

Dluhosch, Barbara; Horgos, Daniel

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Clubbing in trade policies: How much a threat to the multilateral constitution?

Barbara Dluhosch¹ · Daniel Horgos²

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Abstract

Preferential trade agreements (PTAs) have mushroomed over the last decades. However, the various forms of bi- and plurilateral arrangements have always been met with the concern that their proliferation might come at the expense of overall trade freedom because of undermining multilateral governance. This paper starts from the fact that international treaties are notoriously difficult to enforce, as is compliance with (trade) agreements. By focusing on the political economy of how cooperation in trade liberalization is ultimately sustained via the threat of retaliation as institutionalized within the World Trade Organization (WTO), the paper illuminates a novel and completely different channel between PTA membership and multilateral trade liberalization. Exploring their interaction with respect to trade freedom, we explain that PTA membership actually improves on the working of multilateral arrangements that are supposed to ensure cooperation in trade liberalization, thus effectively catering to more open trade.

Keywords International political economy · World trade constitution · Trade liberalization · Compliance

JEL Classification F13 · F51 · C73 · D02

✉ Daniel Horgos
daniel.horgos@bsp-campus-hamburg.de
Barbara Dluhosch
international.econ@hsu-hh.de

¹ Helmut Schmidt University – University of the Federal Armed Forces Hamburg, Holstenhofweg 85, Hamburg 22043, Germany

² BSP Business and Law School, Campus Hamburg, Am Kaiserkai 1, Hamburg 20457, Germany

1 Introduction

Over the past two decades, progress in multilateral trade liberalization as codified under the roof of the World Trade Organization (WTO) has been virtually nil (Evenett 2014; Hoekman and Nelson 2018). The loss of momentum in the Doha round of trade negotiations was already seen as symptomatic of multilateralism in crisis. The COVID-pandemic, nationalist tendencies, and recent geopolitical drifts further paralyzed efforts of advancing multilateral rules in trade (e.g. Aiyar 2023).

The apparent difficulties faced by multilateralism contrast very much with the popularity of bi- and plurilateral trade agreements, aka preferential trade agreements (PTAs),¹ which at the same time, had been literally mushrooming.² In economic research, clubs in trade policies have always been met with reservation though. Since Viner (1950) seminal work on the customs union issue, PTAs are known to be ambiguous in character. On the one hand, they are said to be trade creating; on the other hand, they are viewed as trade diverting, with specialization patterns and trade flows consequently being distorted between insiders and outsiders. By promoting intra-club trade, they may thus undermine extra-club trade as well as attempts to global trade liberalization. The political economy of PTAs is often considered to add to their trade-diverting impact, thus compounding negative welfare-economic implications. In particular, the “Spaghetti-bowl pattern” (Bhagwati 2008) of overlapping PTAs is regarded a gateway for special interests in import substitution that exploit the opacity of the system to their own benefit. On a similar account, rules of origin specific to preferential trade under free trade agreements are at risk of being shaped by special interests (Krueger 1999).³

Mattoo et al. (2022) find evidence that trade diversion with respect to non-members is mildened insofar as PTAs also extend to behind-the-border measures (so-called “deep agreements”, including also investment, intellectual property, regulations and standards). Focusing on PTAs, which are especially geared towards intellectual property, Maskus and Ridley (2021), though, show that effects on third countries might be very diverse, with impacts depending on the precise character and the actual partners in the agreements. Work by Blanga-Gubbay et al. (2023), by including issues of lobbying for particular arrangements, suggests that deep agreements might well have distortionary impacts when accounting for political-economy issues.

¹ Due to their distorting character economists (including ourselves) mostly refer to those agreements as Preferential Trading Areas (PTAs) whereas in WTO speak PTAs pertain to non-reciprocal (preferential) schemes mostly relating to developing countries. All other arrangements, by contrast, are classified by the WTO as Regional Trade Agreements (RTAs), regardless of their geography.

² See the WTO’s (2022a) RTA Gateway for data.

³ The overwhelming majority (317 out of 355 in Jan 2023) of PTAs notified to the WTO are Free Trade Areas (FTAs), which therefore are not as liberal on trade as the term might suggest. The WTO itself seems to share in the skeptical view. Article XXIV in the underlying General Agreement on Tariffs and Trade (GATT) states that preferential trading areas are only compatible with the GATT’s multilateral approach if they comply with conditions as listed in the “Understanding of Art. XXIV” (see also the WTO’s 2011 Trade Report, which was devoted to this issue).

This paper joins the controversial debate on PTAs with reference to multilateralism, however, by illuminating a completely different channel by which PTA membership might affect multilateral rules, and thereby, overall trade liberalization. Approaching the issue of the coexistence of multilateral and preferential rules from a constitutional political economy (CPE) perspective spotlights questions of compliance and enforcement. According to Buchanan (1975, 64 et seq.), any form of social contract requires to look beyond the narrow boundaries of the agreement on the rules themselves by recognizing that the agreement also has a post-constitutional dimension. The post-constitutional dimension entails incentives, which might induce one or the other party to the agreement to nevertheless defect ex post from the initial contract – despite having previously agreed to the rules. This is why enforcement and arrangements thereto are of utmost importance for rules to be effectively binding. Rules only take effect if they are also enforced. Sutter (1997) and Hamlin (2014, 76 et seq.) provide an extensive discussion of what might be called an inclusive approach to rules and enforcement structures (or consent and compliance) in a CPE perspective.

There is a burgeoning research on institutional arrangements with respect to enforcement under the roof of the WTO per se. Bown and Keynes (2020), for instance, explore the consensus on enforcement procedures and recent issues of US cooperation in WTO dispute settlement; (Bercero 2020; Evenett and Baldwin 2020), and Mavroidis (2022) discuss more generally possible pathways to reforming dispute settlement under the roof of the WTO in light of the institution's record since 1995.

