

Untangling the Spaghetti Bowl: Regime Complexity, Information Asymmetry, and GATT/WTO's Consideration Process of PTAs

Moonhawk Kim
University of Colorado Boulder
Moonhawk.Kim@colorado.edu

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Abstract

Since its inception, the GATT/WTO has had a procedure in place to examine PTAs its members form. Although most scholars have dismissed this procedure as ineffectual, I ask why the multilateral institution examines some PTAs but not others. Building on the growing literature on regime complexity, I argue that PTAs exhibit different types and degrees of regime complexity. When PTAs are in regimes with greater fragmented complexity—members of the PTA simultaneously belong to numerous other PTAs—the GATT/WTO membership is more likely to consider them. The same is not true when PTAs are in regimes with greater overlapping complexity—members of the PTA simultaneously share membership in other PTAs. The consideration process—as the WTO now calls it—reduces imperfect information about unclear trade rules and incomplete information about the possible protectionist intentions of the PTA-forming states, both associated with high fragmented complexity. In this manner, the multilateral process helps untangle the spaghetti bowl in the world trading system created by the proliferation of PTAs. Novel data on the consideration process and measures of PTA regime complexity provide strong evidence in support of the argument.

Introduction

The relationship between preferential trade agreements (PTAs)¹ and the multilateral trading system anchored initially by the General Agreement on Tariffs and Trade (GATT) and subsequently by the World Trade Organization (WTO) has always been characterized by a tension. On the one hand, the multilateral system champions non-discrimination among trade partners through the most favored nation (MFN) treatment norm (Finlayson and Zacher 1981; Ruggie 1982). On the other hand, preferential arrangements discriminate against trade partners that do not belong in their agreements.

The historical irony is that the multilateral system incorporated an explicit exception to the MFN norm—Article XXIV of the GATT—allowing member states of the GATT/WTO to form PTAs.² The primary motivation for this exception was largely for former imperial powers to maintain a preferential commercial relationship with their former colonies (Barton et al. 2006, 53; Irwin, Mavroidis, and Sykes 2008).³ Against this background, the number of PTAs steadily increased during the Cold War era. Around the end of the Cold War, however, the number of PTAs started to increase exponentially (Mansfield and Milner 1999). The most authoritative compilation of postwar trade agreements shows that the total number of agreements is over 700 during the post-World War II period (Dür, Baccini, and Elsig 2013).

The same provision of the GATT/WTO agreement that grants the exception for member states to form PTAs, however, also empower the multilateral institution to provide oversight over PTAs. Although the membership does not have the authority to veto any PTA, member

¹I use the term preferential trade agreements (PTAs) to refer to any international agreements among two or more states to reciprocally lower trade barriers. The World Trade Organization (WTO) uses the term regional trade agreements (RTAs) for these institutions, and reserves the term PTA for programs of unilateral trade preferences.

²Mitchell and Lockhart (2009) provides a comprehensive legal analysis of Article XXIV. Eventually, the Enabling Clause provides an alternative exception for PTAs as well.

³Barton *et al.* also argue that the tolerance of the preferential system can increase political support for more rapid liberalization (52-53).

states are required to notify any PTAs they form to the GATT/WTO and the membership has the authority to examine the agreements that GATT/WTO members form and notify. In the recent years, this undertaking has been dubbed the “consideration process.” However, many agreements never receive a formal consideration by the GATT/WTO, and, even more problematically, many GATT/WTO member states never formally notify the institution of the PTAs they form with other states. Agreements that do undergo the consideration process sometimes are subjected to multiple rounds of questioning, requiring formal responses from the states forming the PTA. These dynamics raise the following research question: What explains GATT/WTO members’ choice to notify PTAs they form to the multilateral membership, and the membership’s subsequent choice to scrutinize the notified agreements? Both the rapid increase in the number of PTAs—and the number of states belonging to one or more of them—and the apparent inability of the GATT/WTO to check such a proliferation have led analysts to dismiss the consideration process of PTAs as being meaningless. GATT/WTO members’ failures to notify the institution of the PTAs they form with impunity only further highlight this impotence. Contrary to this conventional wisdom, however, a great deal of variation exists in the PTA consideration process. Among the preferential agreements that GATT/WTO member states notify to the institution, many receive no examination at all by the multilateral membership, while others do get scrutinized. In these latter cases, the PTA members undergoing the consideration process face numerous questions from numerous GATT/WTO members over multiple rounds of question-and-answer sessions.

Such consideration process is not effortless. With the latest modification of the consideration process, it starts with the WTO Secretariat preparing a factual presentation that summarizes the PTA and the member countries involved in the PTA. Then among the GATT/WTO members at large that choose to participate in the consideration process pose substantive and

clarification questions about the PTA and its anticipated effects on trade and on GATT/WTO members outside the PTA under examination. Then PTA member countries in turn prepare answers to these questions and prepare a formal document in response. The countries involved in the process can iterate such questions and replies over multiple rounds.

While the consideration process can be easily dismissed as mere bureaucratic procedures without any consequence, in this article, I offer a novel argument and empirical evidence that account for the pattern of 1) states' notification of PTAs to the GATT/WTO and 2) GATT/WTO membership's examination of such notified PTAs. I argue that the PTA consideration process serves to help states untangle the "spaghetti bowl" of the international trading system. As Bhagwati has forcefully argued over many years, the rise and the spread of PTAs has resulted in an international trading system that mimics a spaghetti bowl. In such a system, any given state belongs to multiple trade institutions, and rules that govern trade between any pairs of states become very complex.

In this setting, I argue that GATT/WTO member states can use the PTA consideration process to reduce asymmetric information and to clarify how the PTA under consideration fits into the existing trading system consisting of both the GATT/WTO and extant PTAs. More specifically, I argue that the spaghetti bowl syndrome can be decomposed to two types of regime complexity at the level of PTAs—fragmented and overlapping regime complexities. Fragmented complexity is high when members of a PTA belong to numerous *other* PTAs. Overlapping complexity is high when a large number of members of a PTA simultaneously *share membership* in other PTAs. The former type of complexity create imperfect information problems—other states do not know the precise trade rules and preferences due to complicated criss-crossing of agreements—and incomplete information problems—states forming the PTA in question may have protectionist intents, to reduce trade through complex PTAs. The GATT/WTO membership can use the consideration process to reveal information. Given this,

members of PTAs unwilling to undergo the process choose not to notify their PTAs to the GATT/WTO. By contrast, the latter type of complexity does not generate such pernicious problems. Analysis based on novel consideration data and innovative measures of regime complexity at the level of PTAs strongly supports this argument.

Examining the PTA consideration process is important because the phenomenon manifests a deeper dynamic between the multilateral and the preferential trading systems in the world economy. A longstanding debate has existed on the compatibility and complementarity between the multilateral and the preferential trading systems. Bhagwati, a vocal critic of the preferential system, has referred to PTAs as termites (Bhagwati 2008). Despite these ongoing concerns about how PTAs fit into the existing multilateral trading system, scholars have not sufficiently examined how the GATT/WTO membership *politically* addresses PTAs that states create. This article seeks to remedy that oversight. Whether GATT/WTO membership inspects a pending PTA captures the compatibility and complementarity, or the lack thereof, between the two trade systems. Even if the GATT/WTO membership cannot strike down a PTA, the consideration process is the point at which it can exert the greatest leverage on members forming PTAs. Subsequent to a PTA's entry into force, GATT/WTO members outside the arrangement can file dispute claims against the members of the PTA for non-compliance over how the PTA functions with respect to the GATT/WTO. However, these complaints typically point to specific policy within the PTA rather than the overall design of it. Moreover, according to the WTO Dispute Settlement Data Set by Horn and Mavroidis (2013), covering disputes through the middle of 2011, only eight requests for consultation during the period cite violation of Article XXIV—the PTA exemption—as one of the claims. The implications of this study extends beyond the study of international political economy. Whereas scholars have largely highlighted the salutary effects of international institutions, the findings in this article underline the potentially detrimental consequences of international

institutions. Rather than making facilitating information flows in international politics, some institutions—such as PTAs with high fragmented regime complexity—can hamper information flows. While the issue-area of trade has a multilateral institution that can in turn seek to mitigate such problems, other issue-areas may lack similar buffers. In this manner, this article provides novel contributions to both the literature on international institutions (e.g., Keohane 1984) and the literature on the role of information in international politics [e.g., Thompson06a; Mitchell98a].

In the next section, I first summarize the causes and consequences of the spaghetti bowl, and how it increases complexity in the international trading system. I develop the two concept of regime complexity—fragmented and overlapping—at the level of PTAs. I then argue how fragmented regime complexity of PTAs generate imperfect and incomplete information problems. By tracing the mechanism of the consideration process, I argue how the consideration process can mitigate the information asymmetry. The subsequent section examines the hypotheses that the argument generates. The analysis uses novel data on the consideration process and new measures of regime complexity and accounts for PTA-forming states selecting themselves into notifying their agreement. The last section concludes the article by summarizing the findings, stating broader implications for analysis and policy, and outlining an agenda for future research.

Information Problems and Solutions in the Spaghetti Bowl

The Spaghetti Bowl and Regime Complexity

Causes and Consequences of the Spaghetti Bowl

Bhagwati (1995, 2008) has referred to the contemporary international trading system as a “spaghetti bowl,” in which the world is characterized by a high number of overlapping and criss-crossing trade agreements among states. It is a world in which rules governing trade between any two states become highly complex and ambiguous, as the layers of agreements increasingly muddle exactly how much trade preference a state’s exports should receive in the destination state. This uncertainty also has consequences for states outside the agreements, as any changes in their exports to PTA states depend on the extent of the trade preferences among the PTA states (Chang and Winters 2001).

Bhagwati points to the rules of origin as the main culprit: “The chaos resulting from arbitrary rules of origin, designed to establish which product is whose. . . would be considerable even if the rules of origin were unique and uniformly applied” (2008, 66). In reality, the rules are far more complex. “For, in practice, the rules of origin vary between members and nonmembers, across different FTAs by the same country, and across different products within each FTA” (2008, 68).

The problem that the spaghetti bowl creates in this manner and beyond causes distortions in trade and investment. Figuring out the optimal sources of components in international supply chains is costly. Smaller enterprises and developing countries are less able to bear these costs (Bhagwati 2008, 69–71). The World Trade Organization’s 2011 *World Trade Report* summarizes numerous firm-level surveys that demonstrate the difficulties that firms have in

navigating the trading system characterized by the spaghetti bowl (World Trade Organization 2011). Firms frequently even forgo the preferential treatment that a PTA enables due to the complexity of criss-crossing trade agreements.

At the level of the system, the spaghetti bowl is a collectively suboptimal outcome that results from individually optimal choices. States fearing greater protection by others resulting from hegemonic decline and economic downturns seek to maintain market access abroad by forming preferential trade agreements (Mansfield 1998). Moreover, states excluded from the preferential arrangements of their trade partners may suffer from decline in their terms of trade (Chang and Winters 2001, 2002; Winters and Chang 2000). This can lead to a “domino effect” in which formation of a PTA by a set of states leads the excluded states to subsequently form a PTA (Bergsten 1996; Lazer 1999; Mansfield 1998; Pahre 2008).

