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World Trade Organization
Economic Research and Statistics Division

**INDISPUTABLY ESSENTIAL: THE ECONOMICS OF DISPUTE SETTLEMENT
INSTITUTIONS IN TRADE AGREEMENTS**

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Manuscript date

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INDISPUTABLY ESSENTIAL: THE ECONOMICS OF DISPUTE SETTLEMENT INSTITUTIONS IN TRADE AGREEMENTS

Alexander Keck[§] and Simon Schropp^{*}

September 2007

Abstract

Economic theory has made considerable progress in explaining why sovereign countries cooperate in trade. Central to most theories of trade cooperation are issues of self-enforcement: The threat of reprisal by an aggrieved party maintains the initial balance of concessions and prevents opportunism. However, economic scholarship has been less coherent in explaining why countries choose to settle and enforce their trade disputes with the help of an impartial third party, a “trade court”. Typically, economists focusing on the purpose of trade agreements have assumed away the very reasons why institutions are needed, since under standard assumptions, neither defection from the rules nor disputes are expected to occur.

This paper is a step towards the formulation of a coherent economic theory of dispute settlement. It challenges traditional models of enforcement (primarily concerned with acts of punishment) for being insufficient in explaining the existence of dispute settlement institutions. We perform a comprehensive analysis of the economics of dispute settlement institutions and demonstrate to what extent the literatures of trade cooperation and dispute institutions are (and should be) interlinked. On the basis of these theories, we show that dispute settlement institutions in trade agreements may assume a variety of roles, including that of an information repository and disseminator, an honest broker, an arbitrator and calculator of damages, an active information gatherer or an adjudicator.

Keywords: Dispute settlement, trade, institutions, enforcement, WTO

JEL classification: F02, F13, F51, F53, F55, K33, K41, K42

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A. INTRODUCTION: THE ELUSIVE RELATIONSHIP BETWEEN ENFORCEMENT AND DISPUTE SETTLEMENT IN TRADE THEORY

Most trade agreements contain provisions for dispute settlement. Perhaps the best known example is the World Trade Organization (WTO) dispute settlement mechanism (DSM), which is often referred to as the centrepiece in the architecture of the multilateral trading system. Many commentators praise the Uruguay Round “Understanding on Rules and Procedures Governing the Settlements of Disputes” (DSU), that further streamlined and improved upon existing rules on dispute settlement, as a major step towards the strengthening of the rule-of-law in the world trading order (see exemplarily Davey, 2005). In particular, the DSU strengthened judicial elements, for instance by making the establishment of a “panel” (a neutral group of experts to review a case) as well as the adoption of dispute settlement reports by the Dispute Settlement Body (DSB)¹ quasi-automatic and by establishing a standing organ for legal review (the so-called “Appellate Body” (AB)).

Until relatively recently, economic theory of trade policy has paid little attention to the question why international “trade courts” exist, and what roles they assume in facilitating cooperation on issues of international trade.² Traditional economic models primarily focus on the rationale for trade agreements, i.e. on the question why sovereign countries cooperate with each other on matters of international trade.³ These theories of trade cooperation are essentially theories of enforcement. They explain how countries overcome a prisoners’ dilemma situation by threatening to punish the defector (read: enforce their rights). Despite the logical proximity of enforcement and dispute settlement, theories of trade agreements are typically “institution-free”, that is, they have little if anything to say about the need for and possible roles of an independent third party⁴ assisting in the settlement of trade disputes.

Starting in the early 1990s, another strand of the economic literature emerged: Economists began to show interest in the question why countries invest resources into the establishment of an independent dispute settlement institution and cede part of their sovereignty to it. To this day, however, attempts to explain the rationale for and roles of dispute settlement institutions suffer from two main weaknesses: *First*, they are eclectic. Individual papers usually explain a single function that an impartial dispute settlement institution can assume. Often these papers merely ascribe a role to such a body that suits their wider research purpose, such as an explanation of the sustainability of ongoing trade negotiations (Klimenko et al., 2002). As a consequence, no complete picture of the possible roles and functions of dispute settlement institutions emerges from this research, and scholars interested in that matter are left with a patchwork of unconnected explanation attempts. *Second*, most, if not all, of these approaches fail to establish a systematic and explicit backward link to theories of trade agreements. In other words, they do not discuss the nature of the underlying contract that a dispute settlement institution is to protect and the reasons that led to its conclusion. Consequently, it is difficult to identify the larger theoretical framework (and the concomitant set of assumptions), in which individual institutional models are rooted or embedded.

¹ The DSB consists of all WTO Members. Among other things, its tasks are to establish dispute settlement Panels, adopt Panel and AB reports, oversee and monitor the implementation of Panel recommendations adopted by the DSB and authorize retaliation (Art. 2.1 DSU).

² See Staiger (1995). In general, economic theory has a hard time explaining the existence of courts (cf. Masten, 1999). Why this is so will be shown *infra*.

³ A more ambitious strand of the literature, most notably represented by the research of Kyle Bagwell and Robert Staiger, has moved on from explaining the rationale for trade cooperation towards a coherent explanation of important *rules* in trade agreements. (see Bagwell and Staiger, 1990; 1999; 2001; 2002; 2005; Bagwell et al., 2002; 2003).

⁴ The term “third party” in this abstract context must be distinguished from the concept of third parties in WTO disputes, which denote Members having certain rights in participating in a dispute besides the complainant and defendant.

The objective of this paper is threefold: First, we want to make it explicit why traditional models of trade agreements do not consider the role of “trade courts”. Second, we present a comprehensive and structured overview of the scattered economic literature on dispute settlement institutions in trade agreements. To the best of our knowledge such an analytical review has never been conducted before. Finally, we seek to reconcile these hitherto unrelated strands of the literature. We show how models of trade agreements can be enhanced and be made compatible with economic approaches to dispute settlement institutions. In combining two previously detached lines of research, we advance a research agenda towards a unified and coherent theory of dispute settlement.

The paper proceeds as follows: Chapter B reviews the leading theories of trade cooperation, the terms-of-trade model and the political externalities model. We work out the implicit set of underlying assumptions which explains their neglect of dispute settlement institutions. Chapter C takes a critical look at these models. In particular, we contend that their notion of enforcement is misconstrued. We demonstrate that enforcement is a function of two variables: *enforcement capacity* and *enforceability*, and that traditional theories of trade agreements focus solely on the former aspect and ignore the latter. Taking issues of enforceability of trade agreements into consideration allows us, in Chapter D, to identify in a coherent manner the range of possible functions that an independent dispute settlement institution can fulfil,⁵ such as the role of an information repository and disseminator, an honest broker, an arbitrator and calculator of damages, an active information gatherer or an adjudicator. Chapter E performs a “reality check” and compares the theoretical insights to current dispute settlement practice at the WTO. Chapter F concludes.

B. THEORIES OF TRADE COOPERATION: “INSTITUTION-FREE” MODELS OF SELF-ENFORCEMENT

At the latest since the writings of David Ricardo and John Stuart Mill the welfare-enhancing qualities of international trade have been common wisdom in the realm of economics (Irwin, 1996). Reality, however, paints a different picture: Countries are often reluctant to open up their borders to foreign goods and services and unwilling to liberalize trade unilaterally. Yet, there are plenty of examples that countries have overcome what appears to be a mercantilist and protectionist stance and engage in bilateral or multilateral trade agreements. What is the rationale for such cooperation? Why do sovereign countries contract over trade issues?⁶

Starting with the seminal work of Harry Johnson (1953), economists have strived to address this question. The basic intuition that has guided much of the literature is that countries cooperate in an effort to constrain unilateral “beggar-thy-neighbour” policies. Trade protection by one country may reduce the welfare of trading partners; it provokes negative externalities, or spill-overs.⁷ The strategic set-up of a prisoners’ dilemma emerges. Excessive trade protection, albeit inefficient, becomes the dominant strategy for importing countries. The purpose of a trade agreement is to eliminate the inefficient restrictions on trade volumes that arise when policies are set unilaterally, and thereby offer governments a means to escape the prisoners’ dilemma.⁸

⁵ Methodically, we thereby proceed in the tradition established by the discipline of “new institutional economics” (e.g. Menard, 2004; North, 2005; Williamson, 2000): We single out various real-life imperfections connected to multilateral contracting. Factoring them in allows for an efficiency-enhancing role of trade dispute institutions.

⁶ Throughout this paper we treat trade agreements as contracts. This stance may be contested, but seems natural for economists. We submit that the WTO Appellate Body in *Japan – Alcoholic Beverages II* (DS8) expressly stated that “the WTO Agreement is a treaty – the *international equivalent of a contract*” (WT/DS8,10,11/AB/R: 16, emphasis added; see also Dunoff and Trachtman, 1999, at note 104).

⁷ A government is assumed to set its import barriers in order to maximize its welfare, while recognizing that some of the cost of this measure falls upon foreign exporters whose products sell less. This externality leads *all* rational governments to set unilateral trade barriers that are higher than what would be efficient.

⁸ In a nutshell, the essence of a prisoners’ dilemma is the ranking of payoffs in a game between two

Theories of trade agreements based on externalities come in two variations.⁹ The best-known and most elaborate theory of trade cooperation is based on a terms-of-trade driven prisoners' dilemma that (large) countries overcome by means of concluding an international trade contract. The *terms-of-trade* school contends that it is solely the ability of economically large countries to influence world prices for goods and services – and their potential to actively deteriorate other states' terms-of-trade – that motivates governments to conclude trade agreements. Large countries realize that the unilateral setting of import tariffs creates inefficiencies that can be avoided by mutual trade cooperation. This theory is represented most prominently by Kyle Bagwell and Robert Staiger.¹⁰ Their research programme is the only one that formally integrates an explanation of why countries cooperate on trade matters with an explanation of *how* this can be done. In other words, it currently is the only approach in economics that can explain both the existence of the multilateral trading system and its architecture.

