On the Strategic Manipulation of Audiences in WTO Dispute Settlement*

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Abstract

According to conventional wisdom, third parties make WTO dispute settlement more difficult by adding more voices and issues to negotiations. However, complainants can limit third party participation by filing cases under Article XXIII of the GATT, rather than Article XXII. Why do some countries make settlement more difficult by opening the door to third party participation? We construct two competing formal models that examine the impact of third parties on dispute settlement outcomes. The first model posits that third parties generate audience costs that exacerbate risk by increasing the value of victories while making losses more painful. Our second model proposes the opposite: that third parties serve as insurance by mitigating losses during tough times in exchange for reduced gains in successful disputes. We test these two competing models through an empirical analysis of WTO disputes. We find strong evidence that supports the insurance mechanism.

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1 Introduction

There is a growing debate over the role of audiences in the World Trade Organization (WTO). Disputes that are adjudicated within the WTO often include third parties, which are countries that reserve the right to be present during otherwise private prelitigation negotiations ("consultations" in WTO parlance). Some observers argue that the presence of third parties during consultations is beneficial to the institution as a whole because they can help ensure that settlements are consistent with WTO rules.[1] Survey evidence also shows that developing countries—which are usually constrained by insufficient legal resources—believe that participation by third parties is an effective means of building their legal capacity (Busch, Reinhardt and Shaffer, 2009).

However, other scholars have taken a less sanguine view and believe that third parties hinder the effectiveness of WTO dispute settlement. For example, Davey and Porges (1998, 700) argues that "privacy is usually more conducive to settlement." Similarly, Pauwelyn (2003) and Bown (2005) both argue that third parties may make it more difficult to reach a pretrial agreement because they add more voices and issues to consultations. Additionally, the presence of third parties may hinder settlement by creating an incentive for the main parties to posture for the sake of their trading partners.[2] Busch and Reinhardt (2006) find strong empirical support for these arguments. They show that disputes that are held entirely in private are on average 38% more likely to reach settlement than those where third parties are present. In short, more public negotiations tend to break down more often and are more likely to lead to litigation, which is widely seen as an inefficient outcome.

The debate is as evenly split when it comes to WTO member states. Some have pushed for reforms that would make it easier for countries to join as third parties without having to demonstrate a "substantial trade interest," as they do now.[3] Other members strongly oppose such proposals. Similarly, third party status is a topic of great contention within WTO disputes themselves. Litigants spend considerable time trying to convince the panel to

[1] http://www.wto.org/english/tratop_e/dispu_e/disp_settlement_cbt_e/c6s2p2_e.htm

[2] Stasavage (2004) shows that increasing the transparency of international negotiations leads to political posturing that is sometimes detrimental to voter welfare.

[3] WT/NI(09)/7.

extend or restrict third party rights within a given dispute.[4] The vehemence of the debate over third parties is understandable, as they touch upon such fundamental issues as institutional transparency, reputational effects, and perceived inequities within the organization.

In view of the significant implications of this debate for the WTO, and for institutional design more generally, surprisingly little has been made of the fact that WTO complainants actually exert considerable control over the expected number of third parties present during consultations. Complainants can launch a dispute by filing a request for consultations in one of two ways. They can do so under either Article XXII:1 or Article XXIII:1 of GATT 1994.[5] As the WTO itself instructs potential litigants: "the choice between Articles [XXII and XXIII] is a strategic one, depending on whether the complainant wants to make it possible for other Members to participate." Indeed, the "main difference between these two legal bases relates to the ability of other WTO Members to join as third parties" (WTO, 2011). While Article XXII makes third party participation relatively easy, Article XXIII—which is traditionally used for entirely private consultations—makes it much more difficult for third parties to join a case. The average number of third parties for an Article XXII case is three, while the average number for an Article XXIII case is less than one half. This difference should thus have considerable implications for the politics of dispute settlement, and an observable impact on the outcome of a given case.