States’ individually optimal choice for PTA formation may result from domestic political dynamics as well. Scholars have identified regime type and domestic political institutions as factors that influence states’ propensity for forming trade agreements. Democracies are more likely to form PTAs (Mansfield, Milner, and Rosendorff 2000, 2002), but states with more veto players are less likely to form them (Mansfield, Milner, and Pevehouse 2007) and to form shallower agreements (Mansfield, Milner, and Pevehouse 2008). Focusing more on the preferences than the institutions, Chase (2003) argues that the demands of domestic firms for economies of scale and efficient production sharing arrangements can lead to regional trade agreements.

In short, while the spaghetti bowl is an unwelcome characteristic of the international trading system, this systemic outcome is an aggregation of foreign economic policies by states. This distinction is important for better conceptualizing the nature of complexity that PTAs bring to the trading system and the problems the complexity poses for states outside PTAs.

Conceptualizing Complexity in the Spaghetti Bowl

A long-standing literature exists on theorizing the relationship among international institutions. Aggarwal (1985) developed the initial ideas of hierarchical and nested institutions, which he further elaborates in his subsequent works (Aggarwal 1998, 2005).⁴

Building on this literature Alter and Meunier (2009) outline a broader research agenda for analyzing complexity in international regimes.⁵ It is “the presence of nested, partially overlapping, and parallel international regimes that are not hierarchically ordered” (13).⁶ They summarize the consequences of this complexity in four areas—politics over the implementation stage, bounded rationality of actors, small group environments, and feedback effects—and lay out a research agenda in each.

Davis (2009) then explores the consequences of regime complexity in international trade. She argues that regime complexity in the international trading system impedes the negotiating stage by disaggregating the broad coalition of exporters, which is necessary for states’ commitments to liberalize. At the enforcement stage, she argues that complexity can produce contradictory rulings and undermine compliance. Focusing on the WTO, however, Davis does not delve into PTAs that create the difficulties for the multilateral trade institution in the first place.

In this article, I elaborate on the concept of regime complexity. The spaghetti bowl as Bhagwati conceptualizes is a *system* level characteristic: The entire international trade system is a complicated web of intersecting trade agreements. However, I advance a more rigorous conceptualization of regime complexity at the level of each trade agreement that contributes to the complexity. Identifying the nature of complexity at the level of PTAs helps

⁴Jupille and Snidal (2006) devise a model of states choosing between institutional change and creation in the context of preexisting institutions.

⁵Raustiala and Victor (2004) originated the concept of “regime complex,” which they define as “a collective of partially overlapping and nonhierarchical regimes” (279).

⁶The illustration for this concept is a diagram of the spaghetti bowl in the international trading system.

better determine the relevant actors, their interests, and their interactions underlying the causes and consequences of the complexity.

In order to conceptualize regime complexity at the level of PTAs, I first advance a definition of trade regime at that level. An *international trade regime* is a collection of all international trade agreements that govern the trade policies of *a set of countries*. Accordingly, the international trade regime of a PTA is the collection of all trade agreements that govern the trade policies of the member states of that PTA. This conceptualization differs from the traditional one (e.g., Krasner 1983) in two ways. First, the ontological units are states rather than institutions. Regimes are defined by states they govern rather than as a collection of rules and agreements. Second, the scope of relevant states is smaller. Whereas analysts typically conceptualize regimes to be global, they can be for subsets of states as well.

Building on this conceptualization, I distinguish two different types of regime complexity at the PTA level. One is *fragmented regime complexity* and the other is *overlapping regime complexity*. Fragmentation happens when members of a PTA simultaneously belong to numerous *different* PTAs beyond the one in question. The following scenario exemplifies fragmented complexity: Member State 1 of PTA A simultaneously belong to PTAs B and C. Member State 2 of PTA A simultaneously belong to PTA D and E. Member State 3 of PTA A simultaneously belong to PTA F, etc. Member states of the PTA in question—PTA A—concurrently belong to other disparate trade agreements, and that leads the PTA to have high fragmented complexity. Figure 1 illustrates this scenario.

This is in contrast to overlapping complexity, in which members of a particular PTA also *share* membership in other PTAs beyond the one in question. The following scenario exemplifies this: Member State 1 of PTA A simultaneously belong to PTAs B and C. Member State 2 of PTA A simultaneously belong to PTAs B and C. Member State 3 of PTA A simultaneously belong to PTA C, etc. The complexity is overlapping in that PTAs other than the one in

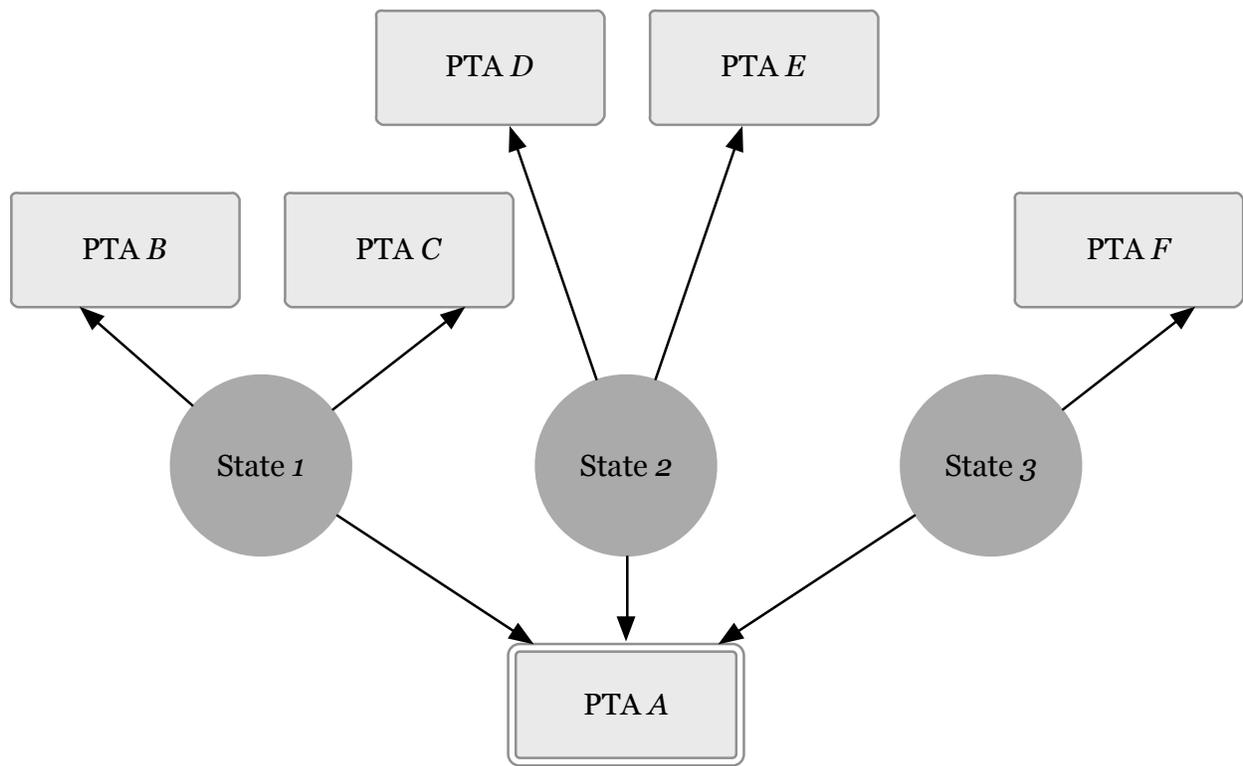


Figure 1: Fragmented Regime Complexity

question regulate trade between some subset of member states of the PTA in question. Figure 2 illustrates this scenario.

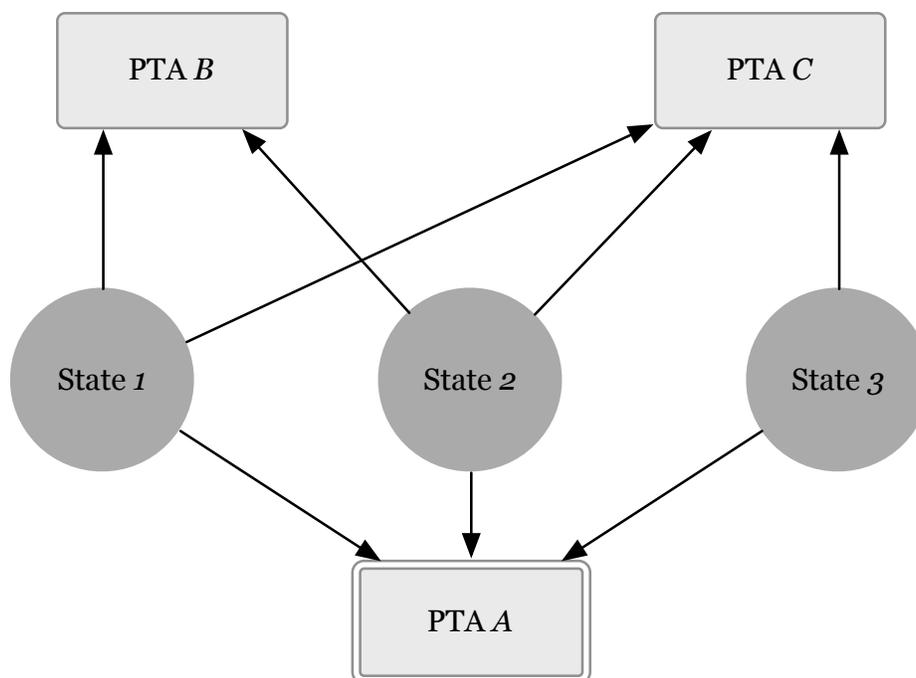


Figure 2: Overlapping Regime Complexity

These two concepts are fully consistent with how scholars have conceptualized regime complexity at the international level and with how Bhagwati has described the spaghetti bowl phenomenon. Moreover, the two types of complexity usefully decompose the phenomenon into independent components that can shed light on the politics over it.

Regime Complexity and Information Problems

As Alter and Meunier (2009) argue, regime complexity can generate various problems for states in governing their relations. Among them, I argue the most critical problem affecting the GATT/WTO consideration process is that related to bounded rationality that complexity

forces on actors. Relying on the organizational behavior and political psychology literatures, Alter and Meunier argue the complexity leads to incremental decision-making and reliance on “heuristics to cut through what is an overwhelming amount of information” (2009, 17).

In contrast to what they assert, I argue that the problem is not of informational abundance but of informational scarcity. Complexity of regimes surrounding PTAs lead actors outside the regimes to lack critical information. Such dearth of information nevertheless leads to similar problems for decision-making that surfeit of information may cause.

Among the relevant groups of actors—states inside and outside the PTA in question and the private economic actors in both states—information problems result from the difficulty in identifying the rules applying to trade between countries inside and outside the PTA and among countries inside the PTA. This gives rise to two types of asymmetric information problems with PTAs in fragmented regimes, which do not arise with PTAs in overlapping regimes. In particular, I argue that high levels of fragmented regime complexity surrounding PTAs can produce both imperfect and incomplete information problems, which overlapping complexity does not.

In the first type of information problem, relevant actors can lack knowledge about the state of the world. States and private economic actors outside the PTA may not know the rules and barriers involved in exporting to the countries forming the PTA in question. This is an *imperfect* information problem in which actors do not know where in the game tree they are located. Outside actors care about this information due to potential diversion in trade that can result from the implementation of the new PTA. Moreover, even private economic actors inside the PTA may not know the barriers involved in exporting to their PTA partner countries. Although these actors can always fall back on the most favored nation (MFN) rates, the opportunity costs of doing so in the presence of a PTA may be high, especially in the presence of global value chains.