The *political externalities* strand of the literature, which gained prominence through the writings of Wilfred Ethier (2004; 2004a; 2006), is critical of the terms-of-trade approach. It alleges that “a trade agreement serves governments to get credit for the reduction in foreign trade barriers. International cooperation is not about the elimination of economic (world-price) externalities, but about *political* externalities. The latter arise when politicians in one country believe that their political status is directly affected by actions of politicians of another country” (Hauser and Roitinger, 2004: 652).

Different as these rationales for trade agreements may be concerning possible policy implications,¹¹ their basic intuition is identical: Both schools rely on a simple game set-up, where two or more rational players are faced with a prisoners' dilemma situation. A trade contract can help overcome the inherent inefficiencies – given that two fundamental conditions hold: infinite repetition and the self-enforcement property. Infinite repetition avoids an immediate breakdown of the trade game.¹² Self-

players (here: countries). Assume two countries where each may take two possible courses of action (e.g. Axelrod, 1984): Let C denote cooperative behaviour by the *home* country and C^* the *foreign* country's cooperative action. D is the home country defecting, D^* the foreign country defecting. *Home's* ranking of pay-offs is $DC^* > CC^* > DD^* > CD^*$. *Foreign's* ranking is the symmetrical opposite ($CD^* > CC^* > DD^* > DC^*$). Applied to the international “trade game”, this means that each side would prefer to defect, provided the other side complies, because such beggar-thy-neighbour actions would yield opportunistic gains to each country. Mutual cooperation is preferred to mutual defection. The worst outcome is compliance when the other party defects. If the game is played once, both parties will choose to defect for fear of being deviated against and suffering the “sucker's payoff” and DD^* is the inevitable outcome. Countries *Home* and *Foreign* realize, however, that by concluding a trade contract, both players can simultaneously propel their payoffs to a higher level, the CC^* outcome.

⁹ In the field of international economics, one alternative explanation exists to the externality-driven motivation. The so-called “commitment school” relies on the existence of an inward-oriented (domestic) problem that trade agreements can solve. Proponents of this approach argue that policymakers use *external* pressure in order to restrict their own future discretion over trade policy. In the face of pressure by domestic interest groups and “time-inconsistency” (which prevents governments to credibly commit to a future change in policy), policymakers deliberately “tie their hands to the mast of free trade” (Regan, 2006) in order to maximize their *long-term* self-interest (for a general introduction into theories of commitment, see Bernhardt et al. 2002; Kydland and Prescott, 1977). Proponents of this view in the field of international economics are Staiger and Tabellini (1987; 1989; 1999), Krishna and Mitra (1999, 2005), Maggi and Rodriguez-Clare (1998) and Mitra (1999). Maggi and Rodriguez-Clare (2005) and Bagwell and Staiger (2005a) combine market access- and internal commitment explanations for the existence of trade agreements. The commitment approach to trade agreements is in its infancy (Bagwell and Staiger, 2002: 35) and so far has largely failed to bring forth credible evidence (Srinivasan, 2005).

¹⁰ See footnote 3 above for references.

¹¹ See Bagwell and Staiger (2002), Ethier (2004a) and Hauser and Roitinger (2004) for a comparison of the two views.

¹² A finite prisoners' dilemma game can be expected to break down in the very first round. To see why this is so, assume a ten-round game: Rational players will defect in the last round, because defecting is the dominant strategy then (just like it is in a one-shot game). Anticipating last-round defection, all actors will also

enforcement means that any punishment (or rather: threat thereof) can successfully be enacted by the membership of the agreement itself.¹³ Since a neutral third party cannot add to the effectiveness of punishment, the implicit threat of retaliation must deter players from defecting from the terms of the agreement.

But not only the basic intuition for concluding a trade agreement is the same in externality-based models of trade cooperation. In addition, both approaches have the following set of implicit modelling assumptions in common (at least in their simplest form):

Assumption (i) - Maximum mutual deterrence:

Cooperation is sustained by the “shadow of the grim trigger”. Parties mutually threaten to punish any kind of defection by ceasing cooperation indefinitely and return to the pre-contractual non-cooperative Nash equilibrium. In other words, the punishment for violating the agreement is a return to the protectionist past.

Assumption (ii) - Unchanging circumstances (“stationarity” of the environment):

External circumstances are assumed to remain unaltered throughout the course of the agreement. The models are non-dynamic approaches to trade, where changes in environmental conditions, such as technological innovations, demand or supply shocks or special interest group pressure are not expected to occur.

Assumption (iii) - Symmetrical information:

All players (trade-policy decision-makers) have the same set of information at the outset of the negotiations as well as at any point in time during the game. Information about the environment, trade-related policies and Members’ intentions (“types”) are immediately known by all parties.

Assumption (iv) - Rationality:

All players (i.e. trade negotiators) possess complete rationality and sophistication. They are fully forward-looking, self-interested utility maximizers.¹⁴

Assumption (v) - No transaction costs:

Negotiations, trade flows and disputes are cost- and frictionless.¹⁵

This model setup, common to both externality-driven explanations of trade cooperation, brings with it

choose deviation in the penultimate round. Anticipating defection in the penultimate round prompts players to defect in the antecedent round and so forth. This process trickles down until the first round. Bagwell and Staiger note an overwhelming consensus in the literature that “trade agreements may be formally analyzed using a theory of repeated games” (2002: 40). Having symmetrical actors means that countries are exactly identical, except for the endowment of specific factors used for producing the traded goods. Signatory *A* knows everything about *B*, his preferences, pay-offs, strategies and expected behaviour. In short, the players are identical twins and analysis of one obviates the need to deal explicitly with the other.

¹³ In absence of a *supra*-national authority, any contract among sovereign nations must necessarily rely on self-enforcement. Judith Hippler Bello states for the case of the WTO: “When a panel established under the WTO Dispute Settlement Understanding issues a ruling adverse to a member, there is no prospect of incarceration, injunctive relief, damages for harm inflicted or police enforcement. The WTO has no jailhouse, no bail bondsmen, no blue helmets, no truncheons or tear gas” (1996: 417).

¹⁴ This assumption does not suggest that *all* economic actors are perfectly rational. Ethier’s political-externality approach to trade agreements, for example, sometimes rests on the assumption that domestic importers are bounded rational and give more weight to direct effects of trade policy (see Ethier, 2004).

¹⁵ For the present purpose, “transaction costs” as used here is a general term for all those real-life costs that states must incur when cooperating internationally in trade matters. Such costs include sorting and searching costs, information gathering and processing costs, bargaining costs, as well as litigation, enforcement and policing costs. Early work on transaction costs dates back to Coase (1937) and Williamson (1979; 1985). Strictly speaking, the absence of transaction costs is not an additional assumption, but rather a combination of unlimited rationality (assumption (iv)) and stationarity of the environment (assumption (ii)). Nothing is lost, however, in treating transaction costs as an independent assumption.

three important consequences:

- First, an international trade agreement represents what can be called a “fully efficient contract”. It is a perfect contract that exhausts all possible gains from trade and therefore never needs to be altered, revised, amended or renegotiated.¹⁶ The agreement represents a stable “renegotiation-proof” negotiation equilibrium.
- Second, given that the original agreement is both perfect and stable, neither deviations nor applied sanctions will ever occur. Parties maintain the mutual threat of responding to any contractual defection with an immediate and complete withdrawal from cooperation. This is the so-called “grim trigger”-response to deviation. Hence, owing to the “shadow of the grim trigger”, once the agreement is concluded, deviation from the original terms of the agreement is not rational – and hence never witnessed. In other words, there is no room for disagreement and trade disputes. Consequently, in absence of any dispute, an independent dispute settlement institution cannot add to the efficiency of the system.¹⁷
- Finally, by yielding an exhaustive, stable and self-containing trade agreement, trade cooperation emerges as a spontaneous and *endogenous* negotiation equilibrium. The contract is a “tacit agreement” (Dixit, 1987) which is concluded and maintained without the outside help of any third party. Welfare-maximizing cooperation emerges spontaneously and endogenously. As a result, there is no efficiency-enhancing role for any kind of institution; the inception of a formal international organization as the organ of the treaty (a secretariat or directorate) will only produce costs, but yield no benefits.

In sum, according to the standard repeated-game model of trade cooperation, an international trade agreement represents the codification of supergame strategies. There is no obvious role for an institution, beyond that of serving as a mere communication channel that helps to coordinate an efficient outcome.¹⁸ The non-existence of formal institutions is a direct consequence of the set of implicit assumptions identified above.¹⁹

Why has any sensible role for institutions been defined away in the received models of trade agreements? The reason for this lies in the objective of these models and in the way this objective is pursued: Their goal was to highlight the logic of agreements. Confining assumptions that minimize the role for trade institutions have been made for analytic convenience rather than in the belief that institutions do not matter. By cutting down the complexity of assumptions, economists have managed to focus attention, to sharpen the explanatory power of their models and not least, not to make the models any more complicated than necessary.

¹⁶ A fully efficient contract is also known as “complete” or “Pareto-optimal complete contingent” contract in the literature. A contract of this sort provides a complete description of every possible state of nature and prescribes in detail all rights and obligations of each contracting parties, including the set of policy instruments that a Member country may or may not use. The fully efficient contract thereby exhausts all possible gains from trade – it is the first-best contract between trade partners (see Shavell, 1980).