The ability of complainants to prevent or promote third party participation leads to a puzzle. If third parties lower the odds of a mutually beneficial settlement and complainants have the ability to limit their number, then why would we ever see filings under Article XXII? That is, why would a complainant ever promote third party participation, knowing that these third parties complicate the bargaining process? Similarly, does the decision to

[4]For example, see *China–Poultry*, para 4.167, 5.19, and 5.26, where the disputants themselves fought against extending third party rights to the EC, Taiwan, Brazil, Guatemala, and Turkey, who all demanded them. See also *EC–Aircraft*, where enhanced third party rights were rejected, and *EC–Tariff Preferences*, where they were granted. As the AB ruled in *EC–Hormones*, the choice to grant enhanced third party rights is a "decision that falls within the scope of discretion and authority of the panels, particularly if the panel considers it necessary for ensuring to all parties due process of law." In other cases, litigants have argued over whether or not to allow third parties access to the "rebuttal submissions" of the litigants, which are made after the third parties' submissions. The panel in *Australia–Automotive Leather II* denied third parties such access, while the panels in both *Australia–Salmon* and *Canada–Dairy* granted access.

[5]For the sake of simplicity, we refer to these provisions throughout the rest of the paper as Articles XXII and XXIII, respectively.

file one way or another have any net impact on the outcome of negotiations, or the dispute stages that follow? There is a prevalent, albeit untested, assumption amongst WTO legal scholars that if third parties decrease the odds of settlement, then filing in a way that leads to a greater number of third parties should have the same effect. As Porges (2003, 160) puts it, "disputes where the consultations are solely conducted under Article XXII should be less likely to settle." This logic seems eminently plausible. However, as we show using both formal and empirical analysis, it turns out to be exactly wrong.

We present two formal models, each of which highlights a different mechanism by which third parties may influence WTO dispute settlement. Our first model closely resembles existing audience cost models of crisis bargaining.[6] Under this account, third party participation exacerbates the risk that is inherent in the dispute settlement process by increasing the value of victories while making losses more painful. Our second model proposes an alternative mechanism: that third parties may serve as insurance in the dispute settlement process. This occurs if large audiences mitigate losses in exchange for reduced gains in successful disputes. The two models generate divergent incentives for the complainant to either promote or prevent third party participation through strategic filing decisions. These incentives, in turn, also have an impact on the likelihood of early settlement and the expected direction of panel rulings.

We systematically test these two competing models by conducting statistical analysis on data from all completed WTO disputes. Our findings offer strong support for the insurance mechanism. Rather than exacerbating the difference between winning and losing a dispute, third parties appear to play an important role in reducing risk in WTO disputes by insuring states against the adverse consequences of failure.

The simultaneous existence of Article XXII and Article XXIII allows us an unprecedented glimpse into how states think of audiences. Students of international institutions spend much time assessing the degree of transparency of institutions, and the distributional effects of such transparency; that is, who gains and who loses from richer informational environments.[7] The providential design of WTO dispute settlement proceedings lets us observe

[6]For example, see Fearon (1994), Schultz (1998), and Smith (1998).
[7]For example, see Goldstein and Martin (2000) and Fernandez and Rodrik (1991).

states repeatedly making the decision to either render negotiations public, or bargain behind closed doors. Our findings reveal that WTO members strategically manipulate the size of the audience in accord with the case at hand.

2 Third Parties in WTO Dispute Settlement

The WTO dispute settlement understanding is often touted as the bedrock of the multilateral trade system. It allows countries to challenge the conformity of a trade partner's policies with regards to WTO law. Yet litigants are often not the only actors involved in such disputes. In over 60 percent of cases, WTO disputes include third parties, which are WTO members that join after having stated an interest in the dispute. Third parties can file an oral or written submission during panel proceedings. Additionally, they are allowed to participate in private consultations prior to litigation. This participation in prelitigation negotiations is key because settlement—rather than punishment, retaliation, or compensation—is the ultimate goal of the WTO.[8]

A largely overlooked fact is that complainants have some control over the expected number of third parties. When a country initiates a dispute by filing for consultations, it can do so under either Article XXII or Article XXIII of GATT 1994. The choice is far from trivial. Under Article XXII, third parties can easily join consultations, opening the door to what Davey and Porges (1998) have aptly described as "kibitzing." In this way, non-litigants can take sides with one party or the other, or even raise issues of their own. Under Article XXIII, the possibility of third parties is severely limited. As the WTO itself explains, the ability of third parties to join consultations is "main difference between these two legal bases."[9]

However, the choice between the two methods of filing does not entirely determine the

[8]See the WTO Dispute Settlement Understanding (DSU), Article 3.7: the "aim of the dispute settlement mechanism is to secure a positive solution to a dispute."