Contributions focusing on issues of enforcement in PTA and WTO arrangements combined are much fewer in number, and they zero in on very diverse aspects. Bond et al. (2004) sort out a tariff complementarity effect in multilateral and bilateral trade, in, however, what is a single-period PTA model that does not distinguish between the constitutional and the post-constitutional level. Horn et al. (2010) find PTA agreements by the EU as well as the US often containing provisions beyond WTO obligations, with those by the EU, however, often resembling “declaratory diplomacy” and too diffuse to be enforced and with those by the US more of a regulatory type and easier to enforce. Hence, they use WTO arrangements and enforcement primarily as a baseline. Gomez-Mera and Molinari (2014) find a “trickle-down” effect in that experience with multilateral dispute settlement increases the propensity of countries’ to issue complaints within PTAs. Hoekman (2020) considers the rise of trade conflicts a result of the limited scope of, both, PTA and WTO agreements. Li and Qiu (2021) investigate empirically how bilateral PTA-status affects trade disputes between PTA-members by drawing on records of the WTO, the various PTAs, and news paper articles. Based on a dyadic data set, they conclude that PTA membership (in the form of FTAs) generally reduces the potential for trade conflicts. Although they adopt a comprehensive perspective on trade conflicts by including those brought to the WTO, they not explicitly model issues of enforcement and their leverage on trade liberalization. Petersmann (2021) considers PTA enforcement an important stepping stone and prerequisite for constraining special interest and power politics at the multilateral level, thus taking some load off the WTO.

Yet, how compliance with WTO rules is affected by the proliferation of clubs in trade and thereby affects trade liberalization world-wide is surprisingly under-researched. In addition, studies are primarily empirical in nature, thus lacking a theoretical explanation of the effects. We present a theoretical tool set featuring triangular trade with and without PTAs which allows us to analyze how clubbing impacts the enforcement of multilateral rules with particular reference to world trade. We thus adopt a positive approach to the constitutional political economy of multilateral institutions in trade, and, with the approach augmented by evolutionary game theory. The reason for synthesizing both perspectives is the fact that enforcement of multilateral rules in trade policies has two components. It firstly entails the judicial review of the compatibility of a country's trade policies with the WTO agreements. Secondly, and subsequently, it rests on the principle of reciprocity by means of authorizing a strategy of tit-for-tat (TFT). Compliance thus ultimately depends on how much of a leverage the threat of retaliation develops. By focussing on the leverage of threats in an evolutionary perspective, we can identify parameter values in trade conflicts for which cooperation in trade liberalization is sustainable. Comparing these values with and without PTAs, suggests that PTAs impact the leverage of TFT at the multilateral level in a favorable way. The positive impact of PTAs on (multilateral) trade liberalization is partly due to the (endogenous) trade creating and trade diverting effects and the special interests affected thereby. The theoretical tool set thus delivers new insights into the relationship between multilateral and preferential trade agreements and their combined impact on rules-based trade. Besides delivering on theoretical insights, it is capable of explaining stylized facts on trade liberalization, multilateral enforcement and PTA membership, which otherwise might seem puzzling. Work by Freund and Ornelas (2010), Limão (2016, Sect. 6.2), and Saggi et al. (2018), for instance, also consider PTAs more favorable with respect to multilateralism by emphasizing the endogeneity of trade policies with respect to PTA-outsiders (and vice versa). We highlight another, and different, channel by bringing in issues of enforcement in the endogeneity of trade policies which may add explanatory power to these empirical results.

The paper proceeds in six steps. Section 2 looks at the rules with respect to enforcement procedures at the multilateral level, and it presents stylized facts on matters of cooperation in trade liberalization, multilateral enforcement and PTA membership. Section 3 outlines a theoretical model capable of capturing essential aspects pertaining to enforcement in the overlapping triangular relationship of countries, clubs and multilateral institutions. Section 4 models trade policy by means of merging a public choice approach to tax policy with the choice of trade regimes. Section 5 then explores incentives with respect to strategies as to trade (policy) regimes, including the potential for conflicts with and without some subset of countries forming a PTA (FTA). Section 6 extends the perspective on incentives as to cooperation at the multilateral level with enforcement in repeated interaction, and Sect. 7 concludes.

2 (Stylized) facts on multilateral enforcement, PTA membership and trade liberalization

2.1 Institutional arrangements for making international rules effective

While nation states vastly differ in their performance as to rules and governance, their judiciary in conjunction with the coercive power of the state and the division of powers including checks and balances is – in principle – capable of ensuring (post-constitutional) rules-based behavior. Because of the sovereignty of nation states, mechanisms of enforcement at the international level differ though from those at the national level. The sovereignty of nation states adds the benefit of systems competition and rules according to local preferences, but it lacks similar institutional arrangements for enforcement. The lack thereof *ceteris paribus* weakens rules-based policies and compliance *ex post*.⁴

As to trade policies, there are institutional arrangements in place, which try to shore up the multinational trade order by mimicking in some respects those of nation states. With the WTO in 1995 came explicit procedures and routines for post-constitutional conflict resolution and court-like institutions in the form of the Dispute Settlement Understanding (DSU) and the Dispute Settlement Body (DSB), whose decisions are prepared by a Dispute Panel and the Appellate Body. If the government of a member state considers some (trade) policy of another member state as in violation of the WTO agreements, it may opt for taking the issue to the WTO DSU for examination by the respective bodies.

Although, on face of it, arrangements for enforcement of rules as to trade policies thus resemble somewhat those for constitutional law at the national level, by and large, the international institutions themselves have to rely on soft power. First and foremost, procedures as well as concurrent reviews of trade policies provide information and transparency about the trade policies actually conducted to the international community, supposing that governments of member states shy negative publicity (on matters of information and reputation see, for instance, Maggi (1999) for an assessment). Second, in the event of ruling policies as violating the multilateral treaties in a dispute, the DSU and the respective bodies explicitly allow for (limited) retaliation and countervailing measures by complaining member states against those found non-complying, a strategy, which, based on the treaty, would otherwise not be considered legitimate. Insofar, the process of actually carrying out the enforcement is handed back to the governments of the complaining member states. Moreover, parties (i.e. governments of nation states) involved in the dispute rather than an independent third party are then in charge of executing retaliatory measures in TFT manner. However, procedures rest on the expectation that the pure threat of retaliation already works as a deterrence, thus inducing governments of member states to

⁴ It might ease the conclusion of a treaty though and thus be the reason for loopholes and safeguards which later trigger problems of enforcement. See Congleton (2020) on the specificities and common features of international treaties from a CPE perspective.

comply in the first place. As far as the expectation holds, rules become effectively self-enforcing.

Regarding reciprocating behavior to sustain cooperation, the exact details with respect to strategies are not undisputed. Observations in the socio-economic realm are in line with insights from theoretical and experimental work by Rapoport and Chammah (1965), Maynard Smith (1976), and Axelrod and Hamilton (1981), which has demonstrated that especially reciprocating behavior in tit-for-tat manner plays a crucial role in governing social relationships with repeated interaction, there, however, at an individual level or within small-group settings.

