Does Enforcement Matter?
Judicialization in PTAs and Trade Flows

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Abstract

This paper focuses on the variability of judicialization across preferential trade agreements (PTAs) and their impact on trade flows. We develop a categorization of PTAs that contrasts enforcement mechanisms with the level of trade policy discretion allowed by a trade agreement and the degree of flexibility allowed for members. Utilizing an original dataset of PTAs signed by countries in Asia, which has emerged as one of the most active regions of PTA-formation and which exhibits wide variability in levels of judicialization, we compare the effects of trade policy discretion, flexibility provisions, and enforcement mechanisms in PTAs on trade flows. We examine the empirical strength of our theoretical framework distinguishing between discretion, flexibility, and enforcement using confirmatory factor analysis. The empirical analysis then goes on to examine their respective effects on trade flows. The results show that agreements with strong commitments, that is, those that remove more trade policy discretion from a government, lead to a greater expansion of trade between signatories. Enforcement and flexibility mechanisms, however, have mixed effects.

The dramatic surge in the formation of preferential trade agreements (PTAs)[1] in recent years has been noted widely, both in the press and in academic scholarship, and has produced a substantial literature on the causes and effects of these agreements. Much of the scholarship on PTAs has focused on their implications for the multilateral trading system, and, more specifically, on the question of whether they constitute "building blocks or stumbling blocks" to the forward momentum of trade liberalization.[2] Far less attention has been paid to the actual provisions of these agreements. Existing work has treated PTAs as homogenous in their content and by implication in their effects on trade, ignoring the fact that the provisions of these agreements vary widely.

In this paper, we seek to redress this gap in the literature and to address one of the motivating issues for this project on 'Judicial Politics in International Trade Relations": does the variation in judicialization we observe in trade agreements actually have an impact on post-agreement trade flows between agreement partners? (De Bièvre and Poletti, this volume). Given that the majority of agreements in the global network of PTAs contains some form of dispute settlement, and that these dispute settlement mechanisms invariably also generate binding resolutions (Allee and Elsig 2014), this paper investigates whether such judicialization produces strong positive effects on trade flows. That is, we focus on the economic consequences of

[1] In this paper, we follow Mansfield and Milner's definition of preferential trade agreements as "a set of institutions that are designed to foster economic integration among member-states by improving and stabilizing each member's access to other participants' markets" (2012, p. 1). We focus only on on reciprocal agreements or agreements where all sides have to make concessions. We refer to trade agreements that offer concessions on only some products as preferential agreements to distinguish them from our broader usage of PTA.

[2] Bhagwati 1993.

judicialization, as observed through changes in trade flows following the signing and ratification of a trade agreement.

We examine the economic effects of enforcement mechanisms in PTAs by contrasting them with two other key dimensions of PTA design: the level of trade policy discretion provided in the PTA's provisions and its flexibility mechanisms. We premise our analytical framework on the argument that strong positive effects on trade flows are the result of an agreement that is also strong on credible commitment, as international institutions such as trade agreements resolve the time-inconsistency problem of trade policy by tying the hands of its signatories. This credible commitment, we argue, is reflected in a combination of three institutional components: i) trade policy *Discretion*, or the degree to which an agreement removes trade policy from the hands of the government; and ii) *Enforcement,* or the costs of defecting from the agreement, i.e., the level of judicialization, namely the strength of its enforcement mechanisms. At the same time, countries will not necessarily benefit from tying their hands as tightly as possible: iii) *Flexibility* mechanisms should not only make designing trade agreements easier and lower contracting costs, it should also have a more beneficial effect on trade. By allowing politicians room to respond to exogenous shocks, having more flexible mechanisms may ensure that the PTA continues to develop and does not become a zombie (Gray 2012).

To capture these dimensions in PTA provisions, we apply an original coding scheme to 57 Asian PTAs that have been signed or were in force by 2006. We employ confirmatory factor analysis and find empirical support for the hypothesized relationship between the constructs we develop--*Discretion*, *Enforcement*, and *Flexibility*—and the specific PTA provisions that we

identify as their respective component measures. For the main empirical analysis, we employ a standard gravity model of international trade with year and dyadic fixed effects to evaluate the impact of trade agreements on trade flows, with the former measured both as a dichotomous variable and with our measures based on PTA provisions. We find that the dichotomous measure of PTAs does not have a significant effect on trade, but that our more specific measures do. Removing trade policy discretion from a government, and in some cases flexibility mechanisms, have a stronger positive effect on trade flows than do enforcement mechanisms.

Credible Commitment and the Politics and Economics of PTAs

The scholarship on PTAs has addressed a wide range of questions, beginning with the trade-creation effects of PTAs and ultimately their implications as "building blocks or stumbling blocks" or as "friends" or "foes" for the multilateral system (Viner 1950, Bhagwati 1991, 1993, 1994; Baldwin 1995; Levy 1997; Bagwell and Staiger 1998; Panagariya 2000; Pomfret [1997]2001; Aghion, Antras and Helpman 2004; Limao 2006a, 2006b; and Baier and Bergstrand 2007.). Studies have examined closely the conditions under which PTAs are likely to be trade-diverting, resulting in welfare losses for those outside the agreement and thus a "foe" to the pursuit of multilateral trade liberalization (Grossman and Helpman 1995; Krishna 1998). Going beyond the theoretical literature, empirical studies of PTAs have found a correlation between PTAs and unilateral trade liberalization (Foroutan 1998; Panagariya 1999; Bohara, Gawande, and Sanguinetti 2004). Interestingly, the relationship between PTAs and trade flows is somewhat mixed. Early studies found that PTAs did not increase trade between members. These studies did not account for the endogeneity of PTAs that may explain their findings (Baier and Bergstrand 2007). More recent studies, which include dyadic fixed effects to control for endogenous PTA

formation, find that PTAs have a strong trade-creating effect among members (Rose 2004; Baier and Bergstrand 2007; Goldstein, Rivers, and Tomz 2007).[3]

Constraints on Trade Policy Discretion

A standard view of international agreements such as PTAs is that a government uses them to tie its hands with respect to trade policy (Simmons 2000; Rosendorff and Milner 2001; Rosendorff 2005; Mitchell and Hensel 2007; Büthe and Milner 2008.). Building on the time-inconsistency problem (Kydland and Prescott 1977), or the insight that if the government has discretion over policy, it has an incentive to renege on its *ex ante* policy promise and enact a different policy *ex post*, in signing a PTA a government gives up control over trade policy and commits itself to trade liberalization. Agreeing to a PTA sends a signal-- if a government violates the agreement, it suffers reputational costs (Simmons 2000, 819).[4] A government can relinquish some control over trade policy by joining a multilateral organization such as the GATT/WTO or by signing a free trade agreement which delegates authority to adjudicate to the institution and also limits the ability to increase tariffs, allowing it to resist pressure from protectionist groups (Maggi and Rodriguez-Clare 1998, Maggi and Rodriguez-Clare 2007, Bagwell and Staiger 1999, and Staiger and Tabellini 1999). A government can point to the trade agreement as the reason why greater protection cannot be granted. The insights have been applied to link PTAs with issue areas other than trade as well. Büthe and Milner (2008) argue that PTAs increase FDI in developing countries because their visibility makes reneging on them more costly. Investors are, therefore, more confident that governments will maintain liberal economic policies.

