\delta + \mathbf{X}_{it}\zeta + \varepsilon_{it} \quad (1)$$

Within Equation 1, the variable D_{it} is our measure of *joint membership* in the GATT or WTO. It is a dummy variable that takes a value of one if both states in dyad i were members of either GATT or the WTO in year t , and a value of zero if at least one state within the dyad was a non-member in year t . In Table 1, we break down the four possible dyad combinations for each iteration of the organization, showing how we would code any given case.

	GATT	WTO
Joint Membership (1)	Member/Member	Member/Member
	Member/Non-Member	Member/Non-Member
Non-Joint Membership (0)	Non-Member/Member	Non-Member/Member
	Non-Member/Non-Member	Non-Member/Non-Member

Table 1: Specification by membership status

⁷Although our dependent variable is binary in nature, we use a linear probability model to estimate effects. We do so because non-linear models will be inconsistent under a difference-in-differences framework, and will fail to identify causal effects (Lechner 2011).

Returning to Equation 1, the variable T_t specifies whether year t is greater than or equal to 1995, which indicates either the GATT period ($T_t = 0$) or the *WTO era* ($T_t = 1$). The coefficient on the interaction of D_{it} and T_t , δ , signifies the average treatment effect (ATE) for institutionalization. Finally, \mathbf{X}_{it} is a vector of control variables, comprising a number of potential confounding factors, including whether either state is a *major power*, whether the dyad is *contiguous*, whether the two states are involved in an *alliance* (these variables are drawn from [Palmer et al. 2015](#)), the lower Polity score within the dyad ($Polity_L$) ([Marshall & Jaggers 2002](#)),⁸ and the ratio of the larger M -score to the smaller (M -ratio) ([Arena 2016](#)).⁹ Finally, there is the possibility that other trade agreements may interfere with the effectiveness of the WTO in either promoting trade or curtailing the use of economic statecraft. Indeed, regional trade agreements (RTAs) have expanded rapidly in recent decades (see [Freund & Ornelas 2010](#)). RTAs force parties to grant more favorable trade concessions to member countries than non-members, meaning that they should enhance trade among member states, which may have a pacifying effect on interstate relations ([Mansfield, Pevehouse & Bearce 1999](#); [Mansfield & Pevehouse 2000](#); [Haftel 2007](#)). As WTO members are also more likely to sign trade agreements, it is important to account for their existence. Therefore, we include a dummy variable, which takes a value of one if the dyad has an existing free trade agreement (FTA) in that year, and zero otherwise.¹⁰ In addition to these controls, we include [Carter & Signorino's \(2010\)](#) cubic polynomial for time since the last conflict.¹¹

The argument that underlies Hypothesis 2 suggests that the effect of WTO judicialization should hold less strongly for major agricultural producers than for others. Such states would not

⁸Results are substantively unchanged when using dichotomous indicators of joint democracy in place of the lower democracy score.

⁹We opt to use Arena's measure of capabilities, rather than the more common measures of national capabilities (see [Singer 1988](#)) because the economic components of the latter may be affected by the treatment.

¹⁰Because we believe that FTAs are particularly relevant for our purposes, we limit this variable to the existence of a free trade agreement, either with or without an economic integration agreement. We exclude currency unions and partial scope agreements, though their inclusion does not change our substantive results. These data are drawn from the WTO's RTA database (available from <http://rtais.wto.org/UI/PublicMaintainRTAHome.aspx>).

¹¹Although dyadic trade might also reduce the likelihood of conflict (see, e.g., [Oneal & Russett 1997](#); [Gartzke, Li & Boehmer 2003](#); [Polachek & Xiang 2010](#)), we omit it, as it will be significantly affected by GATT/WTO membership ([Goldstein, Rivers & Tomz 2007](#)), making it a "bad control" ([Angrist & Pischke 2009](#)). In robustness checks, we find that including total trade does not affect the sign or significance of any of our key variables. It does, however, inflate the coefficients and standard errors for all of our estimates, reinforcing our decision not to include it as a control.