¹⁷ Trade disputes are not expected to arise. If they do so nevertheless, they are equivalent to the breakdown of the system, since under a fully efficient trade agreement any deviation from the specified terms is necessarily opportunistic and thus automatically provokes the “grim trigger” response.

¹⁸ Note that under the above assumptions equilibrium theory basically assumes that coordination can be achieved even when the players do not communicate. Hence, equilibrium-based game theory models will even deny a coordination-based rationale for institutions.

¹⁹ It should be pointed out that not all of the above assumptions (i)-(v) are required concurrently or additively to reach this conclusion. Some formal models have been developed in which players use a punishment strategy different from the maximal grim-trigger strategy, face changing circumstances or have private information. Papers of this kind then assume that actors are able to coordinate sufficiently on an equilibrium outcome *without* using the outside help of institutions.

C. PRINCIPLES OF ENFORCEMENT: MORE THAN PUNISHMENT

In the previous section we uncovered the core set of assumptions underlying the contemporary workhorse models of trade cooperation. As was shown, the self-enforcement property is the key driver of successful cooperation in trade matters - if one is willing to accept the proposition that trade agreements are concluded so as to overcome an externality-induced prisoners' dilemma.²⁰ Given the centrality of enforcement, it seems apposite to review the basic tenets of this concept. This section serves as an introduction to the principles of enforcement. We show that enforcement has more to it than just punishment - or the threat thereof. Yet, owing to their conceptual simplicity, the models of trade agreements reviewed above have neglected important dimensions of the enforcement property. It is exactly these neglected dimensions that may warrant the establishment of an impartial dispute settlement institution in trade agreements.

1. The essence of contractual enforcement

Trade agreements are contracts of sorts (see footnote 6 above). Contracts are best defined as a mutual exchange of enforceable commitments over time (Craswell, 1999; Dunoff and Trachtman, 1999). Every contract needs to be enforceable - no matter whether it is a simple purchase of a candy bar, a more complicated employment contract or a complex long-term, repeated-interaction treaty such as a multilateral trade agreement. Enforcement is the *sine qua non* of contracts, since it lends credence to the mutual commitments and deters defection. Without enforcement, the contract is likely to break down or, more probable, is not concluded in the first place.²¹

Enforcement is a function of "enforcement capacity" and "enforceability": *Enforcement capacity* is the ability to reciprocate credibly against a violation of the terms of the contract. Enforcement can be exercised by the affected party itself (self-enforcement), by a neutral third-party,²² by society at large or through collective enforcement by a circle of affected or interested parties (such as the membership of a multilateral contract). Enforcement instruments can vary from physical (incarceration), economic (penalty fees) to emotional (reputation loss, withdrawal of affection) measures.

Enforceability has at least three components: observability, verifiability and quantifiability. Observability means that contract infringements can be detected in the first place - either by the affected party itself or by a third party (say, an attorney or prosecutor). Verifiability, is concerned with the question whether the contract can actually be enforced as written or agreed upon: A violation or infringement is verifiable if the affected party can point to a clause in the contract and prove its violation. This presupposes that such a clause is contained in the contract and/or that the violation can be determined by a neutral third party.²³ Quantifiability, finally, implies that the aggrieved party (or a

²⁰ As mentioned before in footnote 9, the commitment approach to trade agreements alleges a purely domestic rationale for trade agreements. The reason for contracting then is not a prisoners' dilemma (*coordination* game), but rather a more benevolent *collaboration* game (akin to a "battle-of-sexes" game). Consequently, self-enforcement plays a less central role in *collaboration* games, since defectors are likely to shoot themselves in the foot by violating the agreement (for the difference between *collaboration* and *coordination* games, see e.g. Stein, 1983; Snidal, 1985; Fearon, 1998).

²¹ Masten notes: "Without some form of assurance that others will, when the time comes, uphold their end of the bargain, individuals will be justifiably be reluctant to make investments, forgo opportunities or take other actions necessary to realize the full value of exchange" (1999: 26).

²² Third-party enforcement may be called "court-and-copper" enforcement, since constitutional regimes require that a jurisdiction (a judge) determines a legal infringement and an executive (the police) enforces the law.

²³ A classic example of contractual non-verifiability by a third party is a research and development (R&D) contract between a principal (client) and an agent (researcher). The ability to prove to a judge whether the researcher has performed as agreed or not, would presume a "water-tight" (complete) contract between the

court) can quantify the damage incurred as a result of the breach of the contract.²⁴ In a way, quantifiability is verifiability of damage incurred by the victim of a measure.²⁵

2. The level of cooperation and the level of enforcement

Every contract, be it between firms, individuals or states, is driven by the desire to cooperate. Cooperation may not be a binary issue, but a matter of degrees.²⁶ Chart 1 below plots on the vertical axis various degrees of cooperation (C), where (C^{max}) is the point of full cooperation and (C^N) is the point where no contract exists.²⁷ The vertical axis depicts the excess (dis-) utility generated by the contract. Along this axis gains reaped over and above a situation without a contract, and costs from being punished for having defected, are displayed. Point U^N in the origin corresponds to the Nash-cooperation point C^N in the absence of a contract. Picture a contract between two players.²⁸ The contractual intent, i.e. reason for contracting, is of no consequence here. Assume however that we are dealing with a long-term contract of repeated interaction (such as an employment contract or trade agreement).

Each contracting party has an immediate incentive to cheat by deviating optimally from the initial terms of the agreement. The short-term benefit from defection is called *hit-and-run* advantage (see the *H&R* curve in Chart 1). The hit-and-run gain is the additional utility the injurer enjoys from defecting as opposed to cooperating as promised. It is a short-term benefit, since it merely stretches from the moment of defection until the time the violation is detected.²⁹ The hit-and-run benefit (if seized by the potential defector) is by definition an opportunistic, that is inefficient, redistribution of welfare to the detriment of the potential victim (not pictured). This raises the central concern of contracting parties as they design a mutual agreement: How can rule-obedience, that is, continuous commitment to cooperation, be safeguarded? This is where issues of enforcement come into play.

two parties. This contract would have to specify not only the wanted outcome (say, a remedy against cancer), but also the *way* of achieving it, which, needless to say, is the whole point of an R&D contract in the first place. See Tirole (1994).

²⁴ Quantifiability may be important where there is no *prima facie* violation of the rules or in seeking retaliation.

²⁵ Another – arguably more intuitive - way of thinking about the two dimensions enforceability and enforcement capacity is the following: Contractual enforcement always consists of two phases - a dispute or litigation phase and a punishment or remediation phase. The litigation phase is identical to enforceability, while the remediation phase is equivalent to issues of enforcement capacity.

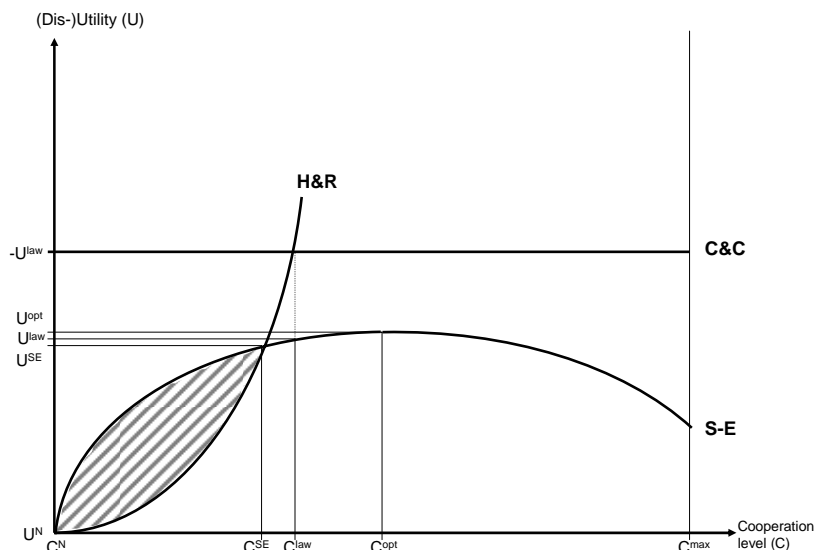
²⁶ For example, think about a commercial bank that assesses how much credit it should give to a client: As much as the client asks for, less than that or nothing at all?

²⁷ Note that point C^N represents the Nash-level of cooperation, that is, the degree of cooperation that exists when no contract is in place. Cooperation at the Nash-level may well be positive and different from a zero transaction-level.

²⁸ For simplicity, parties are assumed to be symmetrical. Therefore, only one contractor needs to be examined, since the incentives and actions by the other are identical. This is without loss of generalization. In a model with multiple actors, the enforcement can be represented as a two-player game, namely between a player “*X*” and a player “*rest of the world*”.

²⁹ The convex curvature of the *H&R* schedule is intuitive: The higher the agreed-upon level of cooperation (i.e. the higher the *ex ante* commitment), the more a one-time defection pays off. In other words, there are increasing marginal returns from defection. Yet, the convexity of the curve is not necessary. Bagwell and Staiger (2002: 102) provide some arguments in favour of this curvature for the case of the contract being a trade agreement. The curve is flat and equal to zero at C^N , where the contracted cooperation is equivalent to the situation without agreement.