The missing information on barriers and regulatory rules—including rules of origin—is costly to obtain for actors lacking it. Both states and private actors likely need to enlist assistance of legal professionals to figure out the precise treatment of products they would like to export. At the level of the firms, the costs of doing so for the products they export may outweigh that of foregoing the preferential treatment. At the level of the states, the costs of doing so for all the products the country exports may be prohibitive.

A similar problem does not exist in PTAs with high overlapping regime complexity rather than high fragmented complexity. A simple heuristic for actors inside and outside the PTA in question may be that the latest agreement governing the trade relations among the states prevails. States and economic actors need not know what agreements preceded the one at hand. In terms of the hierarchy of trade institutions, overlapping complexity would be largely characterized as “nested” institutions.⁷ In this manner, PTAs in regimes with overlapping complexity, while still complex, do not create imperfect information problems the fragmented regime complexity creates.

In the second type of information problem, relevant actors can lack knowledge about the preferences of PTA member states. Both the states and the private economic actors outside the PTA in question may not know whether the states forming the PTA are cooperative and liberal or non-cooperative and protectionist. This is an *incomplete* information problem in which actors do not know the type of other actors with whom they are interacting. Some states create PTAs with the intention to lower trade barriers and increase overall liberalization, using the agreements as “building blocks.” Other states, however, create PTAs to foster regional integration while eschewing liberalization at a broader level. Chase (2003) argues that firms may oppose liberalization beyond the regional level if they cannot become sufficiently productive. More generally, states may pursue “disguised protectionism,” which makes it

⁷PTAs with overlapping complexity may not be fully nested in that the membership between the current and other extant agreements may not completely coincide.

difficult for their trade partners to decipher their true preferences. Or states forming PTAs can pursue “strategic inconsistency,” that intentionally “craft rules in one elemental regime that are incompatible with those in another” (Raustiala and Victor 2004), which would undermine a rule in another agreement (Alter and Meunier 2009).

While discerning states’ types is difficult, the nature of the regime complexity surrounding the PTA at hand *partially* reveals which type the PTA-forming states are. The imperfect information problem surrounding PTA regimes affects this revelation. States forming PTAs in regimes with greater fragmented complexity are more likely to be non-cooperative and protectionist because the costliness of information about trade barriers that the regimes create. The dynamics may be akin to democracies hiding behind obscure trade barriers (Kono 2006). By contrast, PTAs in regimes with greater overlapping complexity likely deepen liberalization among the members, and states forming them are more likely to be cooperative and liberal. The extent and the type of regime complexity, however, do not fully reveal states’ types, because the regime complexity of PTAs is both partially exogenous to states forming the PTAs and does not constitute a sufficiently costly action that can signal states’ preferences. That is, simply given individual states’ incentives in PTA formation, the complexity may result without states intending to create it. Accordingly, for the states and private economic actors outside the PTA, uncertainty exists about the underlying intentions of PTA-forming states.

Interactions over the GATT/WTO Consideration Process

Whereas PTAs in trade regimes with highly fragmented complexity create both imperfect and incomplete information problems, the GATT/WTO’s RTA consideration process provides the procedures through which states can reduce the information problems.

The Design of the Consideration Process

Ever since the creation of the GATT in 1947, the institution required member states forming PTAs—customs unions or free-trade areas in its parlance—to “promptly notify” the membership with information about the proposed agreement.⁸ Moreover, in the initial design of this notification requirement, founding states of the GATT also endowed the membership with authority to recommend changes to the proposed agreement if it decided that the agreement would not lead to a customs union or a free-trade agreement within the time period that the agreement members proposed.⁹ However, as widely noted, the GATT membership never invoked its authority to censure a proposed PTA (Schott 1989).

Finger carries out the only analysis of the process, focusing on how effectively the GATT has applied the procedures (Finger 1993). He concludes, after reviewing the consideration process over the European Economic Community and arrangements involving developing countries—agreements with the EEC, the Latin American Free Trade Agreement (LAFTA) and the Association of Southeast Asian Nation’s (ASEAN) PTA—that these experiences have *not* been “supportive of a rule-based, multilateral system” by failing to fulfill member countries’ obligation with respect to GATT’s Article XXIV. His findings suggest that rather than the institution providing constraints on states’ behavior and limiting the exploitation of the PTA exemption, each consideration process was highly politicized for member states to pursue their own objectives.

The same provisions for the PTA exceptions within the institution have persisted under the WTO with some modifications.¹⁰ One of the key modifications was explicitly stating that member states could invoke the new Dispute Settlement Understanding for conflicts

⁸General Agreement on Tariffs and Trade (GATT) 1947 Article XXIV Paragraph 7(a).

⁹GATT 1947 Article XXIV Paragraph 7(b).

¹⁰“Understanding on the Interpretation of Article XXIV of the General Agreement on Tariffs and Trade 1994.”

resulting from PTAs.¹¹ Despite this addition of a potential enforcement mechanism, the WTO membership has continued in not censuring any trade agreements that its member states formed.

Rather than waiting for the conclusion of the Doha Development Round of multilateral negotiations, on December 14, 2006, the General Council of the WTO established a transparency mechanism for PTAs on a provisional basis. The key components of the mechanism include 1) early notification of trade agreements, no later than party ratification 2) secretariat's responsibility to prepare factual presentations on notified agreements. The overall objective of the new mechanism is to increase the speed and the amount of information to the membership about PTAs that the members form. One of the paragraphs in the chapeau of the agreement highlights the importance of information flows:

Convinced that enhancing transparency in, and understanding of, RTAs and their effects is of systemic interest and will be of benefit to all Members. . .

In contrast to the analysis that Finger carries out focusing on how close the institution followed the Article XXIV exception, my argument highlights the political problems over information asymmetry that the GATT/WTO mechanism addresses. More specifically, the mechanism helps member states uncover information in two stages—the notification stage and the consideration stage.

The Consideration Stage

Given the incentives of the states involved in the two stages of the process, backwards induction starting from the end of the process can generate predictions about the choices that the states will make. The general membership of the GATT/WTO outside the PTA in question

¹¹“Understanding on the Interpretation of Article XXIV,” Paragraph 12.

but especially states that trade a lot with the PTA-forming states always have an interest in reducing the information asymmetry. They will seek to obtain more information about the PTA in question to minimize the ambiguity in trade regulations resulting from fragmented complexity. They also seek to ascertain the states' motivations underlying the formation of the PTA in a regime with fragmented complexity. As Finger argues, while the founding states did not design the Article XXIV exception to distinguish between trade creation and trade diversion (Viner 1950), the exception did endeavor to "rule out discrimination as an instrument of everyday commercial policy" (Finger 1993). In other words, the membership will seek to differentiate PTA forming states between the cooperative/liberal types and the non-cooperative/protectionist types.

The core of the consideration process, which has remained the same across the pre- and post-Transparency Mechanism periods, enables the GATT/WTO membership to uncover the information. A subset of member states forms a working party to examine the proposed trade agreement and they pose questions to the states forming the agreement. The PTA states in turn provide responses to those inquiries, going into whatever levels of detail necessary for them to fully answer the questions. Such a round of questions and replies can repeat multiple times. Under the Transparency Mechanism of 2006, the WTO Secretariat has an explicit role in the process as a neutral reporter.¹² Upon receiving a notification regarding a PTA formation from some member states, the secretariat has the responsibility for preparing a factual presentation to the membership summarizing the characteristics of the agreement.

While the Committee on Regional Trade Agreements (CRTA) or the Committee on Trade and Development (CTD) implements the mechanism, depending on whether the PTA invokes Article XXIV or the Enabling Clause, any member state can submit questions for the PTA parties prior to the consideration meeting. My argument anticipates that many of

¹²"Transparency Mechanism for Regional Trade Agreements" WTO General Council Decision of 14 December 2006.

the questions will address not simply the agreement in question but also the agreement's relationship with other extant trade agreements. This dynamic is borne out even during the earlier years, when the trade regime complexity was relatively low. For example, in examining the First Agreement on Trade Negotiations Among Developing Member Countries of the Economic and Social Commission for Asia and the Pacific ("Bangkok Agreement"):

One member of the Working Party, in seeking clarification on the relationship between the Bangkok Agreement and other preferential arrangements among developing countries to which some of the participating States may also be parties, inquired what would be the situation if a participating State under the Bangkok Agreement negotiated a new preferential concession under the Protocol Relating to Trade Negotiations Among Developing Countries.¹³

The report by the Working Party also summarizes the response in the same paragraph:

In reply, the spokesman for the parties to the Agreement stated that parties to the Agreement were able to exchange concessions within the framework of other arrangements, but that concessions made under these arrangements should be extended to participating States members of the Bangkok Agreement. However, this would be considered in the light of discussions aimed at maintaining a balance of advantages.¹⁴

The questions can be quite hard-hitting as well. The questions for the consideration of the Bangkok Agreement consisted of seven sections.¹⁵ These ranged from "General Questions" to

¹³“Report of the Working Party on the First Agreement on Trade Negotiations among Developing Countries of the Economic and Social Commission for Asia and the Pacific – Bangkok Agreement” General Agreement on Tariffs and Trade, 1 March 1978. L/4635, paragraph 10, 3.

¹⁴*Id.*, 3-4.

¹⁵“First Agreement on Trade Negotiations among Developing Member Countries of the Economic and Social Commission for Asia and the Pacific (Bangkok Agreement)” General Agreement on Tariffs and Trade, 16 September 1977. L/4529.

“Relationship with Other Preferential Arrangements” and to “Rules of Origin” among others. The questions directly probed the member states’ plans and intentions:

Question 4: Paragraph 5 of Article XXIV provides for the establishment of free-trade areas and customs unions. Will the Bangkok Agreement lead to such an arrangement? Do the members have plans for such an evolution? What sort of plans?¹⁶

Question 8: Can the signatories assure the contracting parties that preferential treatment contained in the Bangkok Agreement is not intended to and will not be employed to raise barriers to the trade of other GATT contracting parties?¹⁷

Formulating responses to these questions *per se* may not be costly. In fact, the Bangkok Agreement states simply replied that

The participating States can assure the contracting parties that the preferential treatment contained in the Bangkok Agreement is not intended to raise barriers to the trade of other GATT contracting parties and therefore the question of these provisions being used for such purposes does not arise.¹⁸

However, the explicit and unequivocal responses to the membership’s inquiries entail high costs for PTA-forming states, costs that the states seeking to conceal information about their their trade arrangements or their underlying protectionist intents would be unwilling to withstand. If the PTA-forming states bluff and their responses are not credible, the membership can continue to follow up and probe in their questioning. In this manner, the

¹⁶*Id.*, 2.

¹⁷*Id.*, 3.

¹⁸*Ibid.*

GATT/WTO consideration process can reveal information about PTAs its members form and separate members with cooperative motivations from those with non-cooperative motivations. While the GATT/WTO has not struck down any PTA that has come before it, it reserves the authority to make recommendations and has exercised that authority. In the case of the Bangkok Agreement, the contracting parties decided that the PTA-forming states shall notify the institution of any future concessions or arrangements within the PTA.¹⁹ Moreover, the GATT members reserved the right to seek consultations for any nullification of benefits arising from the agreement and to refer the matter to the broader membership should the consultations not effect satisfactory outcomes. Lastly, the membership also mandated period review of the PTA's progress in implementing its recommendations.