yet be subject to the full enforcement power of the organization at its founding. Therefore, we should expect agricultural dyads to differ from non-agricultural dyads in terms of break points in the data. In particular, while 1995 should matter for dyads in which there are no major agricultural producers, 2004 should be important for others. We examine this possibility by running two final models, splitting the sample between dyads with at least one major agricultural producer and those with none.¹² Splitting the sample and analyzing the two sets of dyads separately allows us to look for these effects while avoiding overly-complicated three-way interaction terms. It also allows for heterogeneity in control variable coefficient estimates across the two samples.

$$Y_{it} = \alpha + D_{it}\beta + T_t\gamma + D_{it}T_t\delta + P_t\theta + D_{it}P_t\kappa + \mathbf{X}_{it}\zeta + \varepsilon_{it} \quad (2)$$

After splitting our data along agricultural lines, we then estimate a set of models slightly different from those given by Equation 1. Equation 2 begins with the same variables and parameters as those in the previous equation. However, we add the new variable, P_t , which indicates whether an observation occurs during the GATT era or the WTO period prior to the expiration of the peace clause ($t < 2004$), in which case P_t takes a value of zero, or whether the observation occurs after 2004 ($P_t = 1$). We then interact this dummy variable with the joint membership indicator. We use the same controls, \mathbf{X}_{it} , as those above. Here, the two coefficients of interest are δ and κ . For non-agricultural dyads, we expect $\delta > 0$ and $\kappa = 0$, while for agricultural dyads we expect $\delta = 0$ and $\kappa > 0$.

Unfortunately, there is no standard measure for what constitutes an agricultural state or dyad. Therefore, to capture the set of states for whom agricultural rules will be particularly relevant, we look at the top 10% of agricultural producers. We do this by measuring agricultural production, using [World Bank \(2013\)](#) data on sector share of GDP, and multiplying this by a state's real GDP in a given year. This gives a value of total agricultural production in dollars. We then arrange these data by deciles and take the top group of nations as the top agricultural producers. A dyad is classified as an *agricultural dyad* if at least one of the two states falls into this top decile, and

¹²For the reasons given above, we use all MIDAs as our dependent variable in these analyses.