[9]The distinction between the two articles dates back to the early years of the GATT. In 1958, GATT members faced a stalemate over multiple complaints about the Treaty of Rome. As a solution, they reached an agreement that allowed for plurilateral consultations under Article XXII (Davey and Porges, 1998). The WTO Dispute Settlement Understanding later codified the norm that emerged at the time, according to which a country can join a dispute filed under Article XXII if it can demonstrate a "substantial trade interest" in the dispute (WTO DSU, Article 4:11).

presence of third parties. Countries still can, and do, file for third party status to join Article XXIII consultations. Their request, however, is unlikely to be accepted. In *EC–Generalized System of Preferences* (GSP), countries filed for third party status despite the fact that consultations had been filed under Article XXIII, and were denied entry. As the minutes from the corresponding dispute settlement body meeting read, "[a]lthough Colombia was aware that the request had been made under Article XXIII of the GATT 1994, it had asked to be joined in the consultations, but had been informed that these consultations would be held exclusively between the EC and Thailand."[10] Yet in *EC–Coffee*—another case filed under Article XXIII that also involved the EC and its GSP treatment—countries also filed for third party status and their request was granted.[11] Nevertheless, such cases remain rare.

When WTO disputants begin consultations, their goal is to negotiate a "mutually acceptable solution." Bargaining can continue even after a panel has ruled. However, early settlement—i.e. reached prior to a panel verdict—is believed to be most beneficial because the exact terms usually remain private, do not entail any normative condemnation of either party, and are thus easiest to sell domestically (Busch and Reinhardt, 2001). All mutually agreed solutions must be "consistent" with WTO obligations.[12] However, disputants have great latitude in choosing from a range of possible outcomes that could be considered a mutually agreeable solution. Third parties affect this choice. As the WTO outlines in its training module for would-be dispute settlement participants, a country that joins as a third party may do so because it "ha[s] an interest in being present at discussions on any mutually agreeable solution because such a solution may affect its interests."[13] Implicit in this statement is the belief that third parties modify the specific terms of a mutually agreed solution. However, it remains unclear exactly *how* third parties influence dispute settlement outcomes. In other

[10]In a typical statement over the issue of third party rights, Colombia stated it: "regretted that it would not be able to participate in these consultations...since this matter was of the utmost political, economic and commercial importance for Colombia." Minutes of Meeting, DSB 18 January 2002, WT/DSB/M/117.

[11]Even when complainants do file under Article XXII, defendants retain the right to block any third party from joining. This decision cannot be challenged on any grounds. Yet defendants seldom exercise this right for two reasons. First, any country denied third party participation may initiate its own dispute. Second, the same country could join the dispute during the panel stage (under Article 10 of the DSU), when the bar for joining is much lower.

[12]See WTO DSU, Article 3.5. In practice, another WTO member would have to formally challenge any WTO inconsistent settlement because the WTO lacks centralized enforcement.

[13]http://www.wto.org/english/tratop_e/dispu_e/disp_settlement_cbt_e/c6s2p2_e.htm

words, what is the mechanism that drives third party influence?

3 How Third Parties Influence Dispute Outcomes

A majority of WTO disputes do not make it to a panel ruling. For the most part, litigation is avoided because disputants reach early settlement.[14] The specific terms of mutually agreeable settlements remain private; and while they do not formally allocate legal blame or responsibility, anecdotal evidence suggests that complainants usually extract partial or complete removal of the offending measure from the defendant.[15] If the case does proceed to trial, the panel rules in favor of either the complainant or the defendant.[16] In order to systematically consider the impact of third parties, we examine possible ways in which audiences might affect disputant payoffs in these three different outcomes. In doing so, we propose two alternative accounts of the role of third parties: "audience costs" and "audiences as insurance."

3.1 Audience Costs

One way in which third party participation might affect WTO disputes is by increasing audience costs. Third parties participate in otherwise private bargaining during consultations, and in subsequent panel hearings that take place behind closed doors. The audience is made up of potential future litigants, which may lead the disputants to posture for the purpose of future disputes. In this way, appearing tough today may serve to deter potential litigants tomorrow. No longer just a matter of the underlying commercial issue, state behavior during dispute settlement bears influence over all potential disputes to come involving the parties in the room.

Third parties may thus affect disputants' payoffs by raising the stakes. That is, audiences may bolster the payoff of the prevailing state while lowering the payoff of the losing state. If

[14]The rest of cases, which neither reach the panel stage, nor early settlement, are simply dropped by the complainant.

[15]Tellingly, in their study of WTO dispute outcomes, Busch and Reinhardt (2000) code all early settlement as "full cooperation."