In this manner, the consideration process enables the GATT/WTO membership to obtain more information about the trade agreements that the member states form and to ascertain the underlying motivations of the PTA-forming states. As discussed above, the information problem is likely to be the most severe for PTAs surrounded by a high degree of fragmented complexity. In these cases, the intentions of the states will be more likely to be non-cooperative and protectionist, and the agreement provisions will be more likely to be ambiguous and opaque. Accordingly, the GATT/WTO membership will be more likely to subject PTAs with higher levels of fragmented complexity to the consideration process. While resource constraints will lead the membership to examine only a subset of notified agreements, those agreements with greater fragmented complexity will have a higher probability of examination. By contrast, PTAs surrounded by a high degree of overlapping complexity do not create the same information problems and will thus be less likely to be examined.

¹⁹“First Agreement on Trade Negotiations among Developing Member Countries of the Economic and Social Commission for Asia and the Pacific (Bangkok Agreement) – Decision of 14 March 1978” General Agreement on Tariffs and Trade," 7 April 1978. L/4653.

The Notification Stage

Proceeding backward to the notification stage of the process, the argument so far leads to an explanation for states (non-)notification of PTAs they form to the GATT/WTO. Despite the requirement for GATT/WTO member states forming PTAs to notify the institution, numerous states have chosen to neglect the prescription and not notified. Notification itself is not difficult for states and PTAs to carry out. It typically involves a simple letter to the GATT/WTO, sometimes accompanied by the text of the agreement. Even member states with very weak bureaucratic and administrative capacities should be able to fulfill the requirement.²⁰ Moreover, since the multilateral institution cannot veto or require substantial alteration of PTAs, states should confront low costs for notifying their PTAs. Accordingly, some other logic likely accounts for the variation in PTAs' pattern of notification. I argue that given the costliness of the consideration process for some PTAs, only the types of PTA-forming states that are able to bear the costs are likely to choose to go through it by notifying the GATT/WTO. In other words, notification constitutes the low-cost default choice for PTA-forming states in the GATT/WTO, from which some PTA-forming states deviate.

I argue that two groups are likely to choose to go through the process by notifying their PTAs. The first group consists of PTA-forming states that are the cooperative type, which have formed a PTA in a regime with overlapping complexity. The intentions of these states are to pursue deeper integration with their existing partners, which are not inconsistent with their commitment within the GATT/WTO. They confront low costs from responding to inquiries from the membership of the multilateral institution.

The second group consists of PTA-forming states that are the non-cooperative type but,

²⁰In this project, I set aside the issue of intra-PTA bargaining over notification to the GATT/WTO by assuming that PTA act as unitary actors. PTA member states, however, may disagree on whether or not to notify their agreement to the GATT/WTO.

for exogenous reasons, confront low costs from undergoing the consideration process. In fact, the existence of this type of PTA-forming states adds values to the consideration process itself, since otherwise the cooperative and the non-cooperative types of states would separate perfectly at the notification stage. States of this type have the ability undergo the consideration process without revealing its true type. While I do not systematically theorize the sources of this ability, one example might be high levels of bureaucratic capacity, which can enable states of this type to adroitly field questions through the consideration process.

By contrast, the non-cooperative types that confront high costs from undergoing consideration will choose to not go through it and therefore will not notify the GATT/WTO of a PTA they form. Since a trade agreement will most likely not remain completely concealed, the GATT/WTO membership will eventually find out about even the agreements that PTA-forming states do not notify to the institution. Accordingly, while the non-cooperative type of states will not be able to keep their PTA hidden, they will preclude the possibility of going through the costly consideration process, which will reveal their protectionist intentions.

Hypotheses

The preceding discussion leads to two testable hypotheses—one about PTA-forming states' notifications of their agreements and the other about the consideration of notified PTAs.

H₁ (Notification Hypothesis): If a PTA is characterized by *greater fragmented regime complexity*, then the member states of that PTA are *less* likely to notify the agreement to the GATT/WTO than those of PTAs characterized by less fragmented regime complexity.

H₂ (Consideration Hypothesis): If a notified PTA is characterized by *greater fragmented regime complexity*, then the GATT/WTO membership will be *more*

likely to subject the agreement to examination.

In contrast to these hypotheses about the effects of fragmented regime complexity of PTAs, the argument proposed above does not generate specific expectations about the effects of overlapping regime complexity of PTAs. In the next section, I test these hypotheses against new data on the WTO consideration process.

Analysis of the WTO Consideration Process

Research Design and Data

The unit of analysis in the empirical tests is PTAs that states have signed. Due to lack of data for various right-hand-side variables, I limit the temporal scope of the analysis to the 1960–2009 period. The sample of all trade agreements that states signed during this period is obtained from the Design of Trade Agreements (DESTA) project (Dür, Baccini, and Elsig 2013). While the entire sample during the time period consists of 714 agreements, due to unavailability of numerous agreement texts, the size of the sample decreases to 576 agreements.

Among this set of agreements, GATT/WTO member states have notified only about 61%—or 352—of agreements to the institution. The GATT/WTO notification is from the WTO website²¹, which summarizes the notification dates and basic summaries of agreements for all agreements, both those in force and those no longer active. Figure 3 plots the total count of PTAs states have signed each year in light gray bars, and the total count of PTAs states have notified to the GATT/WTO each year in dark gray bars.

²¹“Regional Trade Agreements Information System (RTA-IS)” World Trade Organization (WTO). <http://rtais.wto.org>

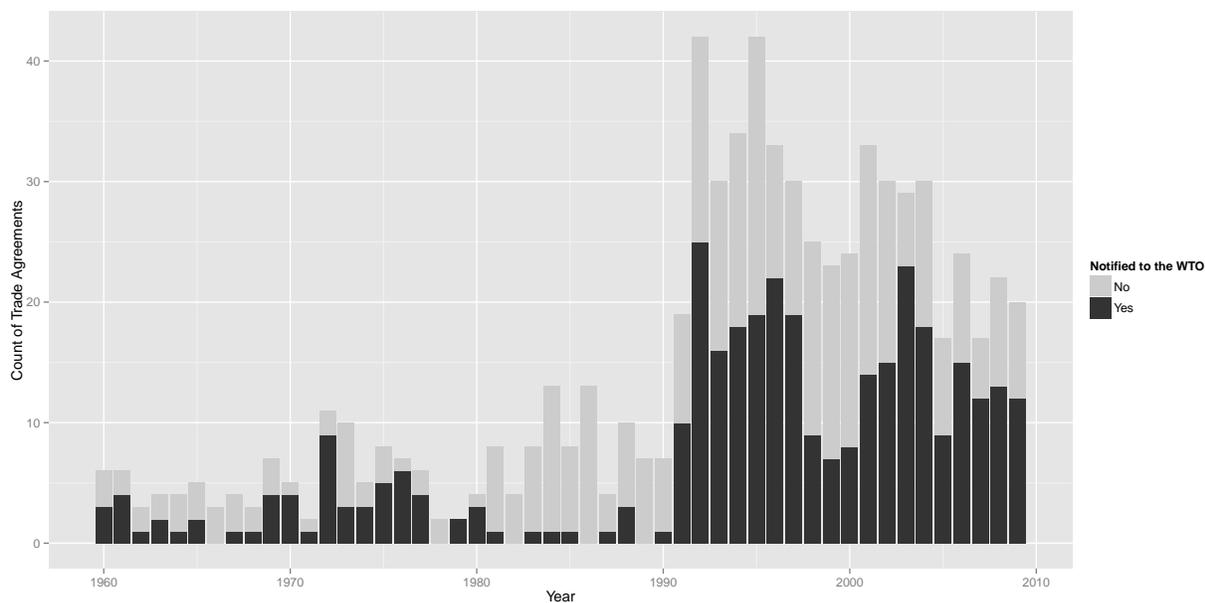


Figure 3: Total Number of PTAs Signed by GATT/WTO Notification Status

Dependent Variables

The dependent variable in the analysis is whether the GATT/WTO membership examines a notified PTA or not. I code the first dependent variable dichotomously based on information from the WTO website. The web page for each agreement catalogs the documents summarizing questions and replies between the PTA-forming states and the GATT/WTO membership. If such documents are present, then I code the examination variables as 1, otherwise 0. Figure 4 plots the total count of PTAs states have notified each year in light gray bars, and the total count of PTAs that the GATT/WTO examined each year in dark gray bars.

Explanatory Variables

The main explanatory variable is the extent of fragmented complexity in trade regimes surrounding PTAs. As discussed above, this concept captures the number of other PTAs, to which the members of the PTA in question belong. I calculate this measure in the following

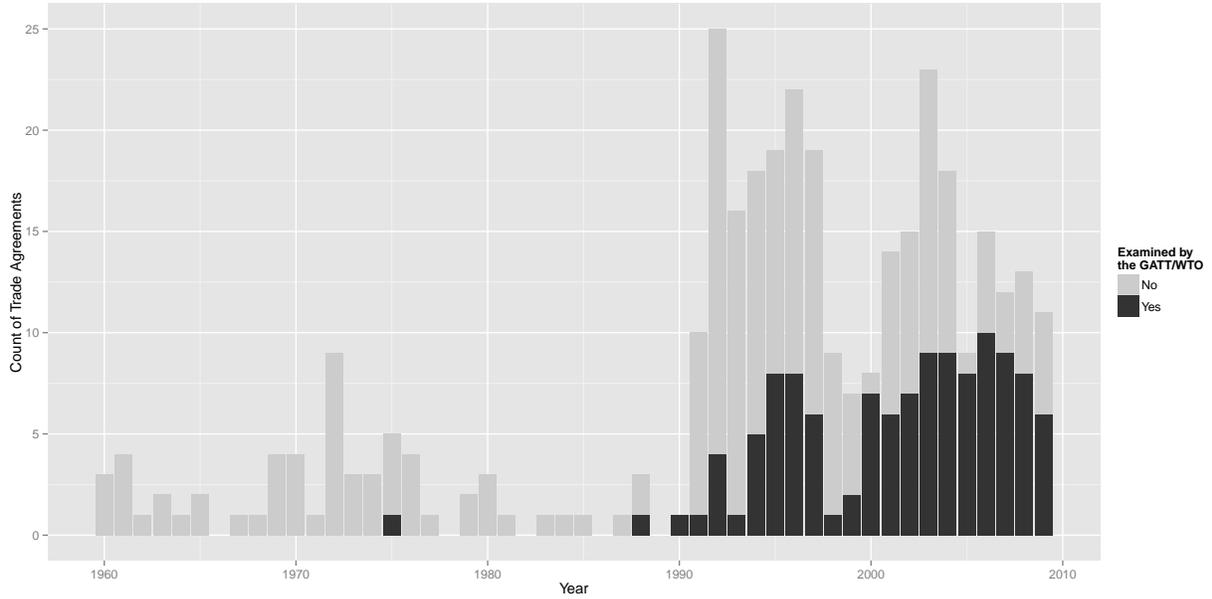


Figure 4: Total Number of Notified PTAs by Consideration Status

way:

$$\text{Fragmented Complexity}_{it} = \frac{\sum_k^N \sum_{j \neq i}^M \text{PTA Membership}_{jkt}}{N}$$

Fragmented complexity of PTA i in year t with N members is the average of each member k 's total sum of membership in PTAs j other than i in year t , where PTA Membership is an indicator variable taking on 1 or 0.²² The underlying agreements and membership data are from the DESTA database. The membership data tracks both accessions and withdrawals over, maintaining accurate records of members over time. I calculate the measure for all 714 agreements in the DESTA agreements list. The measure varies from 0—Caribbean Free Trade Association (1965), Finland-USSR (1960), Latin American Free Trade Area (1960), and Mano River Union (1973)—to 47.7 for Chile-EC agreement in 2002. Many E.U. trade agreements—those between the E.U. and a third-party state—rank high on the fragmented complexity measure. The two sides typically belong to numerous other PTAs that do not

²²Deriving the summary statistic based on median rather than mean values does not alter the substantive results.

overlap with each other, leading to a large degree of fragmentation.²³ Figure 5 shows the values of fragmented complexity for all the agreements. The shades separate the agreements notified to the GATT/WTO from those not notified.