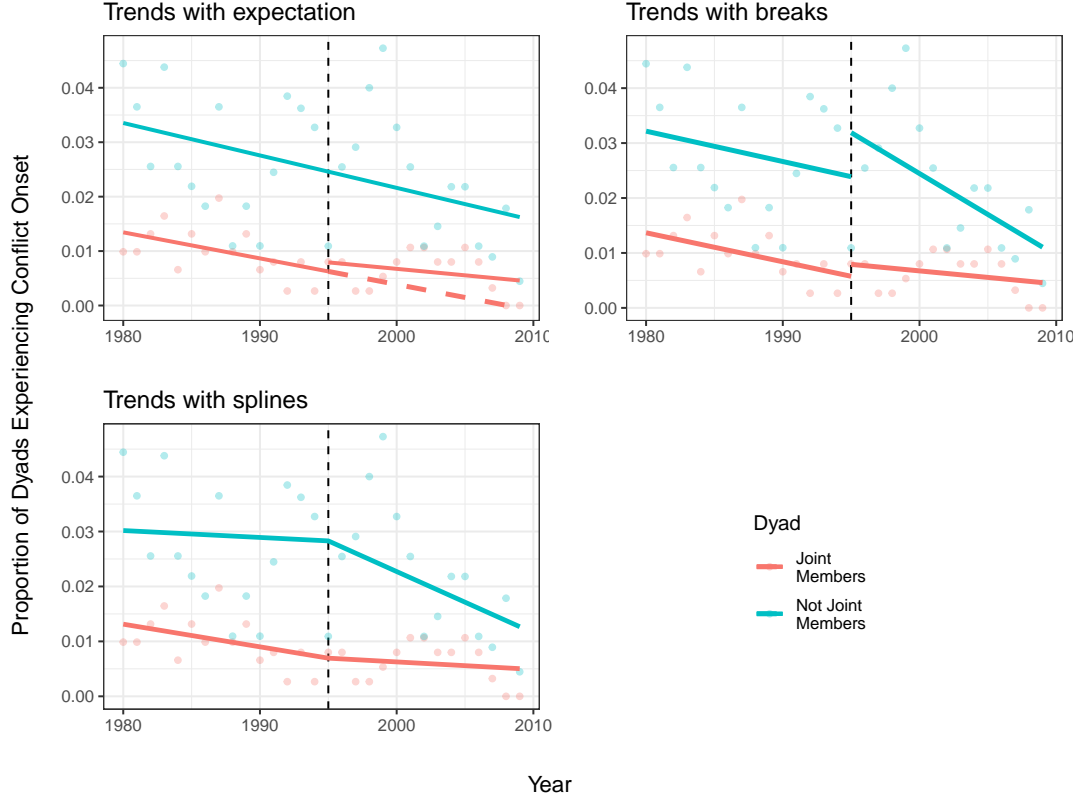


Figure 1: Pre-intervention trends in average conflict

as a *non-agricultural dyad* otherwise.¹³ We then split our sample between these two groups and estimate Equation 2 for both.

Analysis

In order for the difference-in-differences approach to be a valid test of our hypotheses, we must verify that our data satisfy the parallel trends assumption (Abadie 2005). That is, it must be true that our two sets of dyads were following similar paths prior to the intervention in 1995. The simplest way to do this is to inspect the data visually, to determine whether the two subgroups were trending in the same way over the 1980–1995 period.

¹³Top agricultural producers include a number of known agricultural protectionists, such as the United States, Japan, South Korea, and several EU countries.

Figure 1 provides the proportion of GATT/WTO member dyads and dyads with at least one non-member that experienced conflict onset in a given year during the initial period.¹⁴ The points depict the proportion of dyads that experience conflict in each year, for each group. We plot this trend three ways. The top-left panel estimates the trend for non-joint-members over the full period, and shows the expectation (dashed line) for joint members in the WTO era. The solid line segments for joint members depict separate estimations in the two periods. The top-right panel estimates a break at 1995 for both sets of dyads. Finally, the bottom-left panel estimates the full trend for both with a spline at 1995. In all three cases, the two groups are virtually indistinguishable prior to 1995. In the post-1995 era, non-joint-member dyads show a much larger decline in conflict propensity than joint members. Figure 1, therefore, suggests that the parallel trends assumption is satisfied for our data, provides an initial indication that the likelihood of conflict for joint members increased with the establishment of the WTO, and indicates that a difference-in-differences estimator should be an appropriate means of identifying the effect of judicialization.

We begin by assessing the effect of WTO institutionalization on the likelihood of dyadic conflict. The first two columns of Table 2 use the full sample from the data, and show the effect of each variable upon the percent chance of conflict onset. The first column uses any MID as the dependent variable, while the second uses only hostile MIDs. Columns three and four split the sample between dyads with a major agricultural producer and those without, using all MIDs as the dependent variable.¹⁵

Results from the first two columns of Table 2 show consistent effects across the models. As the two are so similar, and we are interested in low-level conflicts, we concentrate the remainder of our analysis upon the first column (all MIDs).¹⁶ Our findings indicate that our joint membership

¹⁴Mathematically, the trend lines are identical whether our y-axis is MID onset for each dyad-year or average number of onsets per year. We choose to use average number of conflict onsets as it provides us with a continuous variable, making the data easier to visualize.

¹⁵Descriptions of all of our variables, along with summary statistics, can be found in the supplementary appendix.

¹⁶The substantive effects across the two models are nearly identical, though the magnitudes of our coefficient estimates vary. This latter feature is not surprising as the dependent variable has changed. Hostile MIDs occur between one-third and one-fourth as often as MIDs in general. Thus, the fact that the coefficients on our variables of