[16]Mixed rulings—in which panelists side with the complainant on some legal claims and with the defendant on others—are not uncommon. Nevertheless, most rulings result in a "win" for one side or the other, even if the winning side does not prevail on every single legal claim.

the complainant is successful in the dispute—either by reaching an early settlement or winning a panel ruling—then large audiences might increase her payoff while lowering the payoff of the defendant. In contrast, if the complainant loses the panel ruling, then large audiences might lower her payoff and increase the payoff of the defendant. Under an audience costs theory of third parties, the overall effect of large audiences is to exacerbate risk by increasing the value of victories and making losses more painful. This view may appear intuitive because of the pervasiveness of audience cost models in the crisis bargaining literature.[17]

At least some WTO disputes would appear consistent with this pattern. For example, ten co-complainants requested consultations against the US in *US—Steel Safeguards* in 2002. The case was a certain win, and the complainants wanted as big an audience as possible to witness it. The fact that all ten members filed separate disputes, and did so under Article XXII to maximize the number of third parties, appears consistent with a desire to make the likely victory as loud as possible. Conversely, the case often agreed to have been the weakest high profile dispute at the WTO is *Japan—Film*. It is traditionally thought that the US filed the case as a means of appeasing Kodak (Davis, 2011). The US—which knew it would most likely lose the dispute—sought to limit the audiences present during consultations and hearings by filing under Article XXIII. The combination of these two cases would suggest that large audiences may increase both the benefits of winning and the costs of losing.

3.2 Audiences as Insurance

However, third parties may affect WTO dispute settlement in other important ways. If an early settlement is reached, then third party participation makes a discriminatory settlement—in which only the complainant receives concessions, to the detriment of other affected states—less likely. Consider negotiations between the US and Japan on beef imports in the late 1970s. Australia—a major beef exporter—had a sizeable stake in the dispute, but was excluded from negotiations. In 1979, Japan and the US reached a settlement in which Japan re-categorized beef as two distinct products, so that grain-fed beef—which the US exported—now fell under the rubric of "hotel grade" beef, and would be considered as distinct from grass-fed beef—

[17]For example, see Fearon (1994), Schultz (1998), Smith (1998), Tomz (2007), and Trager and Vavreck (2011).

which Australia exported (Davis, 2003, 153). Major concessions were then extended to hotel grade grain-fed beef, but not to grass-fed beef. Australia was cut out from the deal. This discriminatory settlement—in which the US secured benefits but Australia did not—left the United States as the one undeniable winner of the negotiations. The WTO itself sees the elimination of such discriminatory settlements as one of the main functions of third parties.[18] Bown (2009, 61) concurs with this view, claiming that third parties "minimiz[e] the likelihood that settlements between litigating parties result in discrimination against exporting firms from third countries."

For these reasons, from the complainant's perspective, third parties are costly if an early settlement is reached. Having an additional third party in the negotiations can only reduce the complainant's share of concessions, and never increase it. There will always be an upper limit on the willingness of a defendant to provide concessions in order to avoid litigation. Because the US was able to exclude Australia from the beef negotiations, the terms of the final settlement greatly benefited the US. However, it is unlikely that Japan would have been willing to open its market so drastically if it had been required to to so for all types of beef. Recent empirical research provides support for this view. Bechtel and Sattler (2011) argue that third parties free-ride on the legal efforts of complainants. They show that third parties end up profiting as least as much as the complainant from any concessions made by the defendant. For example, in a recent WTO case the US filed against Japan over import restrictions on apples. New Zealand—which also exported apples to Japan—joined as a third party. Phil Alison, the chairman of Pipfruit New Zealand Growers, rejoiced that "The Americans will now sit down to negotiate a protocol with the Japanese and we will hope to piggy-back on that" (Sydney, 2003). All else equal, the presence of third parties can only reduce the complainant's share of the "concessions pie," and never increase it.