[3] Other studies have started to examine the linkage between PTAs and other issue areas such as investment (Büthe and Milner 2008) and human rights (Hafner-Burton 2005).

[4] Also see the response by Von Stein 2005 and the rebuttal by Simmons and Hopkins 2005.

Nevertheless, this literature treats all trade agreements as the same, as if they "leave no discretion to governments" (Maggi and Rodriguez-Clare 2007, 1375).

Enforcement Mechanisms

However, simply signing an international agreement or delegating policy is not sufficient for a government to tie its hands; there have to be mechanisms in place to deter and to punish cheating on the agreement. Without some way to tell if a government is cheating on the agreement, the public will not believe that the government is not interfering in policy. The presence of these enforcement mechanisms, that is the mechanisms of judicialization in trade agreements, lends credibility to a commitment. North and Weingast define a credible commitment as how constrained a government is "to obey a set of rules that do not permit leeway for violating commitments" (1989, 804). The literature on PTAs largely treats trade agreements as perfectly enforceable, even while recognizing that differences in enforceability exist across agreements in the real world (Maggi and Rodriguez-Clare 1998, Maggi and Rodriguez-Clare 2007).[5]

Studies on enforcement mechanisms in PTAs have focused on their design rather than their effects. James McCall Smith (2000) attributes the adoption of more strict or legalistic dispute settlement mechanisms to a combination of low asymmetries in economic power and an agreement's depth of integration.[6] Pevehouse and Buhr (2005) argue that democracies are more

[5] Conconi and Perroni 2009 explicitly consider self-enforcing agreements.

[6]Smith uses legalism to refer to the objectivity of a dispute settlement clause. Disputes that are decided by a third party are more legalistic because they remove decision-making capacity from the disputing countries while disputes settled by consultations between the parties are less

willing to concede autonomy in their international affairs and are motivated by the possible economic benefits of the trade agreement, both of which lead them to agree to a high level of legalism in trade agreements.[7]

Flexibility

Yet another body of literature examines the trade-off between flexibility and credibility in the design of enforcement mechanisms (Smith 2000; Rosendorff and Milner 2001; Rosendorff 2005). Designing institutions that allow governments some leeway to suspend their obligations in the agreement helps governments cope with domestic uncertainty, even if the agreement is less credible. If there are exogenous shocks that increase the pressure to deviate from the terms of the agreements, governments would prefer agreements that allow them some room to temporarily violate the agreement without abrogating the agreement. Rosendorff and Milner (2001) suggest, for example, that including measures such as escape clauses can help governments cope with domestic uncertainty by allowing them to respond to protectionist interests when necessary. These escape clauses must still impose a cost on a government—if there were no punishment for defecting, it would be difficult to maintain the agreement. Similarly, institutional mechanisms such as the WTO's Dispute Settlement Understanding (DSU) allow temporary "defections" from obligations that render a more stable institution (Rosendorff 2005). These arguments suggest that agreements will ensure greater compliance if

legalistic because they allow a stronger role for the parties in the dispute. In this paper, we also refer to more legalistic clauses as strong or stringent.

[7] The Pevehouse and Buhr sample of analysis is inclusive of Smith's sample but adds agreements of the former Soviet Union, Eastern Europe, and less developed countries, including hub and spoke arrangements as well as agreements "completed or released for review to the WTO or UN since 1995" (Pevehouse and Buhr 2005, 3).

governments are permitted to invoke escape clauses in order to alleviate pressures from domestic constituents, so long as there is still some cost in using these mechanisms. There has been no attempt, however, to examine whether differences in enforcement mechanisms have consequences for trade flows among agreement partners.

This paper engages with the recent scholarship on trade agreements that has started to focus on variability in PTA design and its effects. Büthe and Milner (2011) examined the link between PTAs with investment provisions and post-agreement FDI flows. Gray and Slapin (2012) survey experts to evaluate the degree of PTA effectiveness. Mansfield and Milner (2012) examine the inclusion of formal dispute settlement mechanisms. Rickard and Kono (2013) look specifically at procurement provisions within PTAs to see if they do affect procurement. Haftel (2013) codes many different areas of PTAs and separates out the designed aspects from what is actually implemented. Finally, Dür et al. (2013) come up with a very detailed scheme to code many different aspects of PTAs.

Hypotheses

We test three hypotheses corresponding to the conceptual dimensions of PTAs: *Enforcement, Discretion,* and *Flexibility.* The first dimension is what we call trade policy *Discretion*, or how much an agreement restricts the behavior of a government. An agreement should have a stronger effect on trade the more it restricts a government's range of actions. A PTA that alters trade restrictions for only a limited group of products or that covers products in which the participant countries do not trade extensively will not be as effective at increasing

trade as one that eliminates restrictions on all or most products traded between participants. [8] In the former cases, the agreement would be a largely symbolic gesture and leave the government plenty of room to respond to protectionist pressures.[9] Our corresponding hypothesis is:

> *Hypothesis 1*: Agreements that leave governments less trade policy discretion should increase trade more than those that leave the government more policy discretion.

Our second hypothesis concerns the theme of this volume: the level of judicialization as captured by the mechanisms created to monitor and punish defections from the agreement. If the public cannot determine whether a government is abiding by the terms of the agreement, the government's commitment will be less credible and we would not expect a large increase in trade. We would expect that agreements with stronger dispute settlement and agreements that impose more objective costs will have a stronger effect one trade.

> Hypothesis 2: Agreements with stronger enforcement mechanisms should have a stronger positive effect on trade than those with weaker enforcement mechanisms.

At the same time, a government may want some room to be able to temporarily defect from the agreement without ending the agreement. By designing flexibility into the agreement, a government can respond to exogenous shocks and violate the agreement as long as it agrees to pay some costs of defection (Rosendorff 2005). While this flexibility may decrease overall

[8] An alternative argument suggests that governments are not trying to change their behavior when they sign international agreements. Instead, governments self-select into agreements and sign only the agreements that they want to sign. A government's behavior under the agreement is not very different from what it would do in the absence of the agreement. The amount of trade policy discretion given up is an institutionalization of a government's preferences rather than an attempt to commit itself to a specific policy.