Chart 1: Enforcement constraint in contracts



Source: authors

Notes: *H&R* stands for “hit-and-run”. The *H&R* curve represents the discounted benefits of defecting from the terms of the initial contract. *S-E* stands for self-enforcement. The *S-E* curve represents the expected costs (disutility) of defection in a self-enforcing agreement. Under a grim trigger enforcement strategy, those costs are tantamount to the foregone discounted value from future cooperation. *C&C* stands for external “court-and-copper”-enforcement. The *C&C* line is the expected disutility from defection (here, a liquidated damage clause) in a contract enforceable by a third party. Utility level U^{opt} corresponds to the optimal level of cooperation (C^{opt}). Yet this commitment level is not feasible, since is not enforceable (the benefit from defection is bigger than the expected cost of enforcement). The utility levels U^{SE} and U^{law} , on the other hand, are realistic under a regime of self-enforcement and outside enforcement, respectively. At those levels of cooperation, defecting once and enduring the subsequent punishment does not pay off (the enforcement constraint is binding).

Two enforcement mechanisms are depicted in Chart 1: First, if no central, superior enforcement instance (such as a court) exists to deal with the case, yet parties interact repeatedly over time, the best a victim can do is to engage in self-enforcement: It retaliates by exiting the agreement and returning to the non-cooperative past (threat of “grim trigger”).³⁰ The curve *S-E* in Chart 1 represents the injurer’s opportunity costs of reprisal, that is, the expected discounted value of future cooperation that the injurer foregoes by abandoning the cooperative game. The discounted value of cooperation is the sum of all future per-period gains from having concluded a contract (vis-à-vis having no contract at all).³¹

Hence, the potential defector balances the short-term incentive to cheat with the long-term cost that such cheating implies once the victim retaliates by suspending cooperation indefinitely: Gains and losses approach zero if the contract stipulates little cooperation, since this practically replicates the non-cooperative Nash outcome in absence of an agreement. If the contract specifies greater

³⁰ Alternative – less drastic – punishment rules are of course possible, for example the infamous “tit-for-tat” strategy of enforcement, where the victim of a defection only retaliates for exactly one round and then returns to cooperative behaviour. It is sometimes argued that tit-for-tat retaliation produces more stable outcomes than the grim trigger strategy (e.g. Axelrod, 1984; Oye, 1986). For the situation at hand, however, the retaliation strategy chosen by the victim, or agreed to by both signatories, is inconsequential.

³¹ Again, the concave curvature of the *S-E* curve is intuitive: More cooperation in every round is beneficial up to some optimal point C^{opt} . After that point, additional commitments display declining (possible even negative) returns. This is so, for example, because of a loss of freedom and sovereignty. Bagwell and Staiger (2002: 102) give the intuition for concavity of long-term cooperation gains for the case of a trade agreement. The *S-E* curve also must go through the origin: The more the negotiated commitment approaches the no-contract level, the smaller are the future gains from cooperation.

cooperation (levels above C^N), short-term defection and long-term opportunity costs begin to rise. As the agreed-upon cooperation increases, the costs of reprisal first exceed the hit-and-run gains from one-time defection – before the two curves intersect at C^{SE} , which can be defined as the most cooperative cooperation level that can be sustained through self-enforcement. Beyond this point, the gains from one-time infringement of the agreement exceed the compounded future gains of cooperation.

It is important to realize that beyond a cooperation level of C^{SE} it is irrational for the injuring party to comply (economists call this a binding incentive constraint). Anticipating the injurer's behaviour, it is equally irrational for the victim to agree to a more cooperative deal, even though its welfare-optimal level of cooperation would equally be C^{opt} (due to symmetry of the players). Hence, without a central enforcer, only the range between C^N and C^{SE} is self-enforceable yielding an additional utility in the range between U^N and U^{SE} . The levels of cooperation and the corresponding utility range of the contract that are achievable under self-enforcement are represented by the hatched area.

The second mechanism of enforcement is represented by the *C&C* schedule in Chart 1: If exists a central enforcer exists – a Court to detect an infringement and Coppers to enforce the court's verdict – that is capable of and willing to implement the contract under pain of penalty, contracting parties conclude their agreement in the “shadow of the law”.³² Under these circumstances parties can agree to a more far-reaching cooperation (between C^N and C^{law} in Chart 1), because any defection will immediately be punished. For the injurer punishment results in a utility amounting to $(H\&R - C\&C)$, which is negative everywhere below the cut-off point C^{law} . Third-party enforcement hence can yield a higher mutual utility than the self-enforcement mechanism (U^{law} instead of U^{SE}). However, as drawn here, the shadow of the law can still not safeguard an optimal mutual cooperation C^{opt} , possibly because the law cannot enforce every little detail of the contract.³³

Chart 2 demonstrates to what extent the efficient enforcement range depends on both *enforcement capacity* and *enforceability*: Under a self-enforcement regime a victim's enforcement capacity is directly dependant on the injurer's time-value,³⁴ the victim's enactment costs of retaliation³⁵ as well as the general ability to cause (political, economic, social, emotional) harm to the injurer. Weak enforcement factors may skew the injurer's opportunity-cost curve downwards (shown as the move from the dotted *S-E* to the solid *S-E'* in Chart 2). Enforceability plays a role for the shape of the short-term hit-and-run curve: Insufficient observability, verifiability and quantifiability make one-time defection more attractive (the *H&R* curve gets skewed to the left, as illustrated in the move from the dotted line to the solid *H&R'* curve): For every level of cooperation, defection pays off more (higher defection utility).

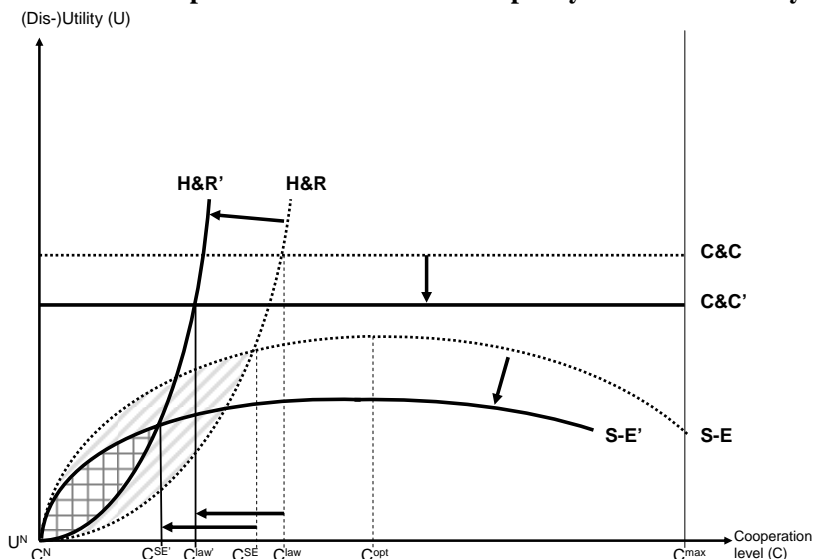
³² Think of line *C&C* in Chart 1 as a liquidated damages clause (stipulating that the victim is entitled to an amount of X units of money whenever the other party reneges from its contract obligations), or as a judge that applies a law protecting the victim and assisted by a policemen that gives effect to the verdict. The shadow of the law effectively stretches from C^N to C^{law} , i.e. over the entire contracting space. Beyond C^{law} no contract is possible, since the gains from defection exceed the punishment.

³³ Other kinds of enforcement than the grim-trigger and external punishment are possible, but are not considered here, since they are just variants or combinations of the two explained mechanisms.

³⁴ The injurer's time value or “discount factor” describes how much the injurer is interested in the current period vis-à-vis future periods. In the extreme case in which the injurer is only interested in today's utility and not at all in the future, a grim strategy has no deterrent effect. Therefore, no agreement would be signed.

³⁵ Any costs connected with enacting a sanction mitigate the victim's power (and willingness) to retaliate. For example, as we will explain in more detail below, it is sometimes argued that a grim trigger strategy is costly to apply for the victim, since it is not only the defecting party that forgoes future benefits of cooperation, but also the punishing party.

Chart 2: The importance of enforcement capacity and enforceability in contracts



Source: authors

Notes: *H&R* stands for “hit-and-run”. The *H&R* curve represents the discounted benefits of defecting from the terms of the initial contract. *S-E* stands for self-enforcement. The *S-E* curve represents the expected costs (disutility) of defection in a self-enforcing agreement. Under a grim trigger enforcement strategy, those costs are tantamount to the foregone discounted value from future cooperation. *C&C* stands for external “court-and-copper”-enforcement. The *C&C* line is the expected disutility from defection (here, a liquidated damage clause) in a contract enforceable by an impartial third party. This graph illustrates the impact of weak enforcement capabilities on players’ willingness to enter into contractual obligations. Spurious enforceability (i.e. if defection is not detectable or not verifiable for an impartial third party or if the damage is insufficiently calculable), skews the *H&R* curve to the left. Inadequate enforcement capacity on part of the victim (lack of retaliatory power) skews the self-enforcement curve *S-E* and the *C&C* curve downwards.

The result of inefficient enforcement depicted in Chart 2 is a smaller self-enforcement range. Less cooperative contracts are possible in the first place: The intersection of the dotted *H&R* and *S-E* curves produces a larger cooperation and according utility range (see hatched area) than the scenario with insufficient enforcement (intersection of *H&R'* and *S-E'* curves) (chequered area).

Enforcement capacity and enforceability are equally crucial for contracts concluded under the shadow of the law: When “court-and-copper” enforcement capacity is weak (e.g. where police or courts are corrupt), the dotted *C-C* line shifts down to solid *C-C'* line. Imperfect detection and conviction of contractual deviation causes a leftwards shift of the *H&R* curve. Hence, under weak third-party enforcement, the possible contract range shifts to the left from C^{law} in Chart 1 to $C^{law'}$ in Chart 2.