	All MIDs (Full sample)	Hostile MIDs (Full sample)	Non-agricultural dyads only	Agricultural dyads only
Joint Membership	-1.68*** (0.35)	-0.57*** (0.19)	-1.92** (0.93)	-1.48** (0.59)
WTO Era	-0.53 (0.38)	0.06 (0.21)	-1.34 (1.12)	-0.12 (0.60)
Joint × WTO	1.78*** (0.46)	0.57** (0.25)	2.27* (1.30)	0.80 (0.71)
Peace Clause			-0.60 (1.38)	-0.54 (0.64)
Joint × Peace Clause			0.05 (1.55)	1.48* (0.82)
Major Power	0.51 (0.75)	-0.37 (0.42)	1.49 (2.38)	-1.35 (0.95)
Contiguous	0.86 (0.73)	0.05 (0.41)	-0.08 (2.29)	2.05** (0.87)
Polity _L	-0.06*** (0.02)	-0.01 (0.01)	-0.13** (0.05)	-0.06** (0.03)
FTA	-0.50 (0.42)	-0.21 (0.24)	0.04 (0.81)	-2.40*** (0.67)
Alliance	-0.24 (0.28)	-0.07 (0.16)	-0.56 (0.62)	0.79* (0.43)
M-Ratio	-2.58*** (0.84)	-1.29*** (0.47)	-3.79* (2.11)	-3.14*** (1.17)
Time	-0.64*** (0.03)	-0.31*** (0.02)	-0.67*** (0.06)	-0.46*** (0.04)
Time ²	0.01*** (0.00)	0.00*** (0.00)	0.01*** (0.00)	0.01*** (0.00)
Time ³	-0.00*** (0.00)	-0.00*** (0.00)	-0.00*** (0.00)	-0.00*** (0.00)
Constant	14.81*** (1.08)	7.77*** (0.65)	17.01*** (2.87)	14.07*** (1.46)
Number of observations	13,170	13,170	2,736	6,550
R ²	0.08	0.03	0.08	0.07

Standard errors in parentheses.

* $p < .10$; ** $p < .05$; *** $p < .01$. All tests are two-tailed tests.

Table 2: Estimated effects on likelihood of conflict

variable is associated with lower likelihoods of conflict. However, since this is one component of an interaction term, it can be interpreted alone only when our WTO era variable is zero. Thus, interest fall by two-thirds to three-fourths is to be expected.

we can infer that states that jointly signed on to the GATT were less likely to engage in conflict during the pre-WTO years. We estimate that GATT dyads were, on average, 1.16% less likely to become involved in conflict during the initial period within our data than were dyads in which at least one state was not a GATT member. While this number may appear to be low, the naïve probability of conflict in the initial period of our data was only 0.017 (i.e., 1.7%). When compared to this low value, the substantive effect is noteworthy.

Turning to the WTO era requires consideration of the interaction between membership and time. The estimated interaction magnitude is approximately 1.45. This is a substantial effect. Indeed, it is larger than the pacifying effect of the institution, which more than eliminates any gains from membership in the organization during the latter period. Adding together the two coefficients, we are left with a marginal *increase* in the likelihood of conflict. The standard error associated with this interaction (Brambor, Clark & Golder 2006), however, is relatively large, which suggests that the increase is not statistically significant. Therefore, while the WTO may not truly *exacerbate* international conflict, the greater level of institutionalization has weakened the organization's ability to mitigate conflict. These results provide support for Hypothesis 1.

Columns three and four delve further, making use of the fact that issue linkage would still have been possible for agricultural concerns between 1995 and 2004, and testing Hypotheses 2 and 3. These columns include a second interaction between years after the peace clause expired (2004) and joint membership in the WTO. We then split the sample between dyads in which neither country was a major agricultural producer (column three) and those in which at least one was (column four). If our issue linkage mechanism is correct, we should see a significant effect only for the 1995 period interaction in the first case, and only for the 2004 interaction in the second.

In both columns, this is precisely what we find. Joint WTO membership again significantly reduces the likelihood of conflict onset ($p < .10$) for non-agricultural dyads, but not for agricultural dyads ($p > 0.12$). For non-agricultural dyads, this effect is eliminated in 1995.¹⁷ For pairs of states where agriculture may be relevant, we see a similar positive effect that occurs in 2004 (though the

¹⁷As in the first model, the marginal effect of membership is non-significant once we account for the appropriate interaction term.