[9] We are not the first to recognize the potentially symbolic nature of commitments in RTAs. Smith writes "Where liberalization commitments are narrow in scope or vague and distant in time, the basic trade-off [between discretion and compliance] is inoperative, since domestic political leaders have little to risk and little to gain" (2000, p. 151).

credibility, it should contribute to greater compliance with and stability of the agreement. Here, we argue that these positive benefits also have a larger and positive effect on trade between agreement partners. Importers and exporters will be more likely to believe that a government will stick with an agreement if it has some room for maneuver. If the agreement is not flexible enough, traders may believe that in difficult economic circumstances a government may back out of the agreement. Alternatively, traders may believe that a government will simply ignore the agreement. In either case, trade will not increase by much as it would with flexible provisions. Thus, our third hypothesis is about flexibility mechanisms:

> Hypothesis 3: Agreements that allow more flexibility in invoking trade remedies should have a stronger positive effect on trade than those with more stringent trade remedies.

In the empirical analysis, we also consider the contingent effects of discretion and both enforcement and flexibility mechanisms. That is, we would expect that the joint presence of discretion and strong enforcement mechanisms to have a positive effect on trade flows: In the empirical analysis, we account for this contingent effect by interacting two dichotomous variables: one for PTAs above the mean for discretion and one for PTAs above the mean for enforcement.

Coding PTAs

Similar to the central bank independence literature, which quantifies the level of central bank independence by examining the texts of central bank laws (Grilli, Masciandaro, and Tabellini 1991; Cukierman, Webb, and Neyapti 1994), we examine the legal provisions of the PTA to distinguish how much they tie a government's hands (discretion), their enforcement mechanisms, and their flexibility mechanisms. Table 1 details our coding scheme, which

identifies three categories of measures corresponding to our theoretical constructs: *Discretion, Enforcement, and Flexibility.* Each component measure of the categories is coded on a scale bounded between 0 and 1, rather than dichotomously, and higher scores should be associated with a larger increase in trade. Because we are interested in an agreement's effect on trade, our components focus on the coverage of trade in goods. We recognize that PTAs now often include many more issue areas and that our coding does not completely cover the contents of the agreement. Nevertheless, the fact that agreements often are about more than trade in goods makes it imperative to understand whether the provisions related to trade in goods do affect trade. If some PTAs are mainly about issues other than trade in goods and some are about trade in goods, treating the two equivalently blurs an important distinction between them. Immediately below, we discuss how each component is coded and how each should increase trade.

[Table 1 about here]

Trade Policy Discretion. To estimate the trade policy discretion an agreement leaves to a government, we construct an indicator with six components that measure how much an agreement removes a government's control over trade policy. In effect, we conceptualize discretion as the surrendering of trade policy discretion, rather than the retaining of such discretion, in the core areas as covered in this category. The first component is the type of PTA or the depth of the agreement. The closer the economic ties a PTA creates, the greater the effect on trade, all else equal. Thus we expect that PTAs that provide for the formation of economic unions will contribute more toward expanded trade flows than other types of PTAs. However, even an agreement that calls itself a free trade agreement may not remove tariffs on all barriers.

The remaining components in the discretion category, therefore, include the type of products covered by the agreement, such as the overall coverage of industrial and agricultural products, and whether other trade restrictions such as technical barriers to trade and non-tariff barriers are covered. A trade agreement that allows a government to maintain other types of trade restrictions such as non-tariff barriers or technical barriers to trade leaves a government more trade policy discretion and should have less of an effect on trade than one that removes these types of restrictions. Governments can simply change the trade restrictions from tariffs to non-tariff barriers. Also, an agreement that covers both agricultural and industrial products will restrict the actions of a government more than one that excludes either of these sectors. By including tariff reductions on politically sensitive areas such as agriculture in the agreement, a government can more easily resist future protectionist pressures from this sector.[10]

Enforcement. As discussed above, trade policy involves a time inconsistency problem that must be overcome. An agreement that lowers trade restrictions will do nothing to tie the hands of the government without provisions to deter defections from the agreement. Our second category—*enforcement*—includes four components that focus on how defections from the agreement are settled.

[10] The rationale for the coding of the reciprocal component is that an agreement that has different timetables for participant countries may not be as credible as those that require the same timetables. Because this paper analyzes reciprocal PTAs, none of the PTAs coded receive a score of 0 on this measure. There are differences in the timing of the tariff cuts that we felt were important, but are restricted to a couple of cases. First, many multilateral PTAs have different schedules for the lesser and more developed countries, so those were coded as .5. Also, Singapore basically has no tariff rates, so in its agreements it tends to eliminate all of its tariffs upon entry into force while allowing the partner country more latitude (with a couple of exceptions). These were also coded as .5.

First, more formal dispute settlement procedures should have a stronger effect on trade than agreements with no dispute settlement mechanisms or with informal mechanisms. The final three components in the *Enforcement* category measure the costs a government pays for violating the agreement. In order to be effective, enforcement mechanisms should impose some cost to invoke them. If there is no cost to using the mechanisms, there is nothing to prevent a government from using them whenever it wants and we would expect the agreement to have no effect on trade. A government pays a higher cost the more binding is a dispute settlement resolution. If the government can ignore a resolution, then there is little cost imposed on the government for agreement violations. Similarly, leaving the determination of compensation to formal arbiters should impose a higher cost and represent a stronger commitment than leaving the determination of compensation to the injured party. Finally, if the agreement imposes compensation and a time limit for invoking escape clauses, there will be more costs in invoking escape clauses which should make their usage less likely.

Finally, the *Flexibility* category measures how easily a government can invoke anti-dumping and escape clauses. Our coding gives the highest scores to provisions that allow governments some leeway in using them and middle scores to provisions that strictly define their use. When member countries can consult with one another on the use of escape clauses or to identify dumping, it may be easier to justify the breaches as necessary, given existing economic conditions. We recognize that there are several options for flexibility in an agreement, defined as a temporary defection from legal obligations (Milner and Rosendorff 2001). The literature suggests that such states may seek such flexibility through the dispute settlement mechanism (Rosendorff 2005) or through the use of binding overhang in the application of tariffs as an

alternative to the use of trade remedies (Busch and Pelc 2014). These studies have investigated the role of flexibility provisions employed by WTO members. We employ a measure of flexibility in the same spirit as in Milner and Rosendorff and applied to reciprocal trade agreement, also adding levels to indicate the degree of flexibility in how agreement partners may invoke trade remedy provisions.