Charts 1 and 2 illustrate two important aspects about contracts and contractual enforcement: First, the level of commitment or cooperation that a contracting party is willing to pursue is crucially dependant on his/her ability to enforce the terms of the agreement. A party that rationally anticipates problems with punishing defective behaviour by his/her partner is not willing to make excessive cooperation commitments - even though s/he ideally would want to do so. Second, enforcement is a function of enforceability and enforcement capacity. In particular, a strong enforcement capacity does not protect parties against defection from the letter (or the spirit) of the contract, if the injurer cannot be proven guilty of a specific violation.

3. A critique of models of trade cooperation: Where is the *dispute*?

The schematic representation above shows that (self-)enforcement is more of a *process* than a mere

act of punishment. It consists of a litigation/adjudication phase and of a punishment/remediation phase.³⁶ Whenever either one of the process phases is deficient, contracting parties react by scaling down their willingness to cooperate. It is easy to see that the received theories of trade agreements reduce dispute settlement to remediation; issues of litigation are neglected. As a consequence, these models can afford to focus on enforcement capacity (the shadow of the grim trigger), while disregarding issues of observability, verifiability and quantifiability. This leads us to a more general criticism of economic models of trade agreements. Assumptions (i) through (v) explained in section B above, albeit helpful for carving out a rationale for trade cooperation, suppress all real-life problems occurring *during* and *after* the conclusion of a multilateral contract. In other words, economic theories of trade agreements in their basic form largely ignore (i.e. model away) all those imperfections that may occur during the *contracting phase* (i.e. before the contract is signed) and during the *performance phase* of the trade agreement. These imperfections – although omnipresent in the real world – do not influence signatories’ decisions to cooperate or not, and so are considered “excess baggage” in pure models of trade cooperation. This renders unnecessary any treatment of disputes, enforceability and institutions.

In sum, any theory that motivates the presence of a dispute settlement institution must have in place a *theory of disputes*. For disputes to occur, some sort of market imperfections must exist. Under the clinical set of assumptions described above, enforcement is reduced to punishment or even more precise, to the threat thereof. In reality, we regularly witness trade disputes over terms of the contract. Those disputes are then brought before a dispute settlement institution and eventually are enforced in other ways than through the total breakdown of the contract.

D. WHY DISPUTE SETTLEMENT INSTITUTIONS MATTER: EXTENDING MODELS OF TRADE COOPERATION

How can trade disputes and dispute settlement institutions be integrated into what are essentially models of punishment? Reconciling analytical approaches to the rationale for trade agreements with those for trade institutions is not a straightforward exercise, precisely because the former assume away the very reasons for the existence of the latter. We follow a method developed by the discipline of “new institutional economics”.³⁷ Thus, in order to explain both the presence of trade disputes and independent dispute settlement institutions, we examine what insights may be gained from factoring in aspects of *enforceability* into traditional models of trade cooperation. This can be achieved by relaxing one (or more) of the five key assumptions presented above. International economics and political economy scholars have already taken on this task, albeit in an eclectic and incomplete manner. We will review and evaluate the existing literature on dispute settlement institutions in a structured and systematic manner. In particular, we analyze and organize the various approaches according to the assumptions that must be relaxed vis-à-vis traditional models of trade cooperation. As a result of this exercise, we get a well-rounded picture of the different and diverse roles that dispute settlement institutions in trade agreements may assume.

³⁶ For the temporal context of enforcement see also footnote 25 above: The issue of enforceability is important in the litigation or adjudication phase, where signatories must find out whether a violation of the rules of the game has occurred. Subsequent to a litigation phase is the punishment phase. Once a contractual deviation has been observed and detected, enforcement capacity plays the dominant role.

³⁷ In order to add realism and to explain the existence of institutions, economic institutionalists have relaxed some of the confining assumptions of standard economic theory, such as perfect competition, zero transaction costs, constant returns to scale or unlimited rationality of agents. Factoring in market imperfections of this sort has opened the floodgates to a new economic school of thought. See e.g. Coase (1937); Williamson (1979); North (1990); Menard (2004); North (2005); Williamson, (2000). The discipline of new institutional economics was honoured with two Nobel Prizes in 1991 (Ronald Coase) and 1993 (Douglass North, Robert Fogel).

1. The presence of transaction costs: The dispute settlement institution as a central forum and information repository

Assumption (v) above used by traditional models, maintains that there are no frictions that impede inter-state interaction, both before and after the conclusion of the agreement. Abandoning this assumption motivates a simple role for a dispute settlement institution. By assuming the role of a forum to negotiate a possible solution, a dispute settlement institution reduces transaction costs. Ludema (2001) argues for a single unified dispute settlement body. Instead of having to argue, plead and litigate bilaterally in multiple forums and according to different procedures, it is economical to deal with disputes in a centralized fashion.

Once transaction costs are taken into consideration a case can be made for the informational role of a dispute settlement institution.³⁸ By acting as an “institutional memory” – storing, archiving, retrieving, editing, processing and publishing crucial information – a dispute settlement institution reduces transaction costs and increases transparency. It may be too costly for every country to generate and process this information on its own. Even if that were not the case and Members could individually extract the same data, unnecessary duplication may occur. In addition, a neutral body can provide information to non-signatories (such as other intergovernmental organizations, non-governmental organizations, traders and other private actors) that may be affected in one way or another.

2. Questioning the “grim trigger” assumption of enforcement: The dispute settlement institution as an honest broker

Traditional models of trade cooperation usually assume that enforcement involves maximum punishment – that is, the grim trigger strategy.³⁹ Some authors have questioned whether one-time defection really leads to a complete breakdown of the contractual system (an inevitable consequence of assumption (i) *supra* at footnote 17) (Downs and Rocke, 1995; Klimenko et al., 2002; Furusawa, 1999). It is argued that an affected party’s threat to revert to non-cooperation is not credible, since such a strategy is costly to apply: By returning to protectionism, the punishing party foregoes its share in the overall gains from international trade.⁴⁰ Instead of “shooting itself in the foot”, the affected party has an incentive to return to the negotiation table in order to access the benefits of future cooperation. With this knowledge, parties may have an incentive to deviate from the terms of the original agreement. They can reasonably hope that their behaviour would not trigger a mutual trade war, since everyone has an incentive to resume cooperation.⁴¹

In order to forestall this kind of opportunistic behaviour and the detrimental dynamics it may entail,⁴²

³⁸ This is consistent with a strand of international relations literature called “neoliberal institutionalism” that is usually associated with the works of Keohane (1984) and Oye (1986).

³⁹ A few formal models may count as exceptions: Ethier (2001); Rosendorff (2005); Rosendorff and Milner (2001); Herzing (2005); and Bagwell and Staiger (2005). Those models, however, do not explain the nature of trade cooperation. In addition, they assume the possibility of escape clauses, i.e. contingency rules, where a one-time deviation for exceptional reasons is tolerated.

⁴⁰ Throughout this chapter we refer to the party affected by a trade-related policy as the “affected party” and to the enacting party as the “offending party”. No positive and negative connotations are hereby implied; we do not mean to prejudge whether or not the trade-related policy has been taken legally or illegally.

⁴¹ Robert Keohane (1984) also questions the relevance of the grim-trigger punishment scenario in repeated games, albeit for different reasons. According to the author, the longer successful trade carries on, the more expectations of signatories will converge. Contingency protection and equivalence in retaliation can effectively replace grim trigger responses when players trust each other. A neutral dispute settlement institution can help to achieve and maintain that trust in the system.

⁴² Note that if the grim trigger response is a non-credible threat, the dominant strategy for all countries may be to (partially) defect from the initial agreement. This can prevent the contract from being concluded in the first place.

a dispute settlement institution may be empowered to act as an “honest broker” (Thompson and Snidal 2005), whenever a defection from the terms of the initial agreement occurs. Klimenko et al. (2002) show that this neutral body must be vested with the authority to rule and that parties must not be able to exert undue influence on its verdict.⁴³ Importantly, dispute resolution will occur with a delay, implying time costs (lost cooperation) that parties cannot control. While the dispute settlement body has no actual enforcement power over countries, its ability to delay judgement and to impose (*ex ante* unknown) costs on both parties can serve as a credible punishment.⁴⁴ The institution as honest broker forces parties to make a trade-off between undisturbed beneficial cooperation and costly trade disputes. Hence, the mere presence of a neutral dispute settlement institution provides parties with an *a priori* incentive to honour commitments.⁴⁵

3. The presence of asymmetric information: The dispute settlement institution as an information disseminator and monitor

The presence of private (asymmetric) information (relaxing assumption (iii) above) is another factor that provides a role for an independent dispute settlement institution. For example, sometimes, countries may depart from their commitments on account of “special circumstances” envisaged in an agreement. In contrast to the assumption of symmetrical information maintained in traditional trade cooperation models, parties are often asymmetrically informed about whether or not these special circumstances have really occurred and to what extent they would justify a temporary departure from obligations.⁴⁶ Private information about contingency conditions may lead to strategic misrepresentation if the party concerned stands a chance of not being discovered (Copeland, 1990) and consequently to disputes which can spiral out of control if countries retaliate and counter-retaliate.

In such situations, a neutral dispute settlement body may request and collect relevant information in an unbiased manner and diffuse it to other parties.⁴⁷ Affected parties may also be able to inform

⁴³ To be sure, dispute settlement need not necessarily be carried out by a formal dispute settlement institution. Other signatories to the agreement who are not involved in the dispute could take over this task if they are considered independent and neutral. However, in a repeated-game setting with a limited number of actors, neutrality can be assumed to wane over time.