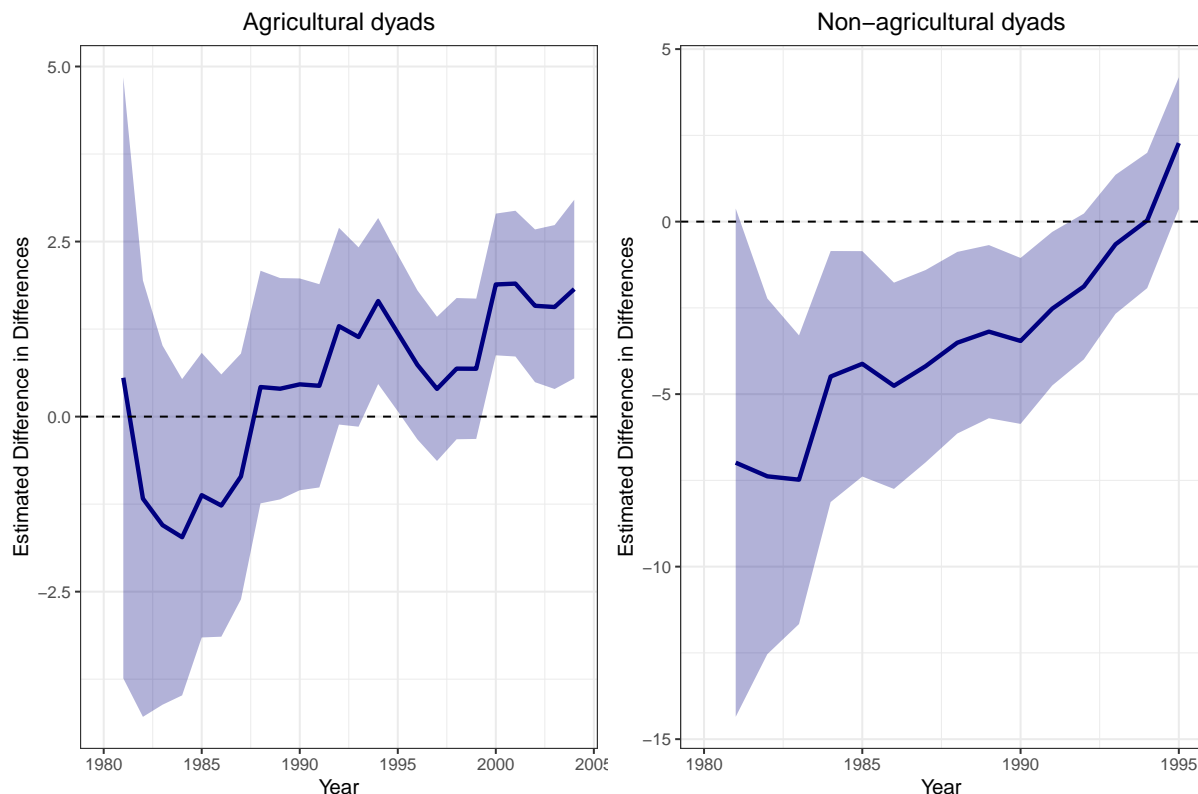


Figure 2: Placebo test for models three and four

marginal effect of the interaction is again non-significant). In neither case do we see an effect for the alternative year. These results are consistent with our final two hypotheses and lend more nuanced support to our general theoretical mechanism.

Because of the clear breaks in institutionalization, we can have some confidence that our models are capturing the effect of the change from one form of institutionalization to another. However, coincidence is common in international relations (see [Chaudoin, Hays & Hicks 2018](#)), and it is worthwhile to ask whether we can isolate these effects further. To this end, we run a placebo test by reanalyzing the data used in models three and four, using each year as a potential break point. If institutionalization does indeed have an effect, then we should not see a significant effect on the difference-in-differences term during earlier periods.

Figure 2 shows the estimated coefficient, with associated 90% confidence intervals, for the difference-in-differences term in each year across our two subsamples. The results are generally

supportive of our story. This is particularly true within the non-agricultural sample, as there is no evidence of a conflict-militating effect prior to 1995. Surprisingly, there is an initial conflict-*mitigating* effect, which disappears at the end of the Cold War. The results in the left panel of the figure, which focus on agricultural dyads, are a bit more mixed. While we see the significant effect in 2004 ($p \approx 0.05$), we see similar and unexpected effects in the 2000–2004 era. One explanation for this early result may come from the fact that agricultural issues have featured heavily in the Doha Round of negotiations, which officially opened in late 2001. The discussions on agriculture, however, began earlier, with states entering negotiations in early 2000, under the WTO’s Agreement on Agriculture (negotiated under the Uruguay Round), and folding them into the Doha negotiations. It is conceivable, therefore, that there was some anticipation, or even some growing pains, with these agricultural consultations, which affected states even before the expiration of Article 13. Ultimately, the general results in Figure 2 demonstrate some additional support for our theory.