The three overall category measures—*Discretion*, *Enforcement*, and *Flexibility*—are created by summing the scores for each of the individual components in the category and scaling the value by the number of components, resulting in scores that vary from 0 to 1. Not all agreements have information about every component in the index. All but the escape clause action component penalize an agreement for not having information; for example, agreements that lack detail about dispute settlement clauses receive a score of 0 for this measure. Escape clause actions that lack information are coded as missing and are not included in the numerator or denominator of the category or index totals. The 3 category and 2 commitment index totals, therefore, are rescaled to include only those components that are non-missing.

Data and Analysis

We conduct our empirical analysis on PTAs in Asia, where such agreements have seen an unprecedented and rapid rise since the mid-1990s and especially in the aftermath of the Asian financial crisis (Ravenhill 2008a, 2003).[11] According to Ravenhill, East Asia in particular has emerged as the "most active site in the world" for trade agreements in the 21st century (2008b,

[11] In this paper we exclude PTAs that involve countries in Central Asia (Armenia, Georgia, Azerbaijan, Kazakhstan, Kyrgyzstan, Tajikistan, and Uzbekistan) because the texts of these agreements are so difficult to find.

157). Until then, the region had seen few trade agreements, and the prevailing mode of trade cooperation involved the Asia-Pacific Economic Cooperation (APEC) forum formed in 1989 and the more regionally delimited Association of Southeast Nations (ASEAN), which in 1992 announced its intention to form the ASEAN Free Trade Area (AFTA).[12]

The shift toward bilateral and regional trade agreements represents a marked departure from the APEC forum's emphasis on multilateralism and especially on open regionalism, which involved concerted unilateral trade liberalization and the practice of MFN for members and non-members alike.[13] The region has also seen a surge in the expansion of existing regional agreements, which involves negotiations between individual countries and regional groupings, including ASEAN's negotiations with Japan, China, and India.[14] Plurilateral agreements are also in development, forming overlapping arrangements such as the Trans-Pacific Strategic Economic Partnership including New Zealand, Singapore, Brunei Darussalam, and Chile, and a separate New Zealand-Singapore bilateral agreement.

While the existing scholarship has identified key patterns in PTA-formation in the region (Ravenhill 2006, Dent 2006), few studies have examined the actual impact of Asia's PTAs on trade flows. The Asian region also provides a varied set of cases on which to test whether PTA

[12] The few trade agreements in force before the rapid surge of the mid-1990s include the Bangkok Agreement, in force since 1975, and the South Pacific Regional Trade and Economic Cooperation Agreement (SPARTECA), which was signed in 1981 and provided for non-reciprocal preferential trade for exports of South Pacific countries to Australia and New Zealand.

[13] On the success of trade liberalization and economic integration through APEC, see, for example, Bora and Pangestu 1996; and Pangestu and Gooptu 2004.

[14] The ASEAN-Japan Comprehensive Economic Partnership, ASEAN-China Comprehensive Economic Cooperation, and ASEAN-India Comprehensive Economic Cooperation.

provisions affect trade, representing a wide range in levels of development, more so than any other region. Countries vary from the very poor (Burma, Bhutan) to the very well-off (Japan, Korea), and countries across the entire range have signed PTAs. Because of the mix of countries in the region, many of the PTAs have been signed under the GATT/WTO's Enabling Clause which has less rigid standards for PTAs than does Article XXIV. There is more variation in PTA provisions across the region as a result. The analysis includes 57 PTAs with at least one Asian country as signatory, out of a total of 64 PTAS in force or signed in 2009 as reported by the Asian Development Bank.[15] They include all agreements for which texts were available. Appendix 1, available online, lists the PTAs alphabetically, including the year in which the PTA was signed and when it went into force (if applicable).[16]

Descriptive statistics. In Table 2, we present descriptive statistics of our measures of PTA provisions, based on the scores for individual PTAs. Both the discretion and the enforcement mechanism measures range from low values to high values and both are skewed towards high values. The mean discretion score is .54 while the mean enforcement score is .63. The mean flexibility score is even larger at .84. There is also a correlation between discretion and enforcement. When agreements remove more trade policy discretion, the average score for the other categories is higher. The average enforcement score for agreements with discretion scores above the mean for all agreements is .79 while the average enforcement score when discretion is below the mean is only .38. For *Flexibility*, the average is .91 when discretion is above the mean and .74 when discretion is below the mean. Discretion is more highly correlated with

[15] http://aric.adb.org/FTAbyCountryAll.php.

[16] Appendix 1 through 4 are available online.

enforcement (0.74) than it is with flexibility (0.46). The correlation between enforcement and flexibility is only 0.39.

In terms of examples of how different PTAs are coded. In 1977, ASEAN members signed a preferential trade agreement. Reflecting its status as a preferential agreement, it scored very low on discretion, at only 0.17. In 1992, ASEAN signed a free trade agreement and the discretion score increased to 0.49. The enforcement score was low in both cases, at 0.27 for the preferential agreement and 0.31 for the FTA. Similarly, the South Asian Association for Regional Cooperation signed a preferential agreement in 1993 with a very low score for discretion (0.08) and a low score for enforcement (0.40). Both scores increased when the South Asian Free Trade Agreement was signed in 2004, with discretion increasing to 0.43 and enforcement to 0.73.

We can also compare PTAs of a single country: Singapore, for example, has 9 PTAs in force in our data. While the scores for enforcement and discretion are above the mean there is still some variation across PTAs. Moreover, the scores for enforcement and discretion do not move together. The New Zealand-Singapore PTA has the highest discretion score among Singapore's PTAs at 0.82 but its enforcement score is 0.78 which is the third lowest among Singapore's PTAs. Singapore has 3 PTAs with an enforcement score of 0.92 (EFTA-Singapore, Japan-Singapore, and Korea-Singapore), but the discretion scores are 0.79, 0.65, and 0.69, respectively.

We employ a measurement model, which links a theoretical construct or latent variable (also called a factor) with observed indicators. We utilize confirmatory factor analysis as we

have developed *a priori* which of the observed indicators, that is, the specific PTA provisions, are associated with which of the three constructs as described above.[17] We test the hypothesized links between the specific PTA provisions we have identified and the latent constructs *Discretion, Flexibility,* and *Enforcement* we developed in the 'Coding PTAs' section of this paper. In testing these hypothesized links, we are essentially testing this restricted model vis-à-vis the null hypothesis of an unrestricted model in which no specific relationship is hypothesized between the latent constructs and observed measures.

Thus we analyze a measurement with three latent variables—*Discretion, Enforcement,* and *Flexibility,* to examine the extent to which the data support empirically these theoretical constructs central to the paper.[18] The results are presented in Table 3. For *Discretion*, which includes 6 components, all components have loadings that are statistically significant. In particular, the degree to which the agreement covers industrial goods, agriculture, and technical barriers to trade (TBTs) are the most important determinants of variation in the construct.[19] Whether the agreement is reciprocal and includes commitments on non-tariff barriers are less important in determining the level of discretion relinquished by the agreement signatory. For

[17] Exploratory data analysis, in contrast, derives the factor structure directly from the data. The analysis allows the data to determine the number of factors, or latent variables, and which observed measures are associated with them. As we have explicitly developed a theoretical framework in the early section of this paper for linking the three constructs with the PTA provisions, we employ confirmatory factor analysis to test the hypothesized links between these latent factors and their observed measures.