Analogous procedures of (credible threats as to) retaliation in international (trade) policies are nevertheless often met with reservation. The reluctance is based on fears of triggering a spiral of protectionism, thereby achieving the opposite of the intention or serving special interests, which might culminate into a costly ‘trade war’.⁵ While thus on face of it somewhat counter-intuitive and also subject to much criticism, the DSU is considered nevertheless a major pillar of multilateral trade agreements in keeping de facto trade policies in line with any de jure trade liberalization previously agreed upon.

2.2 Stylized facts on the effectiveness of enforcement

The number of issues submitted to the DSU is often cited as evidence of its standing in solving trade conflicts. This is even found with respect to the United States, which accused the WTO in the late 2010s of judicial overreach and subsequently provoked the paralysis of the DSU in the early 2020s by blocking the appointment of Appellate Body members: Schott and Jung (2019), for instance, point out that, contrary to perceptions by the Trump administration, the US even won 20 out of 23 complaints raised against China (with three cases still open at the time when they gradually withdrew from the appointment process in 2019).⁶

Supposing that the ultimate goal of post-constitutional enforcement by the DSU is to maintain an open world trading system, overall numbers on the settlement of trade conflicts by the WTO on the one hand and international freedom of trade on the other hand provide further information on the effectiveness of enforcement procedures. The left hand panel in Fig. 1 lends support to the notion of the multilateral institutions effectively sustaining cooperation in trade liberalization. It plots data on trade freedom of individual countries (as a proxy for cooperation in maintaining an open world trading system) against the total number of disputes each country was involved in up to 2022 (either as complainant, respondent or third party) in the WTO Dispute Settlement Process (see WTO 2022b for the data). Each dot thus refers to a

⁵ Bekkers et al. (2021), however, argue that trade conflicts mediated by the WTO do not qualify as ‘trade wars’. Martin and Vergote (2008) explore retaliation not mediated by the WTO. On a similar account, Mavroidis (2016) looks into the specific characteristics of reciprocity in WTO dispute settlement. And Herrmann-Pillath (2006) thus distinguishes between specific and general reciprocity, with the latter (and unlike the former) a fundamental pillar of trade regimes in CPE perspective.

⁶ See Goldstein (2017) for a survey.

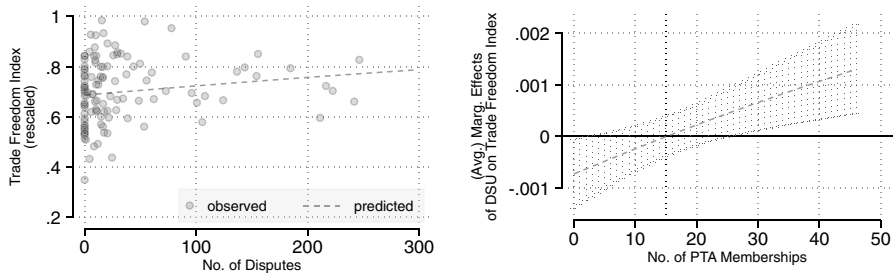


Fig. 1 Stylized facts on enforcement of the multilateral constitution of trade, trade freedom scores (by country) & PTA membership (source of raw data: WTO 2022a, 2022b, Fraser Institute 2022, controls: World Bank 2022)

particular member country of the WTO, except for the EU and the US so as not to bias the correlation by any two of the large players.⁷ Data on trade freedom is taken from the 2022 Fraser Institute's index of freedom to trade internationally.⁸ The index amalgamates information on revenues from trade taxes (relative to trade), and (the mean of) tariff rates as well as their variance, with the final score as to trade freedom for each country measured on a scale ranging from zero (low) to one (high).⁹

Apparently, stylized facts based on these raw data for each country cater to the notion of an upward sloping relationship. The dashed line in addition summarizes predicted scores derived from the (bivariate) correlation statistics between both variables, that is, the frequency of enforcement consultations by each country on the one hand and the trade freedom score on the other hand. In order to take into account that the outcome scale is bounded with continuous zero to one data, predictions of the dependent variable (that is, freedom to trade internationally), have been derived by means of fractional logistic regression.

The raw data as well as the bivariate correlation thus show a positive relationship between both variables: countries, which, according to the WTO DSU Gateway, were up to 2022 more often involved in post-constitutional enforcement were less protectionist than those enlisted in fewer cases. The seemingly positive impact of the enforcement procedure comes out even stronger when considering that enforcement by means of retaliation or the threat thereof is usually not (directly) applied vis-à-vis least developed countries as defined by the United Nations (although implications may nevertheless operate). While bivariate correlations might possibly be driven by other (omitted) variables, the positive leverage of the DSU has actually

⁷ As of Dec 31, 2021, the US was in one way or another (as complainant, respondent or third party) – by far – the country involved in the largest number of cases recorded by the WTO DSU Gateway, followed by the EU (WTO 2022b).

⁸ Although other indicators, such as those published by the Heritage Foundation (2022), which are also used by the World Bank (see <https://tcddata360.worldbank.org>), differ somewhat from those of the Fraser Institute as to their composition, they, up to now, nevertheless yield a similar pattern of the relationship between the DSU conflict resolution and trade freedom data.

⁹ Whereas the original data is scaled from 0 to 10, data in Fig. 1 has been rescaled in order to ease the handling of regressions within bands and to harmonize the exposition of results in the two panels.

been substantiated by previous empirical research with more historical data, which included additional variables such as, for instance, incomes, and by means of panel data analysis (e.g. Binder et al. 2018). Although far from perfect (and notwithstanding a number of deficiencies of the procedures), data are thus in line with the DSU having contributed to sustaining a liberal multilateral trade order.

However, these stylized facts on the effectiveness of the multilateral institutions in safeguarding a liberal trade order not only clash with the widespread critique of the institutions but seemingly also with the popularity of RTAs, which virtually exploded since 1995. Although varying in scope, the WTO RTA Gateway recorded 355 regional trade agreements in force by the end of 2022, with more than 300 of them having been implemented since 1995. The vast majority of these agreements, though, are free trade agreements: they represent joint rules for trade among member countries while granting them autonomy with respect to trade policies vis-à-vis non-member countries. Formally, the WTO eyes them in particular because of them potentially being in conflict with the Most-Favored Nation (MFN) Principle enshrined in the multilateral agreements on trade (based on the GATT 1947, which is part of the WTO agreements). According to Art. I of the GATT, member countries commit themselves to not discriminate between member countries by special treatment of particular members.¹⁰ One straight forward (economic) interpretation of the formal rules is to avoid third parties being negatively affected by trade diversion along Vinerian lines.