From the defendant's perspective, third party participation is beneficial if an early settlement is reached. If third parties are excluded and there is a discriminatory settlement, then it is possible that other affected states will file lawsuits of their own. Consider the case above, where Australia was cut out from the deal between Japan and the United States. The

[18] *Ibid*, 14.

settlement—in which only the US received concessions—left Japan vulnerable to a subsequent challenge by Australia claiming breach of Most Favoured Nation (MFN) treatment for a "like product" under GATT Article I:1. This may have been an acceptable risk for Japan in 1979 because the US has considerable extra-judicial leverage over Japan and Australia did not. Nevertheless, discriminatory settlements leave defendants susceptible to challenges by countries not present during negotiations. Moreover, such future challenges are likely to be strengthened by precedents set in the initial case, an outcome that leaves defendants worse off. Any third party that benefits from a non-discriminatory settlement becomes less likely to file a dispute of its own. This is why defendants almost never block third party participation despite having the legal ability to do so. Defendants would rather allow a third party in the room than have that third party file a complaint of its own. From their point of view, an extra third party can never increase the odds of future litigation on the underlying issue, and may decrease them. Ceteris paribus, if early settlement occurs, defendants can only benefit from additional third party participation.

Third parties also affect outcomes if a dispute proceeds to trial and yields a panel ruling. In these cases, third parties can soften losses and render wins more ambiguous. Despite its elaborate dispute settlement procedures, the WTO remains a fundamentally diplomatic institution. While panel rulings are considered to be legally binding, member perceptions shape the normative impact of rulings.

Consider a recent WTO dispute in which China argued that US trade law violated both the Subsidies and Countervailing Measures (SCM) Agreement and the Anti-Dumping Agreement.[19] Fourteen WTO members joined as third parties. Of the ones who made submissions, five countries sided with the US, and four sided with China.[20] China ultimately prevailed in legal proceedings. However, broad third party participation, registered as oral and written submissions in the panel report, suggested that the legal issue was sufficiently ambiguous that it could have been ruled on in either direction. The contention among third parties was frequently brought up in informal discussions of the panel ruling.[21] This ambiguity

[19] *US—Anti-Dumping and Countervailing Duties.*

[20] Two more countries, Australia and Brazil, provided mixed submissions.

[21] For example, Lester (2011) notes that the Appellate Body—which issued the final ruling—had to "pick a side",

reduced the normative impact of the US loss and took away from China's legal victory. Had the US won, there is little doubt that China would have seen the ambiguity expressed by third parties as beneficial to it. Moreover, given the particular relationship between the legal and political realms, strong support from the membership adds little to a legal victory on the merits, but strong opposition may discount the impact of a loss.

In the complete absence of third parties, panel rulings are interpreted in a purely legalistic fashion, benefiting the winner and harming the loser. However, as illustrated by *US—Anti-Dumping and Countervailing Duties*, third party participation may reduce the normative force of panel rulings. To be sure, WTO disputants always prefer winning to losing, regardless of the level of third party participation. However, more third parties can discount both the benefits of winning and the costs of losing, lowering the winner's payoff and raising the loser's payoff, when compared against a case with no third party views expressed.

The combined impact of third parties on both early settlement and panel rulings generates an "insurance" effect. If there is early settlement or the complainant wins the ruling, large audiences decrease the complainant's payoff while increasing the payoff to the defendant, since settlements have to be shared, yet third parties present are unlikely to file disputes of their own. However, if the panel rules against the complainant, then large audiences may increase her payoff at the expense of the defendant, by introducing ambiguity over the ruling. The overall impact of audiences is to reduce risk. If this is so, large audiences act as insurance for disputants, generating a cost in the case of success, and a benefit in the case of failure.

In the next section we formalize these alternative accounts of the role of third parties—"audience costs" and "audiences as insurance"—by constructing two models of WTO dispute settlement. These two models differ only in the impact of third parties on disputant payoffs. We do not claim that one model fully accounts for country behavior across all cases. It may well be that some cases activate one function of third parties, while other cases activate another. What we are interested in is whether one model provides a better explanation for country behavior on average than the other. We generate several hypotheses that allow us to test which theoretical account provides a more accurate depiction of third party participation

and simply could not "make everyone happy."

in the WTO. We then conduct systematic empirical analysis to test these competing hypotheses. We find strong evidence that third parties in the WTO appear to generate insurance, rather than audience costs.

4 Theory

4.1 Model

We assume that two states, a complainant and a defendant, are involved in a trade dispute. The defendant has previously taken some action that has caused harm to the complainant. Without loss of generality, we normalize the size of these damages to 1. As shown in Figure 1, the game begins when Nature chooses the strength of the complainant's case, π.[22] This is the probability that the complainant wins the panel ruling if the disputants are unable to reach an early settlement. This probability is revealed only to the complainant and is her private information. The complainant can then decide how to file her case. Filing under Article XXIII ("prevent") makes it relatively difficult for third parties to join the case, while filing under Article XXII ("promote") makes it relatively easy for third parties to join. Nature then chooses the size of the audience, a, based upon the complainant's filing decision. Larger audiences are more likely when the complainant has filed under Article XXII ("promote") than under Article XXIII ("prevent").[23]

[Insert Figure 1 here.]