[18] The likelihood ration (LR) test of this model versus the saturated model is statistically significant: chi2(74) = 45264.33, Prob > chi2 = 0.0000. The test is conducted for the model without robust standard errors clustered by dyad.

[19]The comparison is made with the type of agreement, which is a constrained to 1 for identification purposes.

Enforcement, which includes four components, relative to the provision of a formal dispute settlement mechanism, degree to which dispute resolution is binding, compensation relies on third party determination, and escape clause actions conform or go beyond WTO-mandated levels all show positive and statistically significant loadings. The last construct, *Flexibility*, appears only to be weakly related to the components specified by our conceptual framework. The covariance statistics at the bottom of Table 3 also show that these constructs are largely independent from one another, as the covariance is low (less than .01) for any given pair of latent constructs.

Quantitative Analysis

We analyze directed-dyad data to examine whether differences in PTAs have an effect on bilateral trade between partners. All models contain both dyadic fixed effects and year fixed effects. The year fixed effects help control for any systemic shock in a given year that has a similar effect on all countries. The dyadic fixed effects also control for the endogeneity of trade agreements and trade (Baier and Bergstrand 2004), in particular the non-random factors that drive certain pairs of countries to gravitate toward greater (or lesser) degrees of judicialization.[20] Dyadic fixed effects transform the data to focus on changes from the dyad's mean value of each variable, so the coefficient on the PTA variables measures the change in trade when the agreement is in effect compared to when it is not in effect.

[20] We acknowledge the importance of the endogeneity issue and its ramifications for causal inference in this analysis, and we remain mindful of the uncertainty associated with any methodological approach for this issue. Baier and Bergstrand's (2004) corrective is specifically offered to address the endogeneity issue in the *formation* of free trade agreements. We extend their logic and methodological corrective for the other side of the causal chain—the *consequences* of judicialization.

Our sample contains dyads with at least one Asian country, and covers the years 1970 to 2006, inclusive. Asian countries did not start signing PTAs until the mid-1970s, and even then they were relatively rare until the 1990s.[21] Appendix 2, available online, lists the Asian countries in the sample. We begin our analyses with a baseline model using a dummy variable for PTAs, which indicates whether the mere existence of a PTA increases trade. In subsequent analyses, we include in turn the three dimensions of PTA provisions and their respective individual components. *Discretion, Enforcement,* and *Flexibility* are our independent variables of interest.

The dependent variable is the logged value of goods (in 2000 U.S. dollars) imported into country 1 from country 2. The main source for the data is the IMF's *Direction of Trade* statistics. Missing data were filled in, when possible, with import data from Gleditsch (2002).[22] Data from both sources were converted into constant dollars using the United States GDP deflator from the World Bank's *World Development Indicators*.

To control for economic conditions (economic size and level of economic development), we include standard gravity model variables: the logged products of both a dyad's GDP as well as its GDP per capita. Data on GDP and GDP per capita (both in 2000 U.S dollars) were obtained from the World Bank's *World Development Indicators*. Our measure of currency unions is from the Rose, with some updates based on Cohen (Rose 2004; Cohen 2006.). The *both GATT/WTO* and *one GATT/WTO* variables indicate whether both countries in the dyad or one of

[21] ASEAN was formed in 1967, but a trade aspect was not added until the ASEAN Preferential Trade Agreement was signed in 1977. The Bangkok Agreement was the first Asian-only PTA, signed in 1976. (India had signed a trade agreement with Yugoslavia and Egypt in 1967.)

[22] Although Gleditsch makes some disputable assumptions about trade patterns to fill in missing data, he does have trade data for Taiwan unlike the IMF.

the two countries in the dyad are GATT or WTO members. The variables were constructed using the lists of GATT and WTO membership dates available from the WTO website.[23] With year and dyadic fixed effects, many of the variables common in gravity models drop out of the model. These include land area, contiguity, number of islands in the dyad, the number of landlocked countries in the dyad, colonies and distance.

Findings

The first column of Table 4 reports baseline estimation results from including a dichotomous variable that takes on the value of 1 if there is a PTA in force within the dyad.[24] The estimate for the dichotomous PTA variable is positive; however, it just misses statistical significance at the .10 level. The result suggests that if all PTAs are treated equivalently, PTAs do not significantly increase trade in Asian countries. The control variables, in the baseline and across all other models, generally behave as expected. GDP and GDP per capita are both positive and significant. Dyadic membership in a currency union also increases trade. Contrary to expectations, both GATT variables are negative but neither is significant

There is stronger support for a positive effect of PTAs on trade flows when we focus on the provisions. In models 2 to 4, we analyze the separate effects of the *Discretion, Enforcement,* and *Flexibility* measures. The results show that *Discretion* and *Flexibility* have a positive and

[23] (http://www.wto.org/english/thewto_e/gattmem_e.htm and http://www.wto.org/english/thewto_e/whatis_e/tif_e/org6_e.htm, respectively).

[24] Most recent studies find that PTAs have a positive effect on trade within a dyad (Rose 2004,104; Baier and Bergstrand 2007; and Goldstein, Rivers, and Tomz 2007, 53-54.). The coefficient on reciprocal PTAs in Goldstein, Rivers, and Tomz, for example, is 0.33, which translates to a 42% increase in trade after a PTA goes into force for their 1946-2003 sample period (2007, 53).

statistically significant effect on trade flows, but *Enforcement* does not. The coefficient on the *Discretion* component is positive and significant at the .05 level. Increasing the discretion relinquished from 0 to the maximum value of .81 increases trade by 40%. PTAs are more effective at increasing trade when they remove more trade policy discretion from the government. Similarly, more flexibility in invoking trade remedies significantly increases trade. There is scant evidence that enforcement mechanisms increase trade. The coefficient on the enforcement variable is not statistically significant.

Part of the argument is that the combination of discretion and enforcement should increase trade more than either one by itself. To test this, we create two dichotomous indicators. The first is equal to 1 if the discretion score is above the mean for Asian PTAs. The second is equal to 1 if the enforcement score is greater than the mean for PTAs. We then include these two variables and their interaction in column 5. Contrary to expectations, the results suggest that discretion has a stronger impact at low levels of enforcement—the coefficient on discretion itself is positive and significant. Having both high levels of discretion and enforcement does not significantly affect trade. In column 5 we repeat the exercise with discretion and flexibility. Flexibility with low scores on discretion is negative and significant but having high scores on both does significantly increase trade.