As to enforcement, many of the PTAs bring their own rules for solving trade conflicts specific to the members of the club (see the survey by Allee and Elsig (2015), and the data by Hofmann et al. (2019) and Dür et al. (2014/2022)).¹¹ Notwithstanding matters of effectiveness in dealing with their own affairs, the proliferation of PTAs itself raises the question whether and how the increasing number of rules with respect to world trade affects enforcement at the multilateral level. The right-hand panel in Fig. 1 provides a glimpse at the data. While methodologically sharing the fractional logistic regression approach of the left-hand panel, it includes additional variables to gain information about the effectiveness of the DSU. Besides controlling for the usual suspects, in particular, factor endowments, incomes and least developed countries-status, it focuses on the interaction effect between PTA membership and the DSU enforcement mechanism on trade freedom. Accordingly, PTA membership matters: once having reached a pivotal number, the membership in PTAs apparently enhances the effectiveness of the mechanisms of enforcement at the multilateral

¹⁰ The MFN principle applies with the exception of RTAs (or PTAs for that matter) under Art. XXIV.

¹¹ As Mavroidis and Sapir (2015) have observed, disputes among members of a PTA are seemingly also less frequent, which not per se affects the number of conflicts brought to the WTO, but also has a favourable impact of enforcement at the multilateral level. Our analysis in Sect. 3 suggests why PTAs may unfold a positive leverage: members of PTAs are usually more similar, with trade having less of a distributional impact on organized interest groups and fewer trade conflicts within (or, in case of the EU, with a common trade policy, probably taking place via other policies). With the countries being more similar, they are more likely to enter disputes at the multilateral level joining as third parties, thus increasing the leverage of the multilateral enforcement between non-members and their PTA. Work by Melillo (2019), though, suggests that numbers of intra-PTA conflicts may underrate the use of enforcement mechanisms within PTAs.

level. The (average) marginal effect of the DSU solving trade conflicts on the freedom of trade is positive, and significant (at the usual 95 percent level). In the right-hand panel, the estimated marginal effects are displayed by the dashed line with the values falling within the 95 percent confidence interval marked by dots around the dashed line. Proxies of trade freedom other than those of the Fraser Institute yield a similar pattern.

Naturally, the on and off in memberships as well as accessions and their widely different scope preclude a more thorough and in-depth empirical analysis which also makes use of panel data. This is first and foremost an issue of lack of more granular data on these matters. Moreover, data issues also entail a methodological twist pertaining to the question of whether countries inherit (or lose for that matter) credibility, which has been established by other members (or previously by the respective countries themselves).¹² However, the leverage PTA membership seemingly provides to enforcement at the multilateral level raises the question of how to explain the interaction effect. The implied strengthening of the multilateral arrangements as to enforcement might come as a surprise. If anything, the fragmentation of rules-based trade and the additional opportunities of protectionism in disguise suggest that the proliferation of PTAs rather has the opposite effect. The next section will offer a constitutional political economy explanation as to why PTA membership also strengthens enforcement of rules-based trade liberalization at the multilateral level.

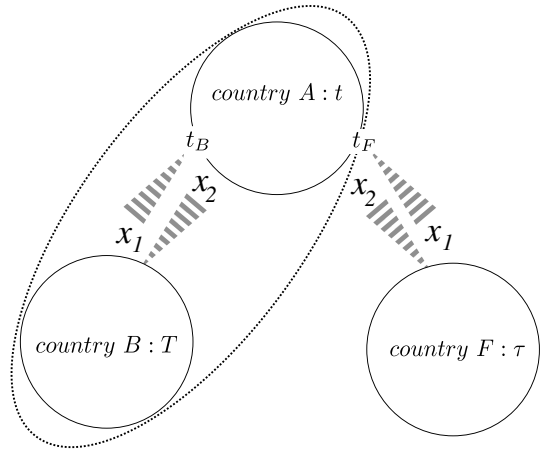
3 A tool set for analysing compliance with and without PTAs

Consider a world economy that consists of three countries A , B and F in a triangular trade relationship with two of them (A and B) possibly a PTA. Other than that countries B and F are assumed to be symmetrical. This setup allows to compare multilateral governance with particular focus on dispute settlement and compliance with and without the PTA. Figure 2 shows one such nexus that is suited to examine how trade without and with preferential trade affects TFT-driven cooperation as institutionalized in multilateral dispute settlement.

As indicated, trade in goods 1 and 2 can take place either between countries A and B or between countries A and F . For reasons discussed below, good 2 can be considered the potential export good of country A , good 1 the potential export good of countries B and F . Because suppliers in countries B and F compete for the same market, imports of country A are most likely mixed, with the mix depending on trade policies. Looking at policy incentives on a bilateral basis (RHS versus LHS) in this world of three gives some indication as to whether

¹² Bütthe and Milner (2014) present empirical evidence, that, depending on actual design and embedding in international institutions, PTAs may serve as a signal to other policy makers as well as private investors that respective governments are committed to a more liberal (in the sense of more open) policy that complies with the rule of law. Thereby, they trigger more trade, more inward FDI – and more trade liberalization. Empirical results thus corroborate theoretical findings on the importance of PTAs in lending credibility to policies vis-à-vis domestic and international interests by Maggi and Rodríguez-Clare (2007) and Antràs and Staiger (2012) respectively.

Fig. 2 Clubs within a multilateral framework



PTA membership threatens multilateral governance, which is supposed to enforce rather than endanger trade liberalization. Of particular interest is whether the threat of TFT makes for a stronger case for mutual trade liberalization in trade conflicts pertaining to a situation holding three countries on equal terms as compared to a situation featuring a PTA between any two of these countries (here: A and B).

In contrast to a purely bilateral perspective, a triangular perspective like this allows to (endogenize) and compare trade regimes while in any case including third-party effects. It thus especially caters to the effects of PTA-membership on multilateral governance, and, it can also account for the trade creating and trade diverting elements as known from the seminal work by Viner. The Vinerian ambiguity can be expected to play a crucial role also in global governance issues.