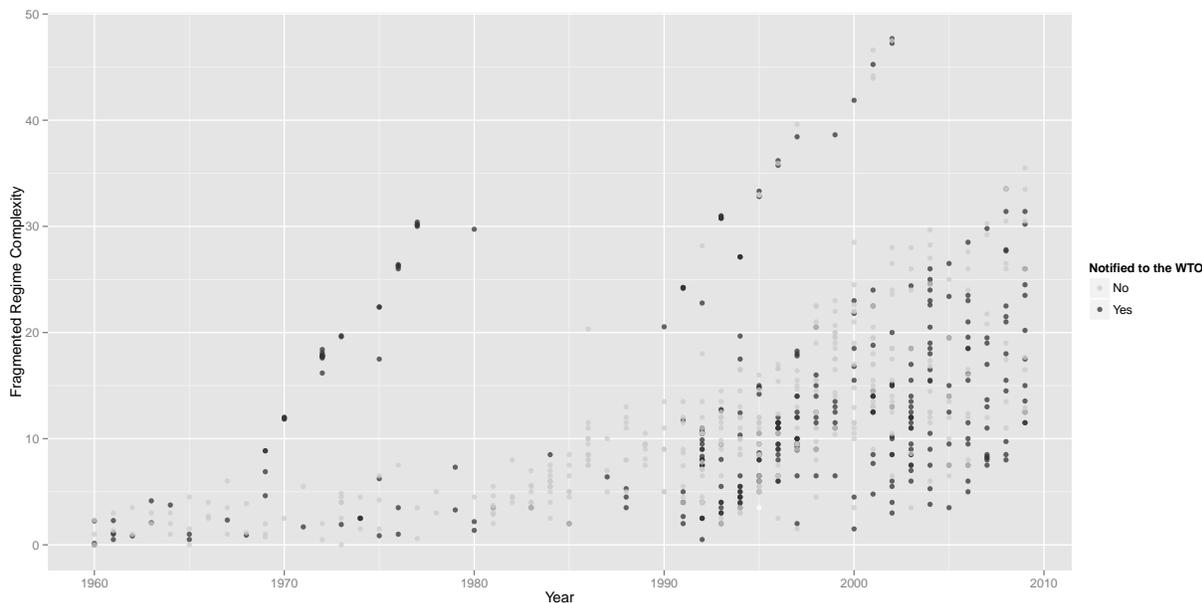


Figure 5: Fragmented Regime Complexity of PTAs by Year

The secondary explanatory variable is the extent of overlapping complexity in trade regimes surrounding PTAs. This measure simultaneously captures the competing concept of regime complexity and controls for the PTA members' shared membership in other PTAs. I capture this concept in a manner different from the operationalization of fragmented complexity. I calculate this measure in the following way:

$$\text{Overlapping Complexity}_{it} = \frac{\sum_{j \neq i}^N \text{Count of PTA}_i \text{ Members in PTA}_j}{N}$$

Overlapping complexity of PTA i in year t is the average of the count of PTA $_i$ members in PTA $_j$ across all PTA $_j$ s that have at least one member that is also in PTA $_i$.²⁴ As with

²³As the analysis of robustness check reveals below, whether the E.U. is treated as a single entity or as consisting of separate members in calculating the measure does not substantively alter the results.

²⁴As with the measure of fragmented complexity, deriving the summary statistic based on median rather than mean values does not alter the substantive results.

the measure above, the underlying agreements and membership data are from the DESTA database. The measure varies from 1 (236 agreements), indicating no shared membership in other PTAs, to 8.7. The agreements with the highest values of overlapping complexity measure include the Caribbean Community and its subsequent agreements, the Cotonou Agreement and the Lomé III agreement. While agreements like the latter two may make it easier for members to share membership in other agreements given their membership size, I control for the number of PTAs' members in the analysis below. The correlation between the two measures of PTA regime complexity is 0.38. Figure 6 shows the values of overlapping complexity for all the agreements.

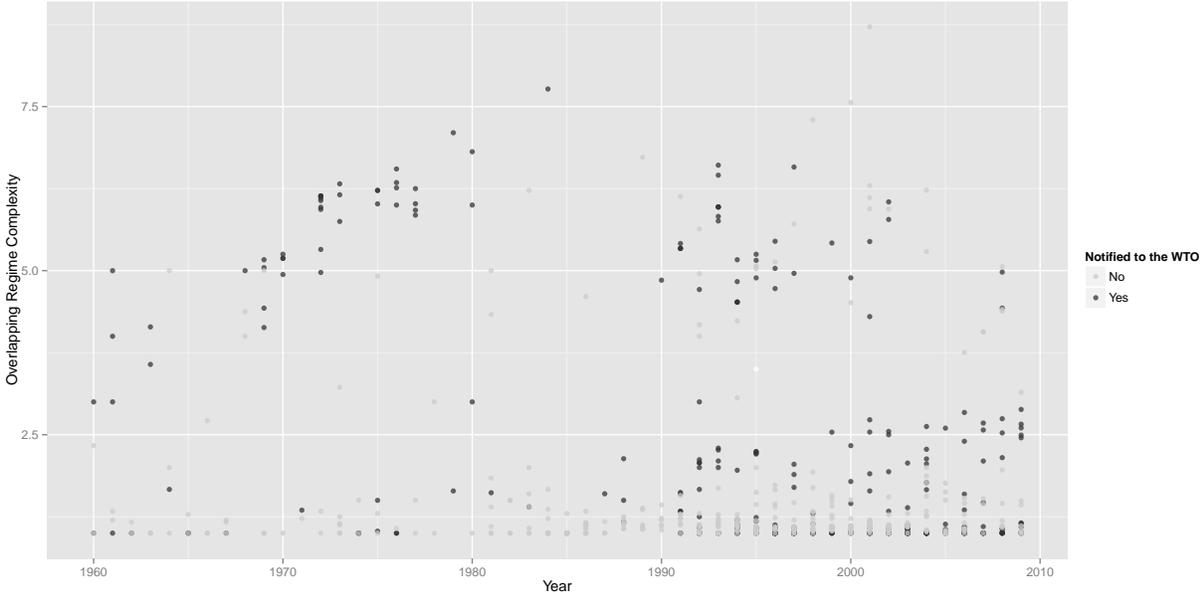


Figure 6: Overlapping Regime Complexity of PTAs by Year

The hypotheses anticipate that controlling for overlapping complexity of PTAs' trade regimes, fragmented complexity of PTAs is negatively associated with notification of the agreements to the GATT/WTO and positively associated with examination of the agreements by the multilateral institution.

Control Variables

In addition to the two main variables, I include a set of control variables that may influence PTA-forming states' decision to notify the GATT/WTO of their agreements and the institution's decision to examine them. These variables fall into two categories: those that aggregate member state level measures to the PTA level and those that are characteristics of the agreements themselves.

The relevant member-level attributes are both economic and political. For economic characteristics, I measure 1) the share of global GDP that the PTA members' combined GDP accounts for and 2) the share of global trade that the PTA members' combined trade volume accounts for. The underlying data for country-level GDP and trade volumes are from the World Bank's *World Development Indicators* (World Bank n.d.). PTA's share of world GDP is the sum of PTA members' GDP divided by the sum of all countries' GDP in the world in a given year. Similarly, PTA's share of world trade is the sum of PTA members' total trade divided by the sum of all countries' trade in the world in a given year. The GDP share measure varies from 0 to .40 with a mean of .051. The trade share measure varies from 0 to .48 with a mean of .061.

In addition to these economic characteristics, I calculate the average level of democracy among PTA-forming states. For each PTA, I sum up the member states' Polity score (Marshall and Gurr n.d.) and divide the sum by the number of members, obtaining the average level of democracy within each agreement. The measure varies along the entire spectrum of the Polity score, from -10 to 10, with a mean of 3.7.

The second category of control variables captures PTA characteristics. The first is the depth of cooperation in trade agreements. Deeper agreements and thus more complex agreements may prompt examination by the GATT/WTO membership more than shallower and less complex agreements. I use the additive index measure from the DESTA database. The

index codes whether substantive provisions exist not only in tariff reductions but also in services trade, investments, standards, public procurement, competition and intellectual property rights. I use DESTA's second measure of depth based on latent trait analysis for robustness checks. The index variable ranges between 0 (106 agreements, e.g., Brazil–Uruguay (1982)) and 7 (15 agreements, e.g., U.S.–Singapore (2003)) with a mean of 2.1. The latent trait variable ranges between -1.0 (139 agreements, e.g. Brazil–Uruguay (1982)) and 2.3 (Japan–Switzerland (2009) and Colombia–U.S. (2006)) with a mean of .12.

The second PTA characteristic variable is the agreement type. DESTA categorizes agreements into the following types: bilateral, plurilateral, plurilateral & third country, and region-region.²⁵ 480 agreements are bilateral, 94 plurilateral, 123 plurilateral-third country, and 17 region-region. I include indicator variables for these types, using bilateral agreements as the baseline category.

Third, PTAs among developed (or developing) countries may be substantively different from those that span the country types. DESTA categorizes agreements into three groups: those among US, Canada, Western European countries, Japan, Australia, New Zealand (developed-developed); those between this group and states outside the group (developed-developing); and those solely among states outside the group (developing-developing). 43 agreements fall into the first group, 149 into the second, and 522 into the third. I include indicator variables for these groups, using developed-developed agreements as the baseline category.

Similarly, many agreements are regional, while others span multiple regions. DESTA codes agreements into one of following regions: Europe (177 agreements), Asia (107), Africa (60), Americas (170), Oceania (10), or Intercontinental (190). I include indicator variables for these codings of regions, using Europe as the baseline category.

Last, the size of PTAs beyond their economic mass may influence their likelihood of notification

²⁵Three remaining types in DESTA—accession, accession as a result of membership in a PTA and withdrawal—do not exist in the current sample.

and examination. In particular, decision-making in agreements with more members may be more cumbersome (e.g, Kahler 1992). The measure of number of members from DESTA codes the number of states in agreements at the time of signature. The variable ranges from 2 (480 agreements) to 91 (Cotonou Agreement) with a mean of 5 members.

Modeling Strategies

Given that each of the outcomes of interest—notification and consideration—is dichotomous, I use probit regression to estimate the effects of the independent variables on the outcomes. Whereas I model the notification outcome in a single stage, I model the consideration outcome with a Heckman probit selection model to account for the selection that occurs in the notification stage. The GATT/WTO cannot consider PTAs that member states do not notify to the institution.

Heckman model imposes an exclusion restriction for it to identify. However, I anticipate that the same set of factors will influence both the selection and the outcome stages. Rather than arbitrarily and atheoretically excluding a variable to identify the models, I include a different version of the two explanatory variables. Fragmented and overlapping complexity measures are calculated based on the mean number of states' membership in other PTAs and the mean size of shared membership in other PTA, respectively. In the selection stage of Heckman probit models, I include measures that are based on the median numbers rather than the means. The correlation among the fragmented complexity measures is 0.99, whereas the correlation among the overlapping complexity measures is 0.88.