In the last three models of Table 4, we repeat the exercise using the indices, or factor scores, created from our confirmatory factor analysis.[25] Our analysis so far weighted equally the

[25] We are grateful to an anonymous reviewer for this suggestion to check the robustness of our results.

individual component variables of the three theoretical constructs. To better reflect the patterns in the data, we utilize the results of the confirmatory factor analysis and employ the loadings as weights for the observed measures. The index is thus constructed as the sum of the individual measures multiplied by their loadings on their respective factors. The results of the analysis are consistent with those with equal weighting of the individual measures. *Discretion* and *Flexibility* are both significant at the 0.05 level. Enforcement is significant as well but marginally so.

Unpacking the Measures

In the next section, we unpack the combined measures and focus on the components individually. By looking at the components individually, we can explore whether some components of the enforcement mechanism variables affect trade more than others. The results are reported in Table 5. The findings are consistent with results from the aggregate measures; the individual *Discretion* measures have more of a positive effect on trade than the *Enforcement* and *Flexibility* measures.

The first half of Table 5 includes the six individual *Discretion* components. Five of the six discretion measures have a positive and significant effect on trade. The exception is technical barriers to trade (TBTs), which is negative and fails to reach statistical significance. The highest level of the type of agreement in PTAs in Asia is a free trade area.[26] Moving from no PTA or a preferential agreement to a free trade agreement increases trade by 26%., which indicates that

[26] The type component codes preferential trade agreements as 0, so in the analysis they are treated the same as no PTA. We reran the regression with type recoded so that preferential agreements receive a score of .2 and free trade agreements a score of .4. The results do not change.

minimal agreements where countries liberalize trade only on some products do not have a large effect on trade while efforts to liberalize substantially all products do have an effect.[27] The other four components have similar or stronger effects on trade. PTAs with reciprocal reductions that are implemented within the same time frame by all parties result in a 25.4% increase in trade. Agreements that cover more than 80% of industrial goods—the highest category of coverage of industrial goods—are associated with a 29.4% increase in trade. PTAs with provisions that cover more than 80 percent of agricultural goods—also the highest category of coverage for agricultural products--are associated with a 30.9% increase in trade. Finally, if non-tariff barriers are eliminated at the same pace or more quickly than tariffs and if no exclusions are allowed, trade increases by 30%.

The bottom half of Table 5 includes the *Enforcement* and *Flexibility* components. Results largely corroborate those for the aggregate measures. For *Enforcement,* the provision of a formal dispute settlement mechanism is the only statistically significant measure. Not surprisingly, the more formal the dispute settlement mechanism, the stronger the effect on trade. Moving from no dispute settlement mechanism to a formal dispute settlement mechanism increases trade by 25%, about the same effect as creating a free trade area. None of the three measures associated with impoing costs for violating the agreement have a significant effect.[28] This suggests that greater costs for violating an agreement are not necessary to increase trade. However, the costs do not

[27] In results not shown, we include separate dummy variables for preferential agreements and for free trade agreements; the latter is statistically significant while the former is not.

[28] In results not shown, we recoded the cost measures such that any mention of cost received a score of 1 and no mention received a score of 0. This change does not affect the results; the coefficients remain insignificant. Almost all PTAs coded have some value for at least one of the three cost components, so the dichotomous variable is very similar to the dichotomous PTA variable.

have to be prohibitive. The *Flexibility* measures concerning dumping and escape clause invocation have positive but marginally significant effects on trade.

Overall, then, governments do not need to tie their hands too tightly when signing PTAs. Giving up more trade policy discretion increases trade more than giving up less discretion. Trade also increases more if a government is given some latitude to violate the agreement than if a government is prevented from violating the agreement. Moreover, the costs that a government pays for violating the agreement do not have any effect on trade. That is, an agreement that imposes high costs for violating the agreement does not increase trade more than one that imposes low costs.

Conclusion

In this paper, we argue that PTAs should not all be treated the same and that differences in their provisions have different effects on trade-creation. Some agreements are weaker than others in providing for the liberalization of trade, as they allow for trade-distorting measures or provide subjective dispute settlement mechanisms that frustrate trade. We construct an index of PTA provisions based on their legal texts and apply it to PTAs involving at least one Asian country. The wide variation in judicialization in trade agreements and other control variables such as economic size and development among countries in the region provide a very good testing ground for our argument, and we expect that these findings are generalizable to a larger sample that includes countries outside the region.

In our results, we find that a dichotomous measure of PTAs does not significantly affect trade flows for 1970 to 2006. In support of our first hypothesis, our measure of commitment,

which combine the amount of trade policy discretion a government gives up and the enforcement mechanisms in an agreement, does have a significant positive effect on trade. When we break out the discretion and enforcement components, we find that the more discretion a government gives up, the stronger the effect on trade, supporting our second hypothesis. We find little support that enforcement mechanisms increase trade. Surprisingly, this seems to be largely because the costs of violating the agreement do not have an effect. Moreover, some flexibility in invoking trade remedies has a significant effect on trade. Rather than tying their hands as strongly as possible, then, governments may be better off leaving themselves some room to respond to exogenous shocks. Not only may flexibility increase the likelihood of compliance with the agreement, as others have argued, it may increase trade more.

These distinctions become increasingly important as PTAs are likely to remain a permanent feature of the trade governance landscape of the international economy, especially so long as the WTO continues to be unsuccessful in concluding the Doha Round. The agreements examined in this study focus on a region that has been especially active in PTA-formation in recent years. The agreements are indicative of the diversity of institutional arrangements more broadly and their differential impact on trade expansion. Implementation of the agreement is the responsibility of the government. As Haftel (2012) finds, there is a gap between design and implementation; agreements between natural trading partners tend to be more fully implemented. Our argument suggests that the design of the agreement also matters. Agreements that overreach and do not allow as much flexibility may end up being ignored by governments. At the same time, during the negotiation stage, governments may fear the commitment of their partners and want less flexibility to prevent cheating. Our analysis highlights this tradeoff that governments

face in signing onto PTAs. The results indicate that strong trade liberalization programs in PTAs that are tempered by flexibility mechanisms that leave room for temporary "escape" are most likely to promote trade between agreement partners.

Table 1: PTA coding scheme

The characteristics of PTAs have been grouped into three categories: *Discretion, Enforcement, and Flexibility.* The analysis employs the average score across these categories for the index of index of PTA commitment and separate scores by category to examine the individual effects of these institutional mechanisms on trade flows. .

Trade Policy Discretion
The indicators in this category focus on the depth of the PTA, or the range of products covered and whether standards other than trade are covered. For the products
covered and the timetable of reductions, the more stringent reductions will be coded.