The triangular perspective comes with a caveat and thus a price tag attached though. As is known from higher dimensional trade analysis, any analysis exceeding two dimensions quickly becomes difficult, with the complexities only manageable by means of introducing fairly strong assumptions. The triangular setup here is no exception to this rule. For instance, to facilitate the analysis, we will assume that demand depends in linear fashion on prices with local supply inelastic, we will focus on goods markets only (that is partial “equilibrium”) and we will consider a particular pattern of trade and a specific variant of PTAs (namely free trade agreements), all of which we will explain shortly. While most of these assumptions are quite common even in setups featuring two trading partners (e.g. Kiyotaki and Miyakawa 2013; Saggi et al. 2013) we will, in addition, suppose that in trade policy vis-à-vis a particular country, the third player’s (aka country’s) behavior is taken as given. Reasons for this Nash assumption are twofold: first, details on third party behavior are generally necessary because the choice of the trade policy (regime) by any one of the parties depends on what the other two are doing and vice versa; second, from a theoretical perspective, this particular assumption will be consistent with assumptions pertaining to the trade conflict itself. Moreover, we assume that countries (here: country A) do not necessarily play by the MFN rule, but only if doing so

comes to the advantage of the respective country's policy makers. However, in Sec. 6, we will present some numerical examples for better illustrating results.

Coming back to the basic setup as displayed in Fig. 2, we thus suppose that, in any case, our multilateral setup contains three countries, with possibly one FTA. The possible FTA may hold two countries, which could be either countries A and B or countries A and F . Without loss of generality (see the remarks below on supply and demand), we will stick with countries A and B though. As for trade, we will assume that country A enjoys a comparative advantage in the production of good 2 while countries A and F share an advantage in good 1. Local supply in the (potential export) goods is considered to be inelastic at unity. Simplifying again, the competitive disadvantage in good 1 (country A) and good 2 (countries B and F) can be displayed by considering local supply to be smaller than that by factor $\alpha < 1$. The smaller supply ensures that, given the same downward sloping demand curve, prices of these goods are, *i*) in within-country cross-sectoral perspective, higher in autarky than those of potential export goods, and, naturally, *ii*) in international perspective, higher than corresponding prices abroad. With these assumptions, supply can be written as

$$\begin{aligned} X_{A1} &= \alpha; & X_{A2} &= 1 \\ X_{B1} &= 1; & X_{B2} &= \alpha \\ X_{F1} &= 1; & X_{F2} &= \alpha \end{aligned} \quad (1)$$

Corresponding to Fig. 2, the first subscript pertains to the country under consideration, that is A , B or F while the second subscript, that is 1 and 2, denotes goods 1 and 2. With demand schedules within each country the same, this supply side pattern thus gives rise to trade flows as displayed in Fig. 2 with country A a natural exporter of good 2 and countries B and F natural exporters of good 1.

Now let demand be a downward sloping curve of domestic prices p_{ji} , that is, prices including tariffs or tariff equivalents of other import restrictions

$$D_{j1} = (1 - vp_{j1}); \quad D_{j2} = (1 - zp_{j2}) \quad (2)$$

with subscript j again referring the country with $j \in \{A, B, F\}$ and subscript $i \in \{1, 2\}$ to goods 1 and 2. To enrich the model, parameters v , z , which relate to the (absolute value of) the slope of the demand curve, may differ across goods 1 and 2, but need not. In case the slope is the same, we will conveniently denote this demand parameter by w . Note that the symmetry assumption with respect to countries B and F implies that outcomes with respect to multilateral dispute settlement without a PTA can be directly compared to those with preferential trade between any two of them, which, for matters of exposition, will be assumed to be A and B . Also, effects of PTAs on overall trade liberalization are not because of terms-of-trade differences *ex ante*, but rest primarily with differences of the two scenarios (that is with and without PTA) as regards the sustainability of trade regimes.

Whether asymmetries in terms of country size, development status and capabilities in trade disputes hamper the actual working of enforcement under the roof of the WTO is very much discussed in the literature (e.g. the collection by Shaffer and

Meléndez-Ortiz (2010), or González and Jung (2020)). In our analysis, we thus take note of asymmetries insofar as the parameters in the demand for the traded goods, v and z , differ (which, notably, also affects countries via specialization). In principle, the symmetry assumption could be further relaxed by attaching different parameters specifically for countries, for instance, on the supply side or with respect to countries B and F . While this might make the analysis even more realistic, differences would be more a matter of degree (with additional thresholds as to parameters) rather than altering the basic working of the threat-cum-reputation mechanism, and, it would come at the expense of a lack of tractability and comparability of the scenarios. Empirically, asymmetries are also somewhat mitigated by the fact of developing countries accounting for an increasing share in world trade and of countries frequently joining as third parties in trade disputes.

4 Rules-based trade policies and the power to tax

Regarding policy instruments, we will focus on tariffs. Keep in mind, however, that the kind of trade restriction is of secondary importance. It might be tariffs or other trade restrictions. Since all of them are known to carry a tariff equivalent, it is not necessary to be more specific at this point.¹³ In any case, policy makers face two decisions on policy, namely on the choice of a policy regime, that is to protect national markets or not, and, if so, on the tariff rate. Let t , T , τ denote nominal rates of specific tariffs by countries A , B and F respectively. However, country A may, depending on origin (that is countries B and F), discriminate between imports. While tariff rate t refers to a policy of non-discrimination, tariff rates t_B (on imports from country B) and t_F (on imports from country F) pertain to a situation in which the protectionist policy is asymmetric. With trade, albeit (potentially) restricted, arbitrage conditions are thus $p_{A1} = p_{B1} + t_B = p_{F1} + t_F$, $p_{B2} = p_{A2} + T$ and $p_{F2} = p_{A2} + \tau$.