⁴⁴ In this model, absent a neutral body, countries would not resolve the dispute among themselves, as they would always renegotiate disciplines to restore cooperation more quickly. In the words of Klimenko et al., “external enforcement is valuable precisely because the countries are unable to manipulate the parameters of the enforcement process” (Klimenko et al., 2002: 4). Countries would always be back to square one. The authors reject approaches that explicitly link renegotiation outcomes to the history of policy choices. They cast doubt on the assumption of reduced bargaining power of the defecting country or the existence of smaller sets of possible agreements following defections (as assumed, for instance, by Ludema, 2001; see above footnote 30). They contend that bargaining power is history-invariant and that only independent dispute settlement will help countries condition their agreements and future policies on past actions.

⁴⁵ The value of a lengthy (and therefore costly) adjudication process in trade disputes is also derived by Ethier (2001) and Reinhardt (2000) – albeit for different reasons. Both authors see the institution as a “tool” rather than an agent. Ethier assumes that parties are able to punish a defection instantaneously, but choose to delay instead. Lengthy procedures provide for an unsanctioned “breather” (temporary escape) during which an injurer can *de facto* violate the agreement without punishment. Reinhardt sees the dispute settlement institution as a mechanism to maintain bilateral uncertainty over its actual enforcement power. Due to this uncertainty, lengthy adjudication procedures (high transaction costs) increase the chances that international conflicts are solved cooperatively. A speedy ruling would be counterproductive, since the lack of uncertainty over the ruling would motivate parties to settle early according to present power relationships. By contrast, Ludema (2001) and Kovenock and Thursby (1993) argue that lengthy procedures are a disadvantage of dispute settlement frustrating its role to reduce transaction costs and information asymmetries.

⁴⁶ Presumably, the defecting party is better informed than those affected by its actions. For the party affected by a measure it is difficult (costly) or impossible to assess whether or not the event (e.g. a balance-of-payment crisis), in response to which the measure is taken, has indeed occurred.

⁴⁷ Note that under the conjecture of *symmetrical* information among parties, there is no reason to believe that disputes occur, let alone that an independent dispute settlement body possesses any better

themselves about the violation-history of their trade partner. Once a party considers another party's action not to be covered by the provisions of the contract, it may proceed with its claims.⁴⁸ In the field of institutional economics, the role of institutions as information providers to uninformed parties has long been recognized and documented. The literature on law merchants, for example, explains a system of neutral intermediaries within merchant guilds in medieval Italy. Law merchants acted as information collectors and disseminators to traders (notably on each other's credentials) who had never interacted before (e.g. Milgrom et al., 1990; Greif et al., 1994).⁴⁹

4. Trade agreements as incomplete contracts: The dispute settlement institution as an active information gatherer, adjudicator and arbitrator

If the assumption of an unchanging environment is relaxed (assumption (ii) above), uncertainty over future contingencies will then lead to incompleteness of the contract.⁵⁰ Based on a methodology developed by Battigalli and Maggi (2002), Horn et al. (2005; 2006) have demonstrated that in a dynamic, non-stationary world it is both rational and efficient for contracting parties to refrain from writing a fully contingent contract.⁵¹ In this way, governments accept uncertainty over future conditions in the world and possible policy responses that may prove desirable.⁵² Under such circumstances, a neutral dispute settlement institution may assume several further roles.

(a) The role of an information gatherer

Whereas under subsections 1 and 2 above information repository and disseminator functions were considered, a neutral dispute settlement body can also act as an active gatherer of new information if the assumption of an unchanging environment (and hence complete certainty about future events) is relaxed. Hungerford (1991) models uncertainty over future events and the related emergence of new (and asymmetric) information as random import demand impacts (exogenous shocks) and the non-tariff barriers (NTBs) enacted by a party in response to such a shock. In a contracting environment, where exogenous shocks disrupt trade flows, but where each party has an incentive to defect by secretly enacting NTBs, an independent dispute settlement institution can support parties by gathering information about the true nature of an observed outcome. It can find out whether an external shock has indeed occurred (in response to which the NTB may be legitimately taken) or whether the

information about possible defections than Members themselves.

⁴⁸ See Maggi (1999), Kovenock and Thursby (1993), Hungerford (1991), Ozden (2001), Büttler and Hauser (2000) and Bagwell and Staiger (2002, Chapter 6) for an elaboration of the information gathering and transmission role of an institution in trade disputes.

⁴⁹ In matters of dispute settlement the neutrality of the institution – and hence its autonomy – is essential. If a dispute institution is known to be “captured” by one powerful Member, its reputation as a reliable and credible source of information and judgement diminishes in the eyes of the other Member (Milgrom et al., 1990; Abbott and Snidal, 1998).

⁵⁰ See for example Dunoff and Trachtman (1999), Downs and Rocke (1995), Rosendorff and Milner (2001), Ethier (2001), Rosendorff (2005), Roitinger and Hauser (2003), Horn et al. (2005; 2006).

⁵¹ According to the authors, trade agreements can be called “rationally incomplete contracts”. The transaction costs involved in researching, writing and bargaining over treaty obligations and permitted policy instruments under the full range of possible environmental conditions simply make contractual completeness impractical. The costs involved outweigh the potential gains from trade. This is typically the case with complex contracts that feature a large number of low-probability contingencies, as well as a great variety of possible responses to such events. The major contribution of Horn et al. (2005; 2006) thereby is that the authors endogenously derive contractual uncertainty over future events – and consequently the incompleteness of the contract – without having to give up the crucial tenet of rationality. Even rational parties find it too difficult to anticipate, evaluate and write down every possible detail that the future may bring.

⁵² Uncertainty usually is understood very broadly in the trade context as the existence of unanticipated political, economic, technological or natural contingencies (such as demand shocks, technological breakthroughs, recessions or instances of *force majeure*). Uncertainty, however, can also concern policy instruments and their “trade-relatedness”. See Ethier (2001) or Milner and Rosendorff (2001).

Member in question has instead enacted a prohibited NTB.⁵³ That way, the information gatherer helps to limit undesirable (and unfair) punishments by providing crucial evidence to those affected by a measure. This prevents the system from spiralling into a retaliatory trade war and secures higher initial liberalization commitments.⁵⁴ Kovenock and Thursby ascribe a similar role to independent dispute panels as a “device that distinguish[es] between true deviations ... and mistaken perceptions ... that such a deviation has occurred” (1992: 167).⁵⁵

(b) The role of an arbitrator and calculator of damage awards

In case of uncertainty (and the emergence of asymmetric information often associated with it), an institution may fulfil yet another role. Unforeseen events may prompt a signatory to adapt to the new context by enacting an appropriate domestic policy (say, a health measure or a tariff increase). This – legitimate or illegitimate – policy may have trade implications for other parties. If the latter were always able to observe the occurrence of the conditions that have led the one party to defect and to monitor the effects of the measure it has taken in response, the two parties could in principle agree *ex ante* on commensurate (tit-for-tat) punishments (Sykes, 1991; Ethier, 2001; Furusawa, 1999).⁵⁶ If this simple rule of punishment were followed, the implementation of such a temporary escape measure would not necessarily require the presence of an independent dispute settlement body (Downs and Rocke, 1995; Rosendorff and Milner, 2001; Herzing, 2005). Yet, several authors ascribe a role for the institution even if all parties possess the same knowledge about unforeseen events arguing that since the ultimate punishment can only be determined *ex post*, the involvement of a neutral entity is required to avoid strategic gamesmanship and hold-up behaviour.⁵⁷

In effect, it is likely that both the conditions leading to temporary defection and the resulting damages cannot be observed by all parties alike (Herzing, 2005; Bagwell and Staiger, 2005a). The defecting party may exaggerate the economic shock suffered to justify its measures. Parties affected by a measure are likely to overstate the damage caused. Dissent will follow from a mismatch between the damage claimed and the compensation offered. In the presence of asymmetric information and the incentive to misrepresent the true state of affairs, a neutral body is needed to arbitrate between the disputing parties and to calculate the true damages suffered as the result of a measure (Sykes, 2000; Schwartz and Sykes, 2002).⁵⁸

⁵³ However, Hungerford (1991) does not specify how a neutral body manages to extract such information and why it would do a better job than the affected parties themselves.

⁵⁴ Parties may make more far-reaching trade liberalization commitments if they do not risk punishment for adapting to external shocks. Equally, parties are more likely to make greater commitments if a neutral body deters potential offenders from defecting at their expense.

⁵⁵ In Kovenock and Thursby’s model dispute institutions act as verification agents that detect violations instantaneously if a complaint is initiated. Where exactly the institutions gain this superior knowledge and how they manage to function flawlessly (and costlessly) is not discussed. It has to be noted though that the evidence-collecting role is only mentioned in passing. The main thrust of the paper is aimed at showing that breaking the rules of the treaty burdens an offending party with costs arising from an “international obligation to comply”. These costs are incurred regardless of whether such violations are detected or punished. Their presence therefore contributes to successful compliance by contracting parties.

⁵⁶ In other words, an unconditional escape clause emerges endogenously at the outset of the negotiations of a trade agreement. Both the possibility to react flexibly to political and economic shocks and the voluntary payment of commensurate compensation for damages incurred emerge as a rational negotiation outcome.

⁵⁷ Ethier (2001) specifies lengthy dispute settlement procedures. Rosendorff requires a sufficient level of uncertainty as to the direction of the ruling in order to ensure certain costs are incurred from using an escape clause. Arguably, this requirement is necessitated more by mathematical constraints than economic intuition (Rosendorff, 2005: in particular 398).

⁵⁸ Interestingly, Kaplow and Shavell (1996) find that an independent arbitrator need not be omniscient or operate flawlessly. As long as its judgement is not systemically biased, the organization’s verdict will be acceptable to parties. See also Rosendorff (2005).