Conclusion

How do changes in institutional design affect conflict and cooperation among states? We examined the shift from the GATT to the WTO, looking at the conflict behavior of states before and after the institutional change. Using a difference-in-differences design, we found that joint-member dyads were significantly less conflict-prone than non-joint-member dyads during the GATT, but this difference disappeared under the WTO. In spite of the fact that deeper institutionalization facilitates trade and other peaceful interactions among states (Goldstein, Rivers & Tomz 2007), we still observe a decrease in the effectiveness of conflict prevention. This suggests that the shift to a more highly-legalized regime may have undone much of what the initial agreement had hoped to accomplish. We further analyzed our proposed causal mechanism by differentiating between agricultural and non-agricultural dyads, and leveraging the existence of the WTO’s peace clause on agriculture between 1995 and 2004. The results of the secondary analysis suggested additional

support for the role of issue linkage.

Broadly, our analysis suggests that institutions with stronger rules may, in some cases, induce conflict by taking economic tools off of the table, forcing states to rely on military means of persuading adversaries. Notably, in the case of the WTO, this appears to cancel out any pacifying effects that accompany joint organizational membership. So what can be done? Organizations should consider all potential effects of the rules that they put into place, in order to determine whether they might have otherwise-unexpected, adverse effects. Moreover, organizations might exempt violators in certain crucial cases. Such an example is found in the NATO charter. While the most well-known provision of the treaty (Article 5) commits participants to collective defense in the case of an attack against a NATO member, Article 11 of the same agreement states that any responses must be consistent with the constitutional processes of the constituent states. Thus, there is significant flexibility within the charter, allowing states to abandon multilateral action if it appears to be too costly. Similar flexibility with respect to trade agreements might reduce the conflict-aggravating effects of the agreement, though it would likely come at the expense of international trade.

One important caveat to our analysis lies in its temporal scope. For reasons of data availability, our analysis ends in 2009. This means that we capture a total of thirty years in our hypothesis tests. Of these three decades, only five years follow the expiration of the peace clause. Therefore, our results are somewhat tentative in nature. While our secondary findings, with respect to agricultural and non-agricultural dyads, are interesting and help us to deepen our theoretical understanding, they require further investigation. Subsequent works should take advantage of greater data availability to investigate whether these relationships still hold.

Beyond simply expanding upon the scope of our analysis, we see two potential paths for future research. First, while significant work has been done on issue linkage in other areas (e.g., [Haas 1980](#); [Davis 2004](#); [Poast 2013](#)), relatively little empirical research exists that addresses the role of issue linkage in the security arena (possible exceptions include [Dixon 1986](#) and [Wiegand 2011](#)). Further investigation into when, how, and under what circumstances linkages can help to avoid

conflict would be useful for understanding how the risks of war can be mitigated. Second, scholars might look at the secondary effects of deeper institutionalization in other contexts. Did the transition from the GATT to the WTO increase member states' willingness to engage in other forms of conflictual behavior, such as diplomatic or economic sanctions? Have other institutions had similar effects? While the Kantian and Wilsonian ideals of institutions as peacemakers are attractive, much of political science and economics deals with the study of unintended consequences. While some of the best known work on unintended consequences in the international arena has been constructivist (Wendt 2001; Onuf 2002) or psychological (Jervis 1976, 1998) in nature, more recent work has begun to tackle the question from a more empirical and rationalist angle (see, for example, Chatagnier & Kavakli 2017; DiLorenzo 2018; Jowell 2018; or the entire volume by Daase & Friesendorf 2010). Uncovering the net effect of institutions and truly understanding their role in facilitating international peace requires more thorough knowledge of both the seen and unseen. Additional research into the invisible effects of institutionalization would help to crystallize this understanding, allowing policymakers to make wiser choices about the rules that structure international interactions.

Data Replication

The data and R code to replicate all tables and figures in this article can be found at <http://www.prio.org/jpr/datasets>.

Acknowledgements

Previous versions of this paper were presented at the 2017 Texas Triangle and Midwest Political Science Association conferences, as well as the 2019 meeting of the International Studies Association. The authors thank Amanda Guidero, Tobias Heinrich, Erica Owen, Zach Zwald, and conference participants for helpful comments. We are also grateful to the editor and anonymous referees for their insight.

Funding

This project was funded in part by a New Faculty Grant from the University of Houston.

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