Results and Analysis

Models of PTA Notification to the GATT/WTO

In the first step of the analysis, I examine PTA states' decision to notify their agreement to the GATT/WTO. As a baseline model of PTA notification, Model 1 includes all the variables except the two measures of PTA regime complexity. Model 2 then incorporates the complexity measures. Table 1 summarizes the results.

	Model 1	Model 2
Fragmented Complexity		-0.08*** (0.01)
Overlapping Complexity		0.22*** (0.08)
Global Share of PTA Members' GDP	-0.53 (2.48)	-2.60 (2.89)
Global Share of PTA Members' Trade	-1.86 (2.04)	1.44 (2.55)
Ave of PTA Members' Polity Score	0.07*** (0.02)	0.09*** (0.02)
Agreement Depth (index)	0.16*** (0.05)	0.35*** (0.06)
Membership: Plurilateral	0.50** (0.20)	0.15 (0.23)
Membership: Plurilateral & 3rd	0.32 (0.25)	0.25 (0.28)
Membership: Region-Region	0.44 (0.51)	-0.46 (0.55)
Type: North-South	0.66** (0.31)	1.11*** (0.33)
Type: South-South	-0.17 (0.36)	0.44 (0.37)
Region: Asia	0.03 (0.26)	-0.09 (0.28)
Region: Africa	-0.71** (0.32)	-1.00*** (0.37)
Region: Americas	-1.73*** (0.21)	-1.81*** (0.24)
Region: Oceania	0.09 (0.64)	-0.33 (0.65)
Region: Intercontinental	0.14 (0.20)	0.38* (0.22)
Number of Members	-0.02 (0.01)	-0.03*** (0.01)
(Intercept)	0.16 (0.37)	-0.09 (0.38)
AIC	521.00	452.78
N	569	567

Table 1: Models of PTA Notification

PTAs' economic characteristics do not have any systematic impact on their member states' likelihood of notifying their agreement to the GATT/WTO. Neither the PTAs' global share of GDP nor their global share of trade have a significant effect on the likelihood of notification.²⁶ PTAs with higher average index of democracy, however, are more likely to notify. As for PTA characteristics, deeper agreements have a higher probability of notification. States are 1) more likely to notify north-south agreements compared to north-north agreements, 2) more likely to notify agreements that are plurilateral compared to bilateral ones and 3) less likely to notify agreements in Africa and the Americas compared to those in Europe.

Results in Model 2 are consistent with Hypotheses 1. For each unit increase in fragmented complexity, the z-score decreases by .08. By contrast, for each unit increase in overlapping complexity, the z-score increases by .22. Both coefficient estimates are statistically significant at the 99% level. The control variables largely hold the pattern of results from the previous model, increasing in the magnitudes of their effect minimally (e.g., average polity score) or considerably (e.g., agreement depth). The indicator measure capturing intercontinental agreements and the membership size become statistically significant in the presence of the complexity measures.

Substantive interpretations of coefficient estimates are difficult to extract from the model results. I plot the predicted probabilities of notification along the entire range of fragmented complexity in the data. All the continuous control variables are held at their mean values. The factor variables are held constant at their modal values, which are the following: agreement depth = 2, membership = bilateral agreements, type = south-south agreements, and region = intercontinental. Figure 6 presents the predicted probabilities with 95% confidence interval surrounding the predictions. The predicted probabilities of notification are decreasing in fragmented regime complexity of PTAs and cover the entire range of probabilities, with the

²⁶Substituting in total logged constant GDP and total logged constant trade volume in place of the global shares measures does not substantively alter the results.

steepest changes between approximately 15 and 30 in the fragmented complexity measure. Figure 7 presents the corresponding plot for overlapping complexity. The confidence interval is wider than the one for fragmented complexity, and the predicted probabilities range only between .75 and 1.0.

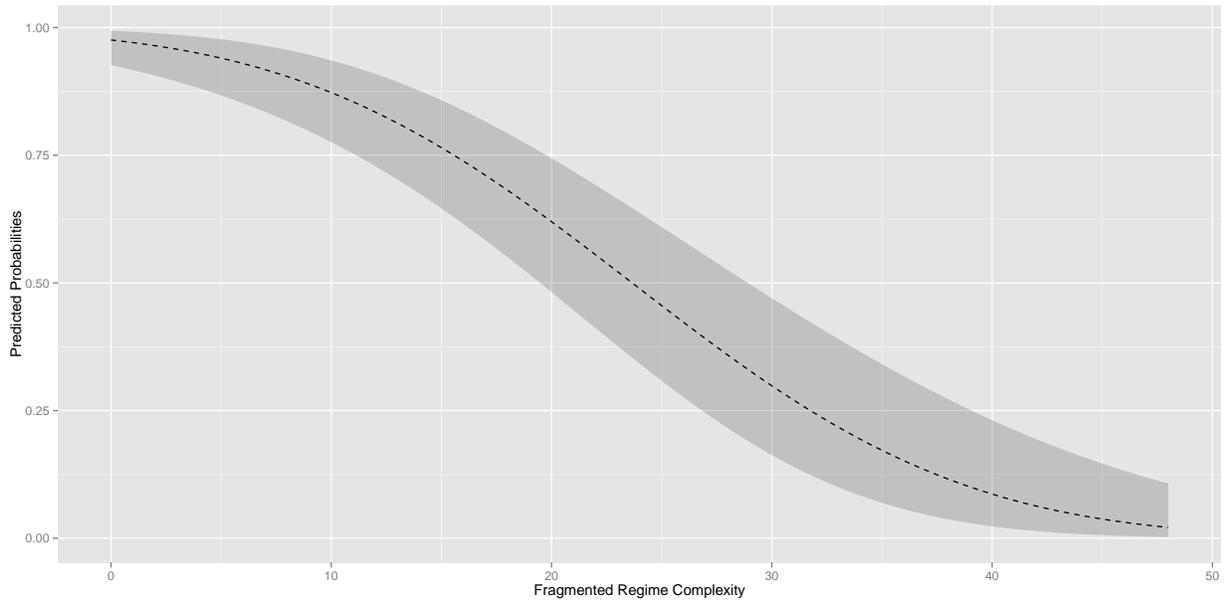


Figure 7: Predicted Probabilities of Notification to the GATT/WTO (Fragmented Complexity)

Models of PTA Consideration by the GATT/WTO

Next, I analyze the factors that influence the likelihood of notified PTAs being considered by the GATT/WTO accounting for the selection process involved in PTA notification. As discussed above, I utilize Heckman probit to simultaneously model the selection and the binary outcome stages. Model 3 is a simple probit model with the sample restricted to include only PTAs that are notified to the GATT/WTO. The results from this model provide useful comparisons for those from the model with selection. Model 4 is the full model with both the selection stage and the outcome stage. For the regime complexity measures, which I cannot

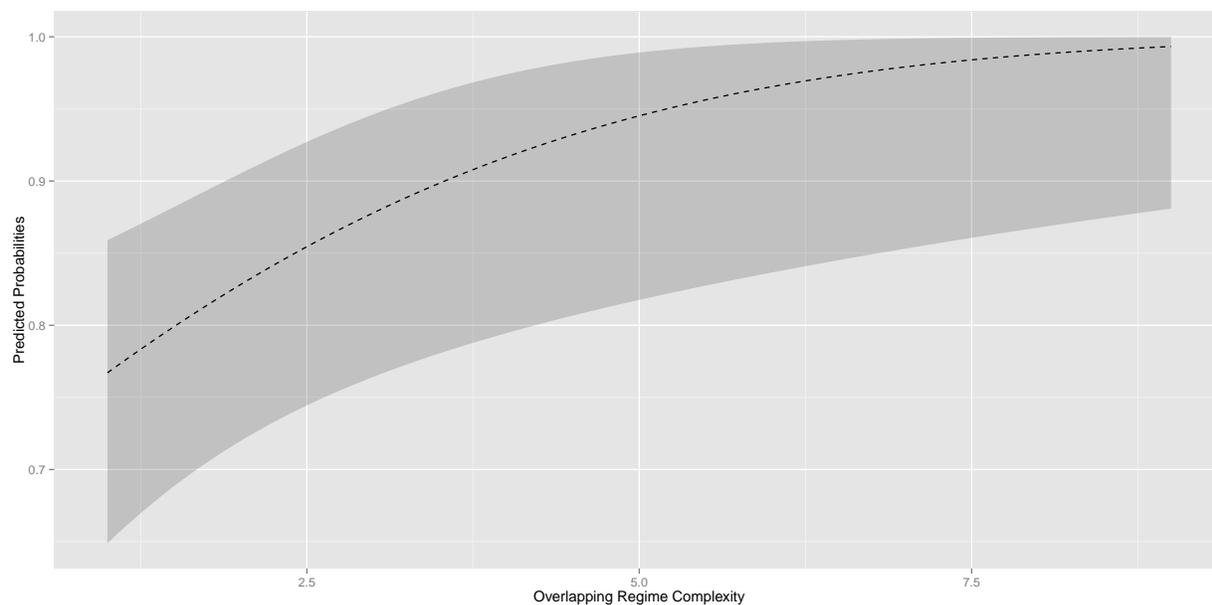


Figure 8: Predicted Probabilities of Notification to the GATT/WTO (Overlapping Complexity)

exclude from the selection stage, I use the median values rather than the mean values of the measures for each PTA. Table 2 summarizes the results.

	Model 3	Model 4
<i>Outcome (WTO Consideration)</i>		
Fragmented Complexity	.051*** (.014)	.044*** (.016)
Overlapping Complexity	-.095 (.13)	-.068 (.14)
Global Share of PTA Members' GDP	-6.79*** (2.58)	-6.68*** (2.54)
Global Share of PTA Members' Trade	3.16 (2.80)	2.96 (2.77)
Ave of PTA Members' Polity Score	-.024 (.026)	-.015 (.027)
Agreement Depth (index)	.27*** (.072)	.29*** (.072)
Membership: Plurilateral	.13 (.33)	.12 (.33)
Membership: Plurilateral & 3rd	-.026 (.36)	-.0045 (.35)
Membership: Region-Region	-.14 (.88)	-.16 (.88)
Type: North-South	-.39 (.39)	-.32 (.39)
Type: South-South	-.85** (.42)	-.80* (.42)
Region: Asia	1.95*** (.32)	1.91*** (.32)

	Model 3	Model 4
Region: Africa	1.08* (.60)	.97 (.60)
Region: Americas	1.70*** (.38)	1.50*** (.44)
Region: Oceania	.55 (.61)	.52 (.61)
Region: Intercontinental	1.42*** (.26)	1.42*** (.25)
Number of Members	-.033 (.026)	-.035 (.025)
(Intercept)	-1.58*** (.45)	-1.75*** (.47)
<i>Selection (WTO Notification)</i>		
Fragmented Complexity (selection)	-	.074*** (.012)
Overlapping Complexity (selection)		.27*** (.10)
Global Share of PTA Members' GDP		-1.83 (3.59)
Global Share of PTA Members' Trade		.75 (2.94)
Ave of PTA Members' Polity Score		.087*** (.018)
Agreement Depth (index)		.36*** (.067)
Membership: Plurilateral		.094 (.24)
Membership: Plurilateral & 3rd		.34 (.24)
Membership: Region-Region		-.97 (.65)
Type: North-South		1.05*** (.35)
Type: South-South		.43 (.42)
Region: Asia		-.055 (.31)
Region: Africa		-1.00*** (.36)
Region: Americas		-1.87*** (.22)
Region: Oceania		-.27 (.60)
Region: Intercontinental		.32 (.23)
Number of Members		-.022 (.013)
(Intercept)		-.24 (.42)
N	337	561

Table 2: Models of PTA Consideration

In Model 3, fragmented complexity has a statistically significant effect, whereas overlapping complexity does not. In contrast to the notification models, global share of PTA members' GDP has a large and negative effect on PTAs' likelihood of examination by the GATT/WTO.