As to how tariffs are set within a particular trade policy regime, we follow Brennan and Buchanan (1980) by supposing that governments try to squeeze out the maximum in revenue respectively rents in Leviathan-like fashion. In that, we also account for work by Bagwell and Staiger (2011) who find support for the role of terms-of-trade effects in trade policy negotiations. The government in B is thus assumed to set T such that $\partial((D_{B2}(p_{B2}) - X_{B2})T)/\partial T = 0$, and similar in F . With respect to country A , we have to distinguish two scenarios, one in which $t_B > 0$ and $t_F > 0$, and one in which $t_F > 0$, but $t_B = 0$ (that is without and with preferential trade with B respectively). Under the first scenario, tariffs are set so that marginal revenue is the same from both of the sources. This yields $t_B = t_F \equiv t$ (because of the symmetry). Under the second scenario, revenue stems from trade with country F

¹³ While the recent popularity of tariffs lend support to the relevance of tariffs as an enforcement mechanism, other policy instruments (like for instance non-tariff barriers or subsidies) are known to distort trade as well, and can be quantified similarly.

only, whereas goods from B are freely traded. This approach implies the following set of tariff rates

$$\begin{aligned} \text{country } A \quad t &= \frac{1}{2} \frac{(1-\alpha)}{v} \quad \text{if } t_B = t_F \equiv t > 0; & t_F &= \frac{1}{4} \frac{(1-\alpha)}{v} \quad \text{if } t_B = 0 \\ \text{country } B \quad T &= \frac{1}{4} \frac{(1-\alpha)}{z} + \frac{1}{4} \tau \\ \text{country } F \quad \tau &= \frac{1}{4} \frac{(1-\alpha)}{z} + \frac{1}{4} T \end{aligned} \quad (3)$$

Note the strategic complementarity of trade policies by countries B and F : any increase in the tariff rate by B raises the revenue maximizing tariff rate by F and vice versa. If, however, B decides to liberalize trade (ie $T = 0$) such as in a PTA with A , F will lower its rate as well, so as to partly match policy, thereby trying to curb the negative effects of the Vinerian trade diversion.

No matter whether protectionism prevails or not, markets for both goods i with $i \in \{1, 2\}$ are cleared via trade, that is, total supply equals total demand for each of them

$$\sum_j X_{ji} = \sum_j D_{ji}(p_{ji}) \quad (4)$$

and with $j \in \{A, B, F\}$.

However, when considering political support for trade policy regimes, tariff revenue (or the tariff equivalent rent) is just one aspect among others. Indirect effects of trade policies via lost or gained political support will also feed into a political objective function V . Therefore our analysis does not exclusively rest on terms-of-trade effects along Bagwell-Staiger lines, but carries a political-economy component by including the leverage various interest groups might have in issues of compliance. In line with traditional trade policy analysis (e.g. Baldwin 1987), we thus will assume that the choice of trade *regimes* (rather than simply tariff rates) is in addition driven by the regime's implications for consumer and producer surplus (CS and PS respectively) in both of the goods.¹⁴ In case of linear demand, consumer surplus as the aggregate difference between the maximum willingness to pay and the actual market price is measured by the triangle underneath the demand curve, that is, for example in country A , and there, in the consumption of good 1, $C_{A1}(1 - p_{A1})/2$, with C_{A1} actual consumption according to eq.(2), p_{A1} market price of good 1 and unity the maximum willingness to pay. Inserting demand according to eq.(2) then yields consumer surplus $CS_{A1} = (1 - p_{A1})(1 - vp_{A1})/2$. Because of the assumptions

¹⁴ The varying impact domestic institutions and thus special interests might have in international rule making and compliance (e.g. Dluhosch 2016; Nzelibe 2016; Kiesow Cortez and Gutmann 2017) might be easily accommodated in this setting by means of weighting schemes. The setup is thus also compatible with Vanberg (1992) as it by no means presupposes that politics act on welfare-theoretic grounds or as if governments were individuals (see Orcalli 2003 though for a normative approach entailing issues of distribution).

concerning supply, producer surplus PS can simply be proxied by sales revenue, that is, in country A and the production of good 1, $X_{A1}p_{A1}$. Staying with the example of country A , implications thus add up to the following political objective function V_A

$$V_A = \sum_i CS_{Ai} + \sum_i PS_{Ai} + (X_{B1} - D_{B1}(p_{B1}))t_B + (X_{F1} - D_{F1}(p_{F1}))t_F \quad (5)$$

with $(X_{B1} - D_{B1}(p_{B1})) = (X_{F1} - D_{F1}(p_{F1}))$ if $t_B = t_F \equiv t$ and $(X_{B1} - D_{B1}(p_{B1})) \neq (X_{F1} - D_{F1}(p_{F1}))$ otherwise (that is with trade diversion) and correspondingly for countries B and F . In case of country A , we additionally have to distinguish (perceived) pay offs of policies as measured by political objectives vis-à-vis country B and country F , V_{AB} and V_{AF} , respectively. In particular, V_{AB} will denote perceived pay offs in a purely multilateral system with three countries (with those emanating from policies vis-à-vis country F the same because of the symmetry assumption). V_{AF} , by contrast, will refer to pay offs from policies vis-à-vis country F , provided, countries A and B conclude a preferential trade agreement in the form of a free trade area. Prima facie, the step-by-step (bilateral) perspective may seem somewhat restrictive. However, trade policy conflicts concerning, for instance, the interpretation of trade agreements, emanate first and foremost between two parties, thus initiating a WTO dispute settlement process (which, then, may be endorsed by other countries as well).

5 Strategies in rules-based trade regimes and triangular relationships

Figure 3 displays potential policy conflicts when focusing on trade between countries A and B . The matrix shows (politically perceived) pay offs of particular strategies pertaining to trade policy regimes as if the choice in trade (policy) regimes were a once for all, ‘one-shot choice’. For instance, in case of mutual trade liberalization, pay offs are $V_{AB}|_{t_B=0; t_F>0; T=0}$ for country A and $V_B|_{t_B=0; t_F>0; T=0}$ for country B . In this imaginary ‘one-shot setting’, the choice of regimes is assumed to be governed by the Nash assumption, that is, strategies are chosen with the other party’s policy taken as given. Notably, this does not mean that strategies are in each and every instance the result of rational choice and political support or even welfare maximizing behavior, but by weighing the special interests involved, it summarizes arguments how scenarios might be politically perceived.

However, because of the strategic relationship, pay offs also depend on country F ’s policy, although, presumably not directly involved in trade (policy) conflicts between countries A and B . The column to the right of the matrix shows country F ’s policy with tariff rates under the Nash assumption as in eq.(3), which we will assume throughout. Subscript N thus indicates tariff rates under Nash for $T > 0; \tau > 0$ and when observing the strategic complementarity. The complementarity is the outcome of trade diversion, with far reaching implications as will be seen shortly.