Type of PTA proposed: the level of integration proposed in the agreement.

0	Preferential trade agreement
.25	Free trade agreement
.5	Customs union
.75	Common market
1	Economic union

Reciprocal: Are the tariff reductions reciprocal?

0	Concessions by only one party
.5	Concessions by both, but different timeframes
1	Reciprocal reductions

Industry: Does the agreement cover industrial products?

0	No or very few industrial products covered (<10%)
.5	Some industrial products covered (20-80%)
1	All industrial products covered (>80%)

Agriculture: Does the agreement cover agricultural products?

0	No or very few agricultural products covered (<10%)
.33	Some processed agricultural products covered (20-80%)
.66	Some raw agricultural products covered (20-80%)
1	All agricultural products covered (>80%)

NTBs: Does the agreement cover non-tariff barrier restrictions on trade?

0	No mention
.33	Quantitative restrictions eliminated more slowly than tariffs
.66	Eliminated at same pace or more quickly, but exclusions allowed
1	Eliminated at same pace or more quickly than tariffs and no exclusions

Techbarrier: How stringent are restrictions on technical barriers to trade?

0	Not covered
.25	Barriers not to restrict trade
.5	Cooperation on standards
.75	Standards must be objective, with some exceptions allowed
1	Standards must be objective, with no exceptions

Enforcement

The indicators in this category measure the strength of a PTA's enforcement mechanisms.

Dispute settlement: How are disputes between the parties settled?

0	No dispute settlement mentioned
.5	Informal consultations between the parties
1	Formal process in place

Resolution: In case of disputes, how binding is the resolution?

0	Not mentioned
.33	Resolution is suggestive but not binding
.66	Resolution binding, but can be appealed
1	Resolution binding and cannot be appealed

Compensation: When compensation is decided, how is the amount determined?

0	Not mentioned
.33	At discretion of contracting party with no standard
.66	At discretion of contracting party with specific guidelines
1	At discretion of formal arbiters

EC action: If protection from import surges is required, how is the level decided? (WTO agreement has 4 year limit and compensation)

0	No mention
.25	Suspension of tariff concessions on surge product
.5	Suspension of concessions with specific time limit (<=2 years)
.75	Suspension of concessions with compensation to other party
1	Suspension of concessions with compensation and time limit

Flexibility mechanisms

The measures in the category indicate the stringency of conditions for invoking trade remedy provisions.

Escape clause identification: How are import surges identified?

.33	Countries identify import surges
.5	Stricter standards than WTO/specific guidelines (before WTO)
1	Consultations between parties with no settlement mechanism/ Based on objective criteria (WTO guidelines)/consultation with settlement mechanism (non-WTO)

Dumping clauses: Stringency of anti-dumping clause

0	No anti-dumping clause/anti-dumping clause to be established
.5	(After 1995) Anti-dumping clause more stringent than WTO clause/(before 1995) clause contains specific guidelines for determining dumping
1	Determination of dumping up to party/ (After 1995) WTO clause/(before 1995) joint consultations to determine whether dumping occurred with possibility of outside mediation

Table 2: Descriptive statistics by category

	Discretion	**Enforcement**	**Flexibility**
Average score	0.543	0.629	0.838
Discretion below mean	--	0.379	0.732
Discretion above mean	--	0.793	0.907
Correlation			
Discretion	1.000		
Enforcement	0.737	1.000	
Flexibility	0.461	0.388	1.000

Table 3: Confirmatory Factor Analysis: Discretion, Enforcement, and Flexibility

Discretion		***Enforcement***		***Flexibility***	
Type	1.000 (.)	Dispute	1.000 (.)	Escape Flexibility	1.000 (.)
Reciprocal	0.273 (0.38)	Binding Resolution	1.793*** (0.248)	Dumping Flexibility	6.172 (4.22)
Industry	4.589*** (0.47)	Compensation	1.558*** (0.18)		
Agriculture	4.209*** (0.46)	Escape Clause Action	1.163*** (0.226)		
NTB	0.998** (0.42)				
Technical Barriers to Trade	1.589*** (0.44)				
Covariances					
Cov(Discretion, Enforcement)	0.011*** (0.003)				
Cov(Discretion, Flexibility)	0.002 (0.002)				
Cov(Enforcement, Costs)	0.005 (0.004)				
N=55					

** p<0.05, *** p<0.01

Note: estimates generated using *sem* command in Stata 12. Constants and error variances not reported. Values of 1 are normalization constraints.

Table 4: Regression results: 1970-2006

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
RTA dummy	0.145								
	(0.090)								
Discretion		0.412**							
		(0.177)							
Enforcement			0.157						
			(0.146)						
Flexibility				0.230**					
				(0.113)					
>Discretion mean					0.277**	0.226			
					(0.129)	(0.140)			
>Enforcement mean					-0.00575				
					(0.267)				
>Discret & enforce mean					-0.133				
					(0.303)				
>Flexibility mean						-1.045***			
						(0.207)			
>Discret & flex mean						1.060***			
						(0.271)			
Discretion index							1.228**		
							(0.504)		
Enforce. Index								0.417*	
								(0.252)	
Flex. Index									1.877**
									(0.843)
GDP	0.777***	0.775***	0.780***	0.778***	0.772***	0.774***	0.774***	0.779***	0.778***
	(0.083)	(0.083)	(0.083)	(0.083)	(0.083)	(0.083)	(0.083)	(0.083)	(0.083)
GDP per capita	0.522***	0.523***	0.520***	0.522***	0.526***	0.525***	0.524***	0.520***	0.522***
	(0.079)	(0.079)	(0.079)	(0.079)	(0.079)	(0.079)	(0.079)	(0.079)	(0.079)
Both GATT	-0.0661	-0.0668	-0.0641	-0.0682	-0.0655	-0.0653	-0.0646	-0.0647	-0.0682
	(0.063)	(0.063)	(0.063)	(0.063)	(0.063)	(0.063)	(0.063)	(0.063)	(0.063)
One GATT	-0.0732	-0.0742	-0.0716	-0.0753	-0.0729	-0.0733	-0.0723	-0.0720	-0.0754
	(0.057)	(0.057)	(0.057)	(0.057)	(0.057)	(0.057)	(0.057)	(0.057)	(0.057)
Currency union	0.911**	0.912**	0.912**	0.911**	0.913**	0.910**	0.926**	0.926**	0.929**
	(0.390)	(0.389)	(0.390)	(0.390)	(0.389)	(0.389)	(0.389)	(0.390)	(0.389)

Constant	-43.85***	-43.78***	-43.99***	-43.90***	-43.67***	-43.76***	-43.75***	-43.94***	-43.91***
	(2.965)	(2.965)	(2.960)	(2.960)	(2.973)	(2.976)	(2.966)	(2.959)	(2.959)
N	145255	145255	145255	145255	145255	145255	145255	145255	145255
# of clusters	8120	8120	8120	8120	8120	8120	8120	8120	8120

Significance levels: * .10 ** .05 *** .01; Note: All models contain year and dyadic fixed effects.