Deeper agreements have a higher likelihood of examination. Most indicator variables for regions—except for Oceania—have a positive and significant effect, implying that PTAs from non-European regions have a higher likelihood of examination.

In Model 4, the outcome stage results closely correspond to the estimates from Model 3, indicating that the selection stage does not substantially affect the outcome stage dynamics. Indeed, the Wald test of independence of equations fails to reject the null hypothesis of independence.²⁷ The magnitude of most coefficient estimates is slightly attenuated compared to Model 3, except for that of agreement depth.

The results from the selection stage equation generally correspond to those from Model 2. Both the direction and the magnitude of each coefficient estimates remain similar. Both types of trade regime complexity have a statistically significant effect, in opposite directions. Only the intercontinental indicator and the number of members are no longer significant in the selection stage of Model 4. These changes result from the small modification in the sample size (from 567 to 561) that happens with the heckman probit model.

To interpret the substantive effects of the main explanatory variables, I generate predicted probabilities across the entire ranges of the two complexity variables, while holding all the other variables at their sample means or modal values. Figure 9 plots the probabilities as a function of fragmented regime complexity, whereas Figure 10 does so as a function of overlapping regime complexity.

Consistent with Hypothesis 2, the probability of PTAs being considered by the GATT/WTO increases as the PTA's fragmented regime complexity increases. Although the standard error is larger in the latter half of the complexity range—95th percentile of the measure is 30.3—the substantial increases in the probabilities is apparent. As the statistical insignificance of the coefficient indicates, overlapping regime complexity does not have a systematic effect on

²⁷ $\chi^2(1) = .90$. Probability $> \chi^2 = .34$.

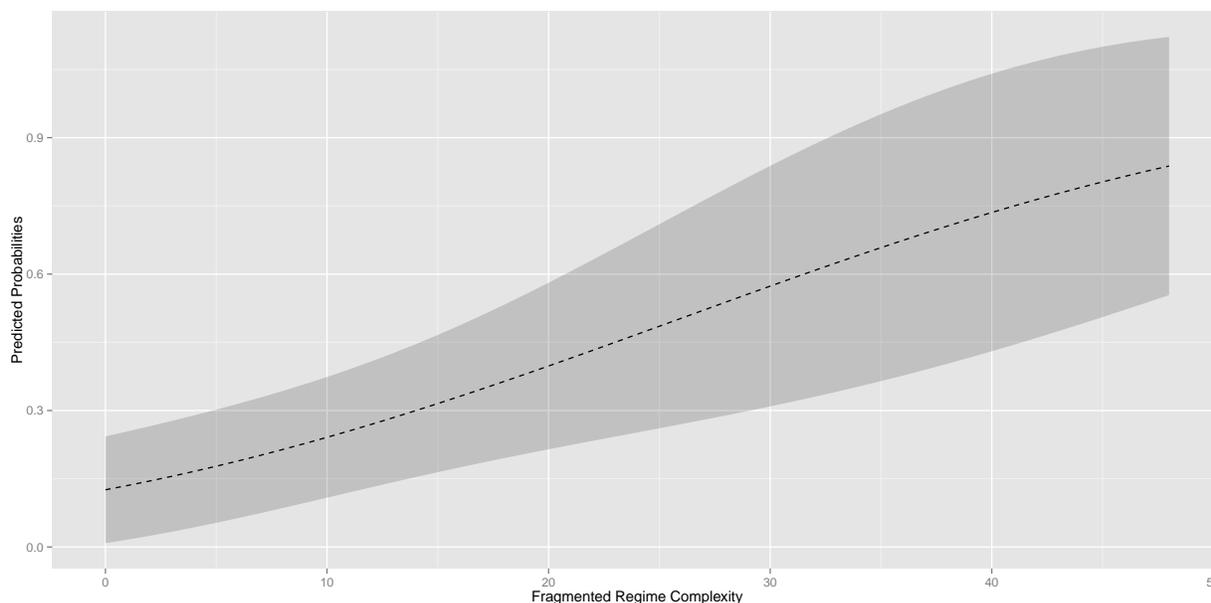


Figure 9: Predicted Probabilities of Consideration by the GATT/WTO (Fragmented Complexity)

PTA's likelihood of GATT/WTO consideration.

Robustness Checks

I check the robustness of the results against alternative measures of PTA regime complexity and PTA depth. The complexity measures I calculate treat each member *state* of agreements as separate entities. Accordingly, an agreement between the E.U. and a third-party country counts the member states in the E.U. separately. This may, however, overestimate the amount of complexity, as the third-party country confronts the E.U. effectively a unitary entity. To address this possibility, I calculate alternate measures of complexity that treats PTAs as a single entity when they form an agreement with third-party countries or PTAs. The Pearson correlation between the original and this alternate measure of fragmented complexity is 0.907. The corresponding correlation for the measures of overlapping complexity is 0.5119. Because the selection stage does not significantly influence the outcome stage, I estimate

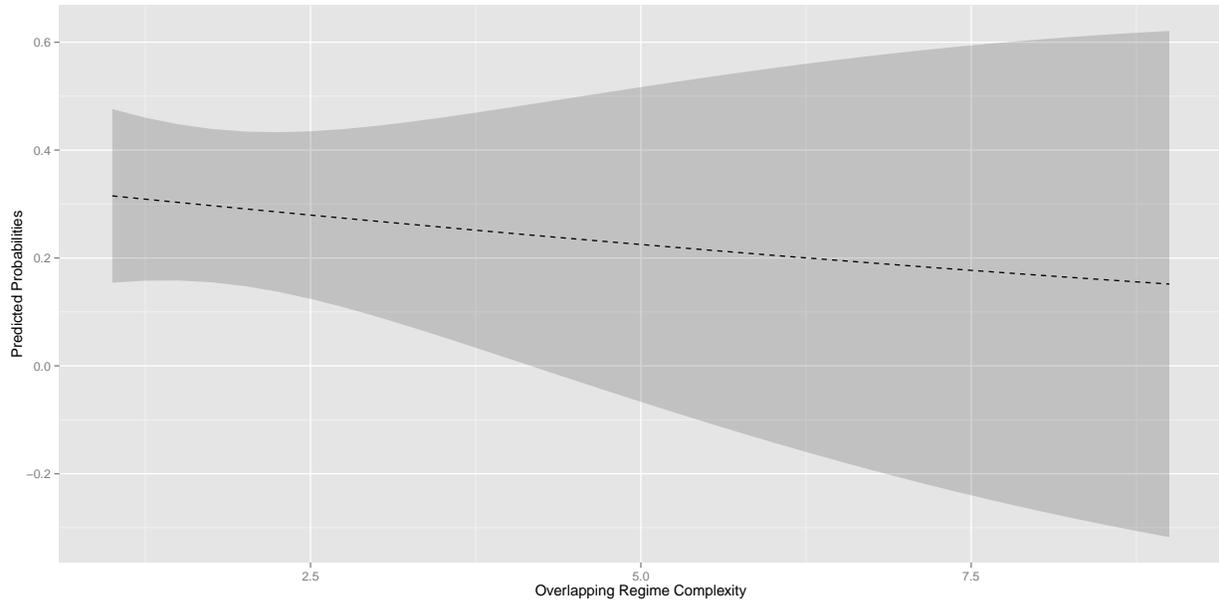


Figure 10: Predicted Probabilities of Consideration by the GATT/WTO (Overlapping Complexity)

probit models of notification (as in Model 2) and probit models of consideration on the sample of notified agreements (as in Model 3). Models 5 and 6 summarize the results of notification and consideration models, respectively, using the alternate complexity measures.

In addition, I check for the robustness of results using an alternate measure of PTA depth. As discussed above, the primary measure of depth I use in the analysis is an additive index ranging between 0 and 7. DESTA database provides an alternate measure based on a latent trait analysis, based on the Rasch model. This measure varies between -1.0 and 2.3. The Pearson correlation between the two measures of depth is 0.898. Models 7 and 8 summarize the results of notification and consideration models, respectively, using the alternate depth measures.

	Model 5	Model 6	Model 7	Model 8
Fragmented Complexity			-0.08*** (0.01)	0.05*** (0.01)
Fragmented Complexity (emanations)	-0.07*** (0.01)	0.05*** (0.01)		

	Model 5	Model 6	Model 7	Model 8
Overlapping Complexity			0.19** (0.08)	-0.10 (0.14)
Overlapping Complexity (emanations)	0.20* (0.10)	0.08 (0.17)		
Global Share of PTA Members' GDP	-2.32 (2.83)	-6.80** (2.71)	-2.15 (2.77)	-6.83** (2.81)
Global Share of PTA Members' Trade	1.96 (2.36)	2.73 (2.60)	1.31 (2.52)	3.65 (3.01)
Ave of PTA Members' Polity Score	0.08*** (0.02)	-0.02 (0.03)	0.08*** (0.02)	-0.03 (0.03)
Agreement Depth (index)	0.29*** (0.05)	0.29*** (0.07)		
Agreement Depth (Rasch)			0.51*** (0.10)	0.51*** (0.14)
Membership: Plurilateral	-0.00 (0.23)	0.16 (0.37)	0.25 (0.23)	0.23 (0.36)
Membership: Plurilateral & 3rd	0.37 (0.26)	0.31 (0.35)	0.24 (0.27)	-0.13 (0.36)
Membership: Region-Region	-0.66 (0.54)	0.48 (0.84)	-0.35 (0.54)	-0.21 (0.80)
Type: North-South	1.49*** (0.35)	-0.51 (0.44)	1.13*** (0.32)	-0.47 (0.46)
Type: South-South	0.80** (0.38)	-1.01** (0.51)	0.23 (0.36)	-1.05** (0.51)
Region: Asia	-0.09 (0.27)	1.90*** (0.34)	0.06 (0.27)	2.14*** (0.33)
Region: Africa	-0.86** (0.36)	0.76 (0.63)	-0.78** (0.36)	1.28** (0.61)
Region: Americas	-1.80*** (0.23)	1.55*** (0.41)	-1.69*** (0.23)	1.85*** (0.40)
Region: Oceania	-0.05 (0.64)	0.28 (0.79)	-0.14 (0.64)	0.78 (0.77)
Region: Intercontinental	0.31 (0.22)	1.37*** (0.25)	0.36 (0.22)	1.48*** (0.25)
Number of Members	-0.03** (0.01)	-0.07* (0.04)	-0.04*** (0.01)	-0.03 (0.03)
(Intercept)	-0.50 (0.39)	-1.49*** (0.57)	0.64* (0.38)	-0.98* (0.54)
AIC	470.54	303.13	470.77	303.19
N	566	336	567	337

Table 3: Robustness Checks

In all four models, the substantive results remain the same as above. Fragmented regime complexity has a negative effect on notification and a positive effect on consideration. Overlapping regime complexity has a positive effect on notification but no effect on consideration. Agreement depth has a positive effect on both notification and consideration, although the latent trait measure has a larger magnitude than the additive index measure.