<i>country A</i>			
$t_B = 0; t_F = \frac{1(1-\alpha)}{4} \frac{1}{v}$		$t_B = t_F \equiv t = \frac{1(1-\alpha)}{2} \frac{1}{v}$	
<i>country B</i>			<i>country F</i>
$T = 0$	$V_{AB} _{t_B=0; t_F>0; T=0}$ $V_B _{t_B=0; t_F>0; T=0}$	$V_{AB} _{t>0; T=0}$ $V_B _{t>0; T=0}$	$\tau _{T=0} = \frac{1(1-\alpha)}{4} \frac{1}{z}$
$T = T_N$	$V_{AB} _{t_B=0; t_F>0; T=T_N}$ $V_B _{t_B=0; t_F>0; T=T_N}$	$V_{AB} _{t>0; T=T_N}$ $V_B _{t>0; T=T_N}$	$\tau _{T=T_N} = \frac{1(1-\alpha)}{4} \frac{1}{z} + \frac{1}{4} T$

Fig. 3 Strategies and potential trade policy conflicts: countries A and B (pre-FTA)

In any case, pay offs might be perceived by policy makers as if in a ‘pure’ prisoner’s dilemma (PD), that is, for instance from the perspective of country A and recalling t_B , if pay offs in Fig. 3 are ranked $V_{AB}|_{t>0; T=0} > V_{AB}|_{t_B=0; t_F>0; T=0} > V_{AB}|_{t>0; T=T_N} > V_{AB}|_{t_B=0; t_F>0; T=T_N}$ and $2V_{AB}|_{t_B=0; t_F>0; T=0} > (V_{AB}|_{t_B=0; t_F>0; T=T_N} + V_{AB}|_{t>0; T=0})$ and for country B correspondingly (see, e.g., Axelrod and Hamilton (1981): 1392 on rankings). However, if so, then both parties might be tempted to protect their markets thus winding up in the lower RHS corner of the matrix although mutual trade liberalization would yield a pay off higher than that.

6 The PTAs’ strengthening effect on the threat of retaliation

In all those situations, in which a PD ranking obtains, international institutions are supposed to tame the temptation and thus to help sustaining compliance to agreements on mutual trade liberalization by means of side payments, fines or, endogenously, by backing the threat of retaliation, all to the effect of transforming pay offs so as to strengthen compliance. To this end, the WTO dispute settlement process heavily draws on the threat of TFT as a disciplining device that is supposed to ensure compliance of WTO member states with the GATT’s rules. If a complaint concerning violation of those rules is considered legitimate, the complainant is authorized to retaliate. That is, ‘one-shot’ strategies in trade policies as displayed in Fig. 3 actually trigger strategies in trade *regimes*, depending on whether they conform to the GATT’s rules or not. Hence, according to the WTO’s DSP any protectionist behavior contrary to the rules (RHS column for country A or lower row for country B in Fig. 3) runs the risk of triggering protectionist behavior abroad. As is known from the threat of TFT in other social settings (e.g. Axelrod and Hamilton 1981), whether the threat actually discourages uncooperative behavior (here: non-GATT conforming trade policies) depends on expected costs and benefits in the future (here: the expected consumer and producer surpluses forgone and thus the prospective dimension of trade). With parameter q as a measure of expected probabilities of continuing trade, any pay offs subsequent to the ‘first shot’ enter with factor q when considering strategies in the longer term. Corresponding to research by Rapoport and Chammah

<i>country A</i>			
$t_B = t_F = 0$		$t_B = 0; t_F = \frac{1}{4} \frac{(1-\alpha)}{v}$	
<i>country F</i>			<i>country B</i>
$\tau = 0$	$V_{AF} _{t_B=t_F=0;\tau=0}$ $V_F _{t_B=t_F=0;\tau=0}$	$V_{AF} _{t_B=0;t_F>0;\tau=0}$ $V_F _{t_B=0;t_F>0;\tau=0}$	$T = 0$
$\tau = \frac{1}{4} \frac{(1-\alpha)}{z}$	$V_{AF} _{t_B=t_F=0;\tau>0}$ $V_F _{t_B=t_F=0;\tau>0}$	$V_{AF} _{t_B=0;t_F>0;\tau>0}$ $V_F _{t_B=0;t_F>0;\tau>0}$	$T = 0$

Fig. 4 Strategies and potential trade policy conflicts: FTA vis-à-vis non-member (F)

(1965), Maynard Smith (1976), and Axelrod and Hamilton (1981), cooperation in repeated interaction then obtains iff

$$\begin{aligned}
 & V_{AB}|_{t_B=0;t_F>0;T=0}/(1-q) > V_{AB}|_{t>0;T=0} + \left(V_{AB}|_{t>0;T=T_N} \right) q/(1-q) \\
 & \wedge V_{AB}|_{t_B=0;t_F>0;T=0}/(1-q) > (V_{AB}|_{t>0;T=0})/(1-q^2) \\
 & + \left(V|_{t_B=0;t_F>0;T=T_N} \right) q/(1-q^2)
 \end{aligned} \quad (6)$$

That is, applied to our case of compliance with agreements on trade liberalization, iff mutual trade liberalization is considered superior to (one-sided) protection and iff it is also thought to outperform the alternating between (one-sided) protection and liberalization when weighing that any such behavior triggers a corresponding behavior on the side of the opposite party. Inequalities (6) refer to potential trade conflicts with country B as seen through the lense of country A 's policy makers, however, with analogous inequalities obtaining for country B (or, alternatively, country F). Hence, while previous work by Rapoport and Chammah, Axelrod and Hamilton and Maynard Smith and Price has explored incentives in the abstract with underlying pay offs assumed to be of the prisoner's dilemma type, here, we have incorporated consequences in triangular trade with the pay offs *endogenized*.

Solving for q then yields the pivotal (expected) trade 'intensity'. As such, it delivers information on the sustainability of cooperation in (mutual) trade liberalization. The lower q , the larger the leverage of the threat of TFT on the choice of trade policy regimes. The pivotal q thus provides some information on the working of the multi-lateral arrangements that are supposed to ensure cooperation in trade liberalization. Any q larger than the lower bound on q elicits cooperative behavior.