(c) The role of an adjudicator

When negotiating the design of dispute settlement, negotiators are aware that they cannot foresee all future contingencies. They create provisions that allow them to respond adequately to previously unforeseen circumstances (Craswell, 1999). Two problems remain: First, as discussed above (under subsection 3), safety valve provisions are often difficult to operationalize. In many instances it is not clear whether a contingency has occurred and whether the event falls under the ambit of an escape clause or whether specific policy measures taken violate the terms of the agreement. Second, in addition to these “efficiency gaps” created by contractual fallback rules, treaties may contain inadvertent gaps (Mavroidis, 2007; Ethier, 2001; Lawrence, 2003; MacLeod, 2006). Parties make errors when negotiating complicated contracts: They omit crucial details, write down contradictory clauses or neglect the dynamic effects of their regulations. In addition, contracting parties may agree on terms that are subject to interpretation, such as “appropriate countermeasures”, “serious injury”, “material damage”, “unforeseen developments”, “like products” or “best efforts”.

Some may argue that whenever parties leave contractual gaps (including when they use ambiguous language) they cease to be “rational” (as assumed in theoretical models of trade agreements – assumption (iv) above). Seen from this perspective, an independent body may always be required to adjudicate, where possible, or else parties may have to renegotiate. However, Tirole (1994) warns against giving up the assumption of rationality in the absence of a theory of “bounded rationality”. The author contends that any theory of bounded rationality and human error should be able to specify when errors occur, why they occur and what the consequences are. He rejects an “errors happen” approach as arbitrary and unscientific.⁵⁹ Horn et al. (2005, 2006) derive the role for institutions adjudicators even without giving up the central tenet of rationality. Thus, as in the previous two subsections, under the assumptions of uncertainty and asymmetric information, contracting parties are conscious of their incapacity to write a complete and flawless contract. Signatories know that the contract cannot be enforced as written, since its text does not fully correspond with what they actually want. The contracting parties are also aware of the fact that private information may provoke strategic misrepresentation of the truth and consequently opportunistic behaviour.

The presence of uncertainty and private information creates the potential for conflicts that can be dealt with in two ways. Either parties agree to disagree about the true state of the world and its applicability to the contract. The affected party (which may or may not be a “true” victim) may decide to take unilateral measures of reprisal, usually referred to as “vigilante justice” or self-help mechanisms. If the targeted party is convinced that its original measures were in line with the initial agreement and feels wrongly accused and punished, this party may counter-retaliate. The dispute may set off a downward spiral of mutual reprisal and end in a trade war situation (Schwartz and Sykes, 2002; Grossman and Helpman, 1995). Alternatively, rational contracting parties (unless or until a new negotiated solution is reached) may wish to defer the solution of conflicts regarding adherence to obligations to an independent dispute settlement body and commit to accepting its rulings. An independent adjudicator may have to interpret the contract in a manner that supposedly corresponds to how the contracting parties would have wanted it, had they anticipated the situation. Interpretations rendered by such an institution may be accepted as precedents and general guidelines for the future.

⁵⁹ See also Maskin and Tirole (1999). However, law and economics scholars have frequently disregarded this advice. They have taken it as “given” (exogenous) that contracting parties regularly make errors when negotiating contracts and that an adjudicating institution exists to help them remedy any unplanned situation. This literature seeks to assess court strategies to help parties continue their contractual relations (so-called relational contracts). See e.g. Barton (1972); Calabresi and Melamed (1972); Macneil (1978); Shavell (1980); Rogerson (1984); Scott (1987); Ayres and Gertner (1989); Schwartz (1992); Hermalin and Katz (1993); Kaplow and Shavell (1995); Cohen (1999); Craswell (1999); and Mahoney (1999). Only a few authors so far have approached international contracts (treaties) from this perspective (Bhandari and Sykes, 1998; Dunoff and Trachtman, 1999; Posner, 1988).

5. Discarding the tenet of rationality: The dispute settlement institution as a “gatekeeper” of the system

If uncertainty over the future is allowed by relaxing the assumptions of stationarity of the environment *and* perfect rationality of trade negotiators (assumption (iv) above), yet another role emerges for a dispute settlement institution, namely that of a gate-keeper of the rules of the game ensuring the security and predictability of the system. In the presence of uncertainty over the future, countries can be assumed to negotiate the details of a trade agreement “behind a veil of ignorance” (Rawls 1971).⁶⁰ The veil of ignorance prompts contracting parties to write a trade agreement that is geared towards the common welfare of all signatories to the agreement, since no party knows with certainty its position decades down the road (Sykes, 1991; Ethier, 2001). Under the influence of the veil of ignorance the trade agreement is perceived *ex ante* as fair and efficient to every participant.

Signatories will then want to confer on the dispute settlement institution the role of a gate-keeper of the previously agreed “rules of the game”. *Ex post facto*, all parties know with certainty where they stand and what is best for them. Thus, they may experience regret over the original terms of the agreement and have an incentive to skew, bend or even change the rules of the agreement to their benefit. The task of a dispute settlement institution is then to prevent countries from diluting, disregarding and renegeing on the original agreement once the “veil of ignorance” is lifted (or fades away) and reality is exposed to the signatories. In the face of pressure by economically and politically influential players to renegotiate or otherwise change an agreement, it may be in the founding parties’ interest to instruct the institution to ensure ongoing commitment to a previously agreed rules-based environment. By keeping an eye on fixed procedures, instruments and timelines, the institution contributes to upholding an environment of reasonably stable and secure property rights over negotiated market access claims.⁶¹

6. Summary: Dispute settlement institutions matter in self-enforcing trade agreements

Once real-world imperfections defined away by traditional models of trade agreements are taken into consideration, the existence of dispute settlement institutions can be explained. Relaxing one or several of the confining assumptions allows us to derive different functions that an independent dispute settlement institution may assume. In the previous chapter we have argued that enforcement can be broken down into issues of enforceability and enforcement capacity (or a litigation phase and the ensuing punishment phase). This chapter has shown that an independent dispute settlement institution can contribute to successful enforcement by enhancing *enforceability* which is a function of observability, verifiability and quantifiability.⁶² Yet, such an institution does *not* have an impact on the enforcement capacity of the affected party. It may provide Members with rulings on whether certain measures constitute violations of the agreement and recommends, if applicable, that party

⁶⁰ A veil of ignorance means that contracting parties do not know the future distribution of gains and losses from an initial agreement with certainty. Negotiations among prospective signatories to a trade agreement take place in ignorance of (i) the identity of future acceding countries; (ii) the economic significance of a country in the distant future; (iii) the role of contracting parties in future trade disputes and (iv) how future contingencies generally are going to impact on signatories’ political and economic well-being.

⁶¹ It can be argued that absent any power to sanction and punish, this gate-keeping role of a dispute settlement institution constitutes less than a monitoring- and information dissemination role. The point here, however, is that behind a veil of ignorance, signatories may be willing to vest a neutral dispute settlement institution with a certain authority. How rulings get enforced is a separate question.

⁶² In assuming the role of an information repository and disseminator, a dispute settlement institution improves the chances of detecting a violation (observability). Taking up the role of an honest broker, information gatherer and adjudicator such a body helps parties to assess what actions are sanctionable according to the terms of the agreement and to achieve a settlement (verifiability). Finally, when acting as an arbitrator and damage calculator, it ensures better quantifiability.

concerned bring these measures into conformity; ultimately, arbitrators may pronounce on the size of countermeasures in the case of non-compliance. Yet, in international trade agreements, there is no equivalent to a national executive body that can put a verdict into effect. In the language used above, the institution cannot provide for “court-and-copper” enforcement; it can merely provide for more effective observability, verifiability and quantifiability. Therefore, “self-enforcement” remains a basic premise of virtually any trade agreement. Successful dispute resolution remains in the hands of the signatories and ultimately depends on the willingness of the offending party to cooperate and/or in the enforcement capacity of the membership to punish the offending party.

E. A “REALITY CHECK”: THE WTO DISPUTE SETTLEMENT MECHANISM (DSM)

So far, we have reviewed economic theory of dispute settlement institutions in the abstract. The preceding chapter has provided (political-)economic explanations of the existence and functions of dispute settlement institutions in international trade agreements. Taking the example of the WTO, we now show that the organization’s dispute settlement mechanism (DSM) fulfils many of the institutional roles mentioned above.

The DSM is the WTO’s instrument for dispute resolution. In the first instance, it provides for consultations and settlement negotiations before resort can be had to the litigation process. In the next step, the complainant requests the establishment of a dispute settlement panel specifying the measure at issue and which provision of WTO law it violates. The parties submit arguments and evidence. In the light of the submissions by the parties, the panel determines the relevant facts of the case relating to the measure at issue. It has the right to gather information so as to ascertain the nature, operation and effects of the measure at issue. The panel also assesses the applicability of legal provisions invoked by the parties, interprets those provisions and applies them to the facts of the case in order to determine whether the challenged measure is inconsistent with the WTO Agreement. When a violation has occurred or trade benefits accruing under the WTO agreements have been nullified or impaired, the Member concerned is required to bring the measure at issue into conformity with WTO law. If it fails to fully comply within a reasonable period of time and compensation is not forthcoming or not considered appropriate by the aggrieved party, it may impose, with prior approval by the DSB, countermeasures equivalent to the level of economic harm or loss in trade benefits caused. Finally, its role as information repository implies that the DSM monitors compliance and keeps official records about the disputes and their settlement. The DSU covers these functions in the following manner:

Central dispute settlement forum: The DSU applies to all covered agreements (Article II:2 of the WTO Agreement and Article 1 of the DSU). In addition, by virtue of Article 23 of the DSU, the WTO DSM has primacy over outside fora as far as the adjudication of disputes under the WTO agreements and the enforcement of WTO law is concerned. Article 3.2. states that the dispute settlement system of the WTO is a central element in providing security and predictability to the multilateral trading system. It serves to preserve (and the recommendations and rulings of the DSB cannot add to or diminish) the rights and obligations of WTO Members under the covered agreements and to clarify the existing provisions of those agreements in accordance with customary rules of interpretation of public international law.