Table 5: Effect of Individual Index Components: 1970-2006

	Dep. var.: Log of imports		
	b	**se**	**Increase in trade**
Discretion			
Type	0.908**	0.404	.255
Reciprocal	0.226**	0.104	.254
Industrial Goods	0.258**	0.104	.294
Agricultural Goods	0.269**	0.117	.309
Non-Tariff Barriers	0.264*	0.140	.302
Technical Barriers to Trade	-0.155	0.175	-.144
Enforcement			
Dispute settlement	0.221**	0.107	.247
Binding resolution	0.009	0.133	.009
Compensation	0.076	0.130	.079
Escape clause action	0.001	0.141	.001
Flexibility			
Escape clauses	0.157*	0.091	.170
Dumping	0.206*	0.109	.229

Significance levels: * .10 ** .05 *** .01

Note: The remaining variables from Table 4 are included in the models but are not shown in order to conserve space. All models contain year and dyadic fixed effects. The increase in trade measures the increase if the variable is moved from 0 to its maximum value.

Appendix 1: Asian PTAs in the sample

Agreement	Signed	In Force
ASEAN Free Trade Area	1992	1992
ASEAN Preferential Trade Agreement	1977	1977
ASEAN-China Economic Cooperation Agreement	2004	2005
ASEAN-Korea Economic Cooperation Agreement	2005	2006
Australia-New Zealand Trade Agreement	1965	1966
Bahrain-Thailand	2002	2002
Bangkok Agreement	1975	1976
Canada-Australia	1960	1960
Economic Cooperation Organization Trade Agreement	2003	
EFTA-Singapore FTA	2002	2003
India-Afghanistan PTA	2003	
India-Chile PTA	2006	2007
India-MERCOSUR PTA	2004	
India-Singapore Economic Cooperation Agreement	2005	2005
India-Sri Lanka FTA	1998	2001
Indo-Nepal Treaty of Trade	1991	1991
Japan-Brunei FTA	2007	2008
Japan-Chile EPA	2007	2007
Japan-Indonesia EPA	2007	2008
Japan-Malaysia EPA	2005	2006
Japan-Mexico EPA	2004	2005
Japan-Philippines EPA	2006	
Japan-Singapore Economic Agreement	2002	2002
Japan-Thailand EPA	2007	2007
Korea-Chile FTA	2003	2004
Korea-EFTA FTA	2005	2006
Korea-Singapore FTA	2005	2006
Korea-United States FTA	2007	
Laos-Thailand PTA	1991	1991
Malaysia-Pakistan Closer EPA	2005	2008
Melanesian Spearhead Group	1993	1993
New Zealand-China FTA	2008	2008
New Zealand-Singapore Closer EPA	2000	2001
Pacific Island Countries Trade Agreement	2001	2003
Pakistan-Iran PTA	2004	2006
Pakistan-Mauritius PTA	2007	2007
Pakistan-Sri Lanka FTA	2002	2005
Papua New Guinea-Australia Trade and Commercial Region	1976	1977
People's Republic of China-Chile FTA	2005	2006
People's Republic of China-Hong Kong Closer EPA	2003	2004
People's Republic of China-Macao Closer EPA	2003	2004
People's Republic of China-Pakistan FTA	2006	2007
PTA-Group of Eight Developing Countries	2006	
Singapore-Australia FTA	2003	2003
Agreement	**Signed**	**In Force**
Singapore-Jordan FTA	2004	2005
Singapore-Panama FTA	2006	2006

South Asian Free Trade Area	2004	2006
South Asian Preferential Trade Area	1993	1995
Taipei,China and Guatemala FTA	2005	2006
Taipei,China and Nicaragua FTA	2006	2008
Taipei,China and Panama FTA	2003	2004
Thailand-Australia FTA	2004	2005
Thailand-New Zealand Closer EPA	2005	2005
Trade Expansion and Cooperation Agreement	1967	1968
Trans-Pacific Strategic EPA	2005	2006
United States-Australia FTA	2004	2005
United States-Singapore FTA	2003	2004

Appendix 2: Asian countries in the quantitative analysis

Australia
Bangladesh
Bhutan
Brunei
Cambodia
China
East Timor
Federated States of Micronesia
Fiji
India
Indonesia
Japan
Kiribati
Korea
Laos
Malaysia
Maldives
Marshall Islands
Mongolia
Myanmar
Nauru
Nepal
New Zealand
Pakistan
Palau
Papua New Guinea
Philippines
Samoa
Singapore
Solomon Islands
South Korea
Sri Lanka
Taiwan
Thailand
Tonga
Tuvalu
Vanuatu
Vietnam

Appendix Table 3: Component descriptions

	N	Mean	Std Dev	Min	Max
Type	57	0.175	0.115	0	0.25
Reciprocal Agreement	57	0.798	0.265	0	1
Industrial	57	0.693	0.441	0	1
Agricultural	57	0.683	0.420	0	1
NTBs	57	0.551	0.289	0	1
TBT	57	0.355	0.327	0	1
Dispute settlement	57	0.868	0.222	0.5	1
Resolution	57	0.642	0.431	0	1
Compensation	57	0.470	0.343	0	1
Esc clause action	55	0.568	0.355	0	1
Escape clause	57	0.950	0.164	0.33	1
Dumping	57	0.754	0.413	0	1

Appendix Table 4: Component correlations

	Type	Recip.	Industrial	Agricultural	NTBs	TBT	Dispute settle	Resolution	Compensation	Esc. clause action	Escape clause	Dumping
Type	1											
Recip	0.066	1										
Industrial	0.812	0.092	1									
Agricultural	0.730	0.094	0.929	1								
NTBs	0.271	-0.155	0.277	0.382	1							
TBT	0.408	0.145	0.434	0.463	0.256	1						
Dispute settle	0.474	0.056	0.577	0.496	0.407	0.625	1					
Resolution	0.370	0.094	0.483	0.484	0.364	0.580	0.675	1				
Compensation	0.414	0.005	0.442	0.474	0.353	0.644	0.799	0.734	1			
Esc clause action	0.605	0.056	0.594	0.6453	0.323	0.565	0.496	0.516	0.568	1		
Escape clause	0.216	0.304	0.123	0.091	0.003	0.103	0.244	0.198	0.200	0.201	1	
Dumping	0.364	0.320	0.369	0.410	0.316	0.463	0.327	0.462	0.252	0.302	0.278	1

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