Panel (a) in Fig. 5 has results for the case of countries A and B , q_{AB} and q_B . The panel shows the respective frequency q as a function of demand parameter w supposing supply side parameter $\alpha = 0.1$ and with the domain of w restricted to those cases in which the basic underlying conflict as displayed in Fig. 4 is regarded as being of the prisoner's dilemma type. Accordingly, the pivotal frequency is larger the smaller the absolute value of the slope of the demand (that is the steeper the demand curve) which is plausible as the gains from trade tend to smaller the less elastic the demand. For larger values of α (not shown) both of the curves rotate clockwise around the point of their intersection, so as to

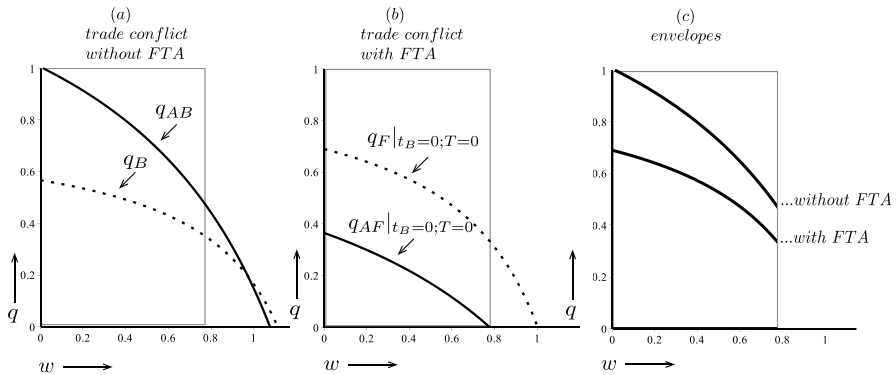


Fig. 5 How strong is the threat of retaliation without FTA (panel **a**) and with FTA (panel **b**)? Results of a simulation and a comparison of envelopes (panel **c**)

maintain the basic pattern. Note though, that, because of the reciprocal nature of cooperation, it is always the most demanding q that proves to be crucial in trigger strategies, which is represented by the envelope of the specific pivotal q of the countries involved in the trade conflict (in this case countries A and B). These results pertain to multilateral governance in a world without preferential trade agreements.

Now suppose that for historical reasons (or other), policy makers in countries A and B perceive future trade as sufficiently important, that is, the prospective q larger than the pivotal ($q_{AB}; q_B$) and thus decide to conclude a FTA, a special, yet the most common form, of a PTA. While Fig. 3 and corresponding panel (a) of Fig. 5 refer to a world without FTAs, Fig. 4 now displays strategies and potential trade (policy) conflicts between country A and non-member country F.

The pay off matrix shows outcomes of a ‘one-shot choice’ in trade policy regimes, here, however, with the FTA-member country B’s policy in trade with country A to the right. Perceived outcomes are again based on the Nash-assumption, and, as is characteristic of PTAs, on the neglect of the most favored nation (MFN) principle to the effect that country A’s policy may discriminate between member country B and non-member country F. Tracking trigger strategies as embedded in the multilateral system allows again to derive pivotal trading frequencies (here: $q_{AF}; q_F$), which must at least be matched for both countries to comply with the multilateral trade agreement. Panel (b) in Fig. 5 has results for the new constellation, again supposing that parameter $\alpha = 0.1$, however, here, as well, without loss of generality.

Contrasting both scenarios thus indicates whether the (increasing presence of) PTAs in trade has a positive or a negative impact on multilateral governance, with the ultimate effect of either sustaining or undermining trade liberalization: the threshold values of q in the right-most panel of Fig. 5 show that the “FTA-envelope” lies within the “non-FTA envelope”. We should thus observe that PTAs have the effect that, on average, countries score higher on trade liberalization not least because compliance to multilateral agreements is more easily sustained and

tariffs are lower than otherwise. Stylized facts as presented in Sec. 2 are in line with the theoretical predictions.

7 Constitutional conclusions and outlook

While both approaches, clubbing in form of PTAs and the multilateral approach of the WTO, aim at lowering barriers to trade and fostering the integration of markets, the former has been met with suspicion by economists ever since the seminal work by Jacob Viner: While PTAs are associated with trade creation, they are also entailing trade diverting effects. Because of the latter effect, preferential clubbing is said to undermine any attempts of liberalizing trade at the multilateral level.

A great many studies aim at quantifying the detrimental effects of PTAs with a wide range of results. Research also added a skeptical political economy perspective: Since most of the PTAs are FTAs, they require rules of origin (RoOs), which might open the door for special interests trying to shape regulation in regards to what may be considered to be produced within the FTA and what may not. Consequently, this comes along with costs for bureaucracy and maintaining borders to protect within-PTA production. Yet, both of these perspectives focus on the economic properties of the agreements themselves (RTAs, RoOs) and whether they undermine any attempts to liberalize trade at the multilateral level or how they – at least – might be reconciled with the multilateral approach to trade integration.

Preferential, that is, in effect, discriminating, trade policy is considered to have an ambiguous impact on overall trade freedom. There is widespread concern that preferential trade via PTAs, while promoting intra-club trade, might well have a depressing effect on extra-club trade. Negative effects on world trade might be even attenuated beyond the traditional trade-creating trade-diverting properties of PTAs in that trade policy might show much less of an effort towards multilateral trade liberalization. If so, PTAs, instead of promoting more openness, may ultimately threaten multilateral trade liberalization, and, thereby, trade freedom. The recent upsurge in PTAs has thus raised skepticism and the suspicion that it is mainly driven by political considerations, with the economic costs largely neglected.

Yet, even on the economic side, not all share in this skeptic view. Instead, some emphasize that the political economy of preferential trade integration may actually trigger a domino effect strengthening trade liberalization in general. While contributions on the implications of PTAs for multilateral trade have proliferated in tandem with the PTA-wave, the verdict on the net effect of PTAs on overall trade freedom is thus still out.

This paper provides a novel perspective on the nexus between PTAs and (overall) trade freedom by illuminating how cooperation in trade liberalization is effectively sustained. Thus far, this channel and the corresponding evolutionary perspective on international institutions has been largely neglected. Yet, international agreements, including those governing multilateral trade, face the

problem of enforcement. In order to ensure compliance, international politics frequently relies on some narrow form of reciprocity, as is, for instance, TFT. Multilateral trade integration, as well, is backed by the threat of TFT as institutionalized within the WTO's DSU and thus the multilateral constitution. This paper provides stylized facts and a formal framework suggesting that, in fact, by strengthening the threat of TFT, PTA membership and the multilateral constitution jointly work towards sustaining rules-based behavior in support of (global) trade freedom.

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Declarations

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