Consultations: The DSM acts as an “honest broker” between disputing WTO Members. Article 4 of the DSU requires that consultations be held between the parties before litigation may be initiated. The aim of consultations is to reach a mutually acceptable settlement of the dispute. In addition, the DSM offers alternative forms of dispute resolution through conciliation, mediation and the good offices of the Director-General. The respective mandate is contained in Article 5 of the DSU. Article 5.1 of the DSU states that conciliation and mediation procedures are voluntary. In addition, Article 3.7 of the DSU stipulates that “[t]he aim of the dispute settlement mechanism is to secure a positive solution to a dispute”. Indeed, on numerous occasions disputing parties have used the DSM to settle their disputes before a final ruling was adopted by the DSB (see Section D.3.(b)).

Information gathering and collection of evidence: Articles 11 of the DSU requires a panel to make an objective assessment of the matter before it, including of the facts of the case. Article 12 and the Working Procedures contained in Appendix 3 of the DSU specify the panel procedures to be followed (unless decided otherwise), including the deadlines for written submissions by parties. In order to obtain additional information or clarification, panels may at any time put questions to the parties and ask them for explanations. In addition, based on Article 13 of the DSU (entitled “Right to Seek Information”), dispute settlement panels “may seek information from any relevant source and may consult experts to obtain their opinion on certain aspects of the matter” (Article 13.2 of the DSU). It is important to note that the Appellate Body is barred from gathering new factual information by virtue of Article 17.6 of the DSU (“An appeal shall be limited to issues of law covered in the panel report and legal interpretations developed by the panel.”). Also, the DSM may only deal with cases WTO Members decide to initiate before them. Panels do not have inquisitorial powers similar to ex officio prosecution by an attorney general or chief prosecutor. Moreover, in contrast to certain international tribunals, panels and the Appellate Body cannot give advisory opinions.

Adjudication: Article 11 of the DSU requires dispute settlement panels to assess objectively the matter before them as to the facts of the case and the applicability of, and conformity with, the relevant WTO covered agreements in relation to the measures in question.

Arbitration and quantification of damages: Articles 22.6 and 22.7 of the DSU authorize arbitrators to determine the level of economic harm and loss in trade benefits suffered by the aggrieved party and to determine, under Article 22.3 of the DSU, in which trade sectors or under which agreements other than those where the violation occurred retaliation is justified. Thus far, there have been 16 instances (in 7 separate disputes), where, following a request for authorization of countermeasures, arbitrators have determined damage awards.

Information dissemination, monitoring and surveillance: Article 2.2 of the DSU instructs the DSB to “inform the relevant WTO Councils and Committees of any developments in disputes related to provisions of the respective covered agreements”. Article 21 of the DSU, entitled “Surveillance of Implementation of Recommendations and Rulings”, obliges the DSB to monitor the implementation of adopted rulings. This surveillance includes those cases where compensation has been provided or concessions or other obligations have been suspended but the recommendations to bring a measure into conformity with the covered agreements have not been implemented” (Article 22.8 of the DSU).

Despite these well-defined functions, the way in which the activities of WTO dispute settlement institutions are carried out has sometimes been subject to debate, in particular in regard to their mandate to interpret WTO law. In interpreting WTO law, dispute settlement panels and the Appellate Body have, on a few occasions, been accused of exceeding their mandate by adding to Members’ obligations or limiting their rights, instead of merely clarifying the ambit of provisions (Davey, 2001).⁶³ According to Article 31(1) of the *Vienna Convention on the Law of Treaties*, “[a] treaty shall be interpreted in good faith in accordance with the ordinary meaning to be given to the terms of the treaty in their context and in the light of its object and purpose.” In addition, the Appellate Body has said, based on Article 31 of the *Vienna Convention*, that treaty interpretation could not occur in clinical isolation from public international law.⁶⁴ Pauwelyn (2001) acknowledges that interpretation

⁶³ Others have criticized WTO jurisprudence for “under-reaching” by giving too much deference to measures taken by WTO Members (for a discussion see e.g. McRae, 2004). For instance, panels and the Appellate Body have been criticized for certain rulings on trade remedies for allegedly having disregarded the standard of review under Article 17.6(ii) of the Anti-Dumping Agreement. Tarullo (2002) and Greenwald (2003), for example, are affirmative, while Durling (2003) and Leibovitz (2001) do not see an excess of mandate.

⁶⁴ Pauwelyn argues that “[f]or a non-WTO rule to play a role in this process, (1) the WTO term in question must be broad and ambiguous enough to allow for input by other rules; and (2) the other rule must say

(even within the relatively strict sense referred to in Articles 31 and 32 of the Vienna Convention) is a matter of definition. However, he emphasizes that interpretation must be limited to giving meaning to rules of law and cannot extend to creating new rules,⁶⁵ which is the prerogative of WTO Members through negotiations. Notably, authoritative interpretations of provisions of WTO Agreements remain the exclusive prerogative of Members' decision-making according to Article IX.2 of the WTO Agreement, as acknowledged in Article 3.9 of the DSU. Pauwelyn's observations are hardly surprising in light of the incomplete contract nature of trade agreements discussed in this paper. To us, this suggests that a lot can be learnt from a theoretical consideration of the different rationales for the existence of dispute settlement institutions in order to better define and circumscribe the responsibilities that such institutions are supposed to carry out in actual trade agreements.

F. CONCLUSION

For non-economists it may be mildly surprising that the discipline appears to have struggled with justifying simple human intuition as to the existence of dispute settlement institutions in trade agreements. In this paper we have shown that the existing literature dealing with "institution-free" models of trade cooperation essentially is one of remediation and punishment – and not of trade disputes *per se*. By successively abandoning the rigid set of assumptions underlying these models, we have been able to justify the existence of dispute settlement institutions in trade agreements. More importantly, we have been able to derive a range of functions that independent dispute settlement institutions may assume. In so doing, we have explained how the literatures of trade cooperation and dispute settlement institutions are connected. Since enforcement is more than punishment, theories of enforcement must also consider issues of investigation, litigation and adjudication, or issues of "enforceability" (consisting of observability, verifiability and quantifiability), as we call it. We believe that these extensions of the theory can help to explain important aspects of the dispute process and may provide guidance as to what the roles of dispute settlement institutions in the real world should or should not be.

The research agenda for this paper was motivated by finding economic (preferably formal) explanations for dispute settlement institutions. This is a narrow focus which to some extent explains why, but cannot conclusively explain to what extent contracting parties to trade agreements cede part of their sovereignty, to a neutral body. Further work could go in the following directions: First, economists may need to go beyond their discipline (including beyond extensions of the rich law and economics (L&E) literature in an international treaty context) and embrace certain approaches adopted by international relations (IR) scholars. The field of IR has recently rediscovered its interest in international organizations (IOs)⁶⁶ and promising advances to understand IOs have been made by principal-agent theorists, by rationalists stressing the link to domestic politics and by constructivists (e.g. Koremenos et al. 2001; Hawkins et al., 2006; Checkel, 2007). Second, in this paper we have treated the signatories to a trade agreement (countries and customs areas) as unitary actors. Addressing this simplification may result in additional roles that dispute settlement institutions in trade agreements may assume. For instance, the relevant governmental entity (say, the executive branch) may grant significant authority to an outside institution in an attempt to prevent other

something about what the WTO term should mean, i.e., there must be some connection with a WTO term for a non-WTO rule to impart meaning to the interpretive process. ... [W]ithin the process of treaty interpretation, non-WTO rules cannot add meaning to WTO rules that goes either beyond or against the 'clear meaning of the terms' of WTO covered agreements" (Pauwelyn, 2001: 572-573).

⁶⁵ The Appellate Body confirmed that "[a]n interpreter is not free to adopt a reading that would result in reducing whole clauses or paragraphs of a treaty to redundancy or inutility" (*United States-Standards for Reformulated and Conventional Gasoline*: 23). Elsewhere, the Appellate Body emphasized that "it is certainly not the task of either panels or the Appellate Body to amend the DSU. ... Only WTO Members have the authority to amend the DSU" (*United States-Import Measures on Certain Products from the European Communities*: para. 92).

⁶⁶ See e.g. Simmons and Martin (2002).

domestic entities (e.g. special interest groups) from challenging earlier decisions or commitment levels.⁶⁷ Finally, we have not discussed (let alone defined) what a dispute settlement institution in a trade agreement really *is*. In the case of the WTO, dispute settlement involves (besides the parties) the DSB composed of representatives of all members, panels of three or five individuals appointed more or less in an *ad hoc* fashion, - in case of appeals - three members of a permanent seven-member Appellate Body each of whom has a four-year term as well as WTO Secretariat staff. Clearly, economists and IR scholars would ascribe to each of these main players their own agenda, which may have significant implications for the functioning of the overall dispute settlement system. With this paper, we hope to have made a first step towards the formulation of a coherent, structured and overarching economic theory of dispute settlement.

⁶⁷ See e.g. Ethier (2001a) or Guzman (2002), who show, *inter alia*, that politicians in the defending country, should an international trade dispute be lost, can blame the outside institution for the need to repeal the disputed measure and may suffer less political harm than if they had given in or settled for a compromise deal on a bilateral basis.

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