Implications for the Extensiveness of Consideration

I conclude the empirical analysis by testing an implication that emerges from the proposed argument. If PTAs in a regime with greater fragmented complexity lead states outside the PTAs to have less information about the agreements, then the GATT/WTO may subject such PTAs to greater scrutiny than those in regimes with less fragmented complexity. In other words, PTAs in regimes with greater fragmented complexity may not only be more likely to be considered but be considered in a more extensive manner. I test this implication by estimating the same specification as above on two new dependent variables. The first of these outcomes is the total number of rounds over which the examination takes place. The second is the total number of questions that the membership poses to the PTA states over those rounds.

[For the second dependent variable, research assistants read through the questions-and-replies documents and counted the number of questions the membership posed in each round. The total number of questions is calculated by summing this count across all the rounds. While the length and the difficulty of questions vary, the number of questions in conjunction with the number of rounds of questioning capture the extensiveness of the membership's examination of the PTA in question.]

Among the agreements notified to the GATT/WTO, the count of questioning rounds varies between 0—those that do not undergo any questioning as of the time when the data was collected—and 6. 228 agreements in the sample faced zero rounds; 33 agreements faced one round; 65 agreements faced two rounds; 15 agreements faced 3 rounds; and 3 agreements faced four rounds. Both China's accession into the Association of Southeast Asian Nations' (ASEAN) trade agreement and the Southern Common Market (MERCOSUR) were subjected to six rounds of questions-and-replies. The total number of questions that a PTA received from the GATT/WTO membership among those that were examined varies between 1—

Mexico-Nicaragua (1997) and Moldova-Ukraine (2003)—and 245 questions for the North American Free Trade Agreement (NAFTA). Mean number of questions is 22 with a standard deviation of 28. Figure 11 plots the average number of questions across the examined PTAs. As the chart shows, while the examinations were generally more extensive during the WTO period, there has not been a systematic temporal pattern in the number of questions posed.

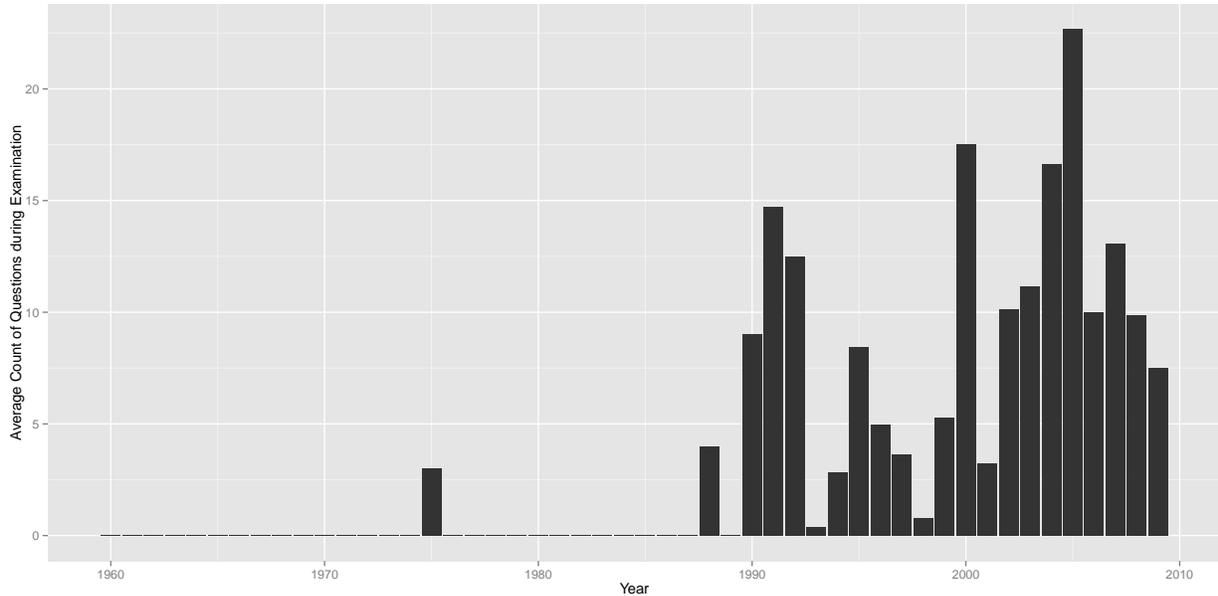


Figure 11: Average Number of Questions during the Examination by Year

Because the conditional variance is greater than the conditional mean for both the total rounds count and the total questions count, I use negative binomial regression to model these outcomes. Because the selection stage did not systematically influence the outcome stage in the previous model, I take the simplified approach of modeling simply the outcome stage for these counts.²⁸ The dependent variable in Model 9 is the number of total rounds, and in Model 10 the dependent variable is the number of total questions. Table 4 summarizes the results of the two models.

²⁸Including the inverse Mills ratio generated from a selection model does not substantively alter the results.

	Model 9	Model 10
Fragmented Complexity	0.04*** (0.01)	0.05** (0.02)
Overlapping Complexity	-0.13 (0.14)	-0.30 (0.21)
Global Share of PTA Members' GDP	-2.61 (2.27)	2.70 (4.37)
Global Share of PTA Members' Trade	1.36 (2.69)	-2.17 (4.53)
Ave of PTA Members' Polity Score	-0.02 (0.02)	-0.02 (0.04)
Agreement Depth (index)	0.11** (0.05)	0.29*** (0.10)
Membership: Plurilateral	0.28 (0.31)	1.23** (0.55)
Membership: Plurilateral & 3rd	0.14 (0.30)	1.63*** (0.55)
Membership: Region-Region	0.17 (0.72)	3.45*** (1.11)
Type: North-South	-0.25 (0.44)	-0.28 (0.65)
Type: South-South	-0.41 (0.48)	-0.37 (0.75)
Region: Asia	2.67*** (0.38)	3.72*** (0.53)
Region: Africa	1.63** (0.70)	3.03*** (0.96)
Region: Americas	2.34*** (0.41)	3.31*** (0.60)
Region: Oceania	0.74 (1.10)	1.93* (1.11)
Region: Intercontinental	2.12*** (0.34)	2.67*** (0.38)
Number of Members	-0.02 (0.03)	-0.07** (0.03)
(Intercept)	-2.31*** (0.59)	-1.65** (0.84)
AIC	661.46	1381.62
N	337	343

Table 4: Implications for Extensiveness of Consideration

The results are consistent with the expectations of the argument's implications. Fragmented complexity has a positive and statistically significant effect on both the total number of rounds and the total number of questions in the consideration process. The substantive effects of fragmented regime complexity are reasonably large. Over the interquartile range of the fragmented complexity measure, the predicted count of rounds increases by about .13. Given that the mean number of rounds, including PTAs that are not examined, is .67, the increase corresponds to approximately 20% of the mean. Similarly, over the interquartile range of the fragmented complexity measure, the predicted total count of questions increases

by about 2.1. The mean number of total questions is 7.3, and the increase corresponds to approximately 30% of the mean.

The overall combined results from all the models suggest the following. The extent of PTAs' fragmented regime complexity substantially shapes their member states' choice to notify the agreements to the GATT/WTO. Fragmented complexity in turn shapes the likelihood of consideration for the notified PTAs. Moreover, the process of consideration itself is influenced by the extent of the complexity. Despite the idiosyncratic factors specific to PTAs, their members, and the GATT/WTO membership participating in the process, fragmented regime complexity of PTAs affect both the total number of rounds and the total number of questions that the PTA-forming states endure.

Conclusion

Rather than categorizing all PTAs as either stumbling blocks or building blocks for multilateral liberalization, identifying the precise relationship between the GATT/WTO and particular PTAs can better advance our understanding of international trade cooperation. Accordingly, the approach of classifying PTAs and their provisions as WTO-extra (“WTO-X”)—going beyond the policy commitments at the WTO—and WTO-plus (“WTO+”)—augmenting the policy commitments at the WTO—is useful (Horn, Mavroidis, and Sapir 2010). At the same time, however, such approach does not address the *conflictual* aspect of the multilateral and the preferential trading systems. In this article, I have sought to address this shortfall by examining the GATT/WTO consideration process of PTAs, which member states of the multilateral institution form.

I have argued that the spaghetti bowl nature of the international trading system generates varying regime complexity, which in turn creates severe informational problems with respect

to states' trade policies. When a PTA is in a regime with high fragmented complexity—its members belonging to numerous other PTAs—states and private actors outside the arrangement lack information about the precise rules and preferences governing states' trade. Moreover, the same actors are uncertain as to the potentially protectionist motivations of the states forming the PTA in question. The GATT/WTO consideration process helps states mitigate the problems by subjecting members of PTAs that engender information asymmetry to rounds of question-and-answer procedures. Given this dynamic, only the states forming PTAs that are willing to undergo the process notify their trade agreement to the GATT/WTO. Results from empirical analysis using novel data on the consideration process and innovative measures of PTA regime complexity provide strong support for the argument. In this manner, this research makes significant contributions to the literature. Scholars have not thus far paid much attention to the PTA consideration process by the GATT/WTO. This oversight is likely due to its seemingly inefficacious leverage on either halting implementation of PTAs or compelling changes to the design of PTAs. The argument and the findings in this article—highlighting the role of complexity and information problems—provide a new framework with which to explain the workings of the consideration process. Moreover, they provide an explanation for the pattern of states' notification of their PTAs to the GATT/WTO, which hitherto has been lacking. Not only do the findings contribute to a better understanding of the relationship between the GATT/WTO and PTAs but also build on works outside international political economy on the relationship between institutions and information (e.g, Chapman 2009; Dai 2002; Kydd 2001; Thompson 2006).

The findings also generate some broader implications for the study of international relations. Complexity in international politics can increase in issue-areas beyond trade agreements.²⁹ Whenever an issue-area becomes densely institutionalized, fragmented and/or overlapping

²⁹The special issue on regime complexity that Alter and Meunier edited includes pieces on human rights, intellectual property, security politics, refugee politics, and election monitoring.

regime complexities can increase. More importantly, whatever the domain of complexity may be, some actors will benefit from the complexity and the resulting problems, whereas others will suffer from them. The WTO is fortunate to have an institutionalized mechanism in place to channel the conflicts over trade regime complexity. In other venues, the conflicts may be more overt.

The research also yields a policy implication. Given that some states will continue to form PTAs with fragmented regime complexity and with protectionist intentions, the WTO consideration process should be bolstered. Member states of the multilateral institution should no longer optionally notify formation of PTAs. The WTO secretariat should be given appropriate resources to gather independent data on trade agreements to restrain non-compliance with respect to the notification requirement. WTO member states should also scrutinize more PTAs. At the least, the secretariat should prepare the factual presentation on all the PTAs that the members form, even if not all PTAs are explicitly considered by the membership at large. These changes will reduce the information asymmetry and help identify PTAs that are likely to be “stumbling blocks” in the world trading system.

Lastly, the research opens up promising avenues for future research. One such project can analyze the *consequences* of the consideration process on the subsequent functioning of PTAs. Similar to the research by Allee and Scalera on the effects of the accession process (Allee and Scalera 2012), whether or not PTAs undergo the consideration process—and the extensiveness of the process—may influence the trade and investment effects that PTAs generate, both within the agreements and with WTO members outside the agreements. Similarly, another project can examine the direct effects of fragmented and overlapping regime complexities of PTAs on trade and investment flows and more broadly on economic development of states. These projects can enhance our understanding of the consequences of regime complexity in the international trading system and how states seek to manage them.

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