In prelitigation bargaining, the complainant begins by making a take-it-or-leave-it demand, $x \in [0, 1]$, which is a proposed division of the damages. If the defendant accepts the demand, then there is early settlement of the dispute. If the defendant rejects the demand, then the case is heard and ruled on by the panel. Both players must pay the cost of litigation, $k > 0$, if the case is heard by the panel.[24] The complainant prevails with probability π and

[22] More specifically, we assume that π is distributed with full support over the interval $[\pi_L, \pi_H]$, where $0 < \pi_L < \frac{1}{2} < \pi_H < 1$.

[23] Details about our distributional assumptions are contained in the Appendix.

[24] To avoid corner solutions on the equilibrium demand, we assume that k is small relative to the size of the damages in dispute.

the defendant wins with probability $1 - \pi$. We restrict attention to the fully separating weak perfect Bayesian equilibrium.

To assess whether audience costs or insurance are at play in WTO disputes, we compare equilibrium behavior for the two different sets of payoffs that are shown in Table 1. As discussed above, in Model I—the audience costs model—large audiences bolster the payoff of the prevailing state while lowering the payoff of the losing state. The overall effect of large audiences in this model is to exacerbate risk by increasing the value of victories while making losses more painful. In contrast, in Model II—the audiences-as-insurance model—large audiences lower the payoff of the prevailing state and increase the payoff of the losing state. These two effects mean that audiences mitigate risk in Model II by decreasing the value of victories and making losses less painful.

[Insert Table 1 here.]

4.2 Equilibrium Behavior and Comparative Statics

Even though the two models have very different incentive structures, there are some commonalities in their equilibria, as shown in Table 2. In both equilibria, the complainant's demand is always strictly increasing in the strength of her case. The more likely she is to prevail in panel proceedings, the more she demands in pretrial negotiations. The defendant can always infer the strength of the complainant's case based upon the size of her demand. That is, after hearing the complainant's demand, the defendant is no longer uncertain about the likelihood that each disputant will prevail in panel proceedings.

[Insert Table 2 here.]

Intuition might suggest that the defendant should be more likely to accept larger demands because he knows they are being chosen by stronger types. However, the opposite effect must hold in order for an equilibrium to exist: larger demands must be rejected with a higher probability (Gilligan, Johns and Rosendorff, 2010). To understand why this must be true, suppose that large demands are more likely to be accepted. Then a complainant who has a weak case has incentive to bluff by making larger demands. By asking for more, she

would be more likely to receive this large settlement and less likely to go through litigation, which she believes she will lose. All players would have incentive to pretend as though they are stronger than they really are. Separation would not be possible since all types would want to make larger and larger demands. In contrast, if larger demands are less likely to be accepted, then the implicit threat of litigation disciplines the complainant's demands in pretrial negotiations. Weak types do not have incentive to mimic the demands of stronger types because they know that this behavior is more likely to result in panel proceedings, which weak types want to avoid. This logic is what drives Proposition 1.

Proposition 1. *In both models: the complainant's demand is increasing in the strength of her case; and larger demands are less likely to be accepted by the defendant.*

However, the two models yield very different predictions on all other aspects of equilibrium behavior. We next consider the impact of audience size on equilibrium demands. In the audience costs model, large audiences lower the defendant's payoff if he accepts the demand or loses the panel ruling. Larger audiences increase the defendant's payoff if he wins the panel ruling. However, the overall impact of a change in audience size has a larger effect on the payoff from accepting the demand than on the expected payoff of rejecting the demand and going to trial. This means that in order for the defendant to be willing to accept a demand, the complainant must ask for less as the audience grows larger. In contrast, the defendant's payoffs from early settlement or losing the ruling are both increasing in audience size in Model II. While a larger audience lowers the defendant's payoff if he wins the ruling, the former effects outweigh the latter. As the audience grows larger, the relative desirability of early settlement increases for the defendant. This means that the complainant can ask for more by making larger demands. This behavior is summarized in Proposition 2.

Proposition 2. *In Model I—the audience costs model—the complainant's demand is decreasing in the size of the audience. In Model II—the insurance model—the complainant's demand is increasing in the size of the audience.*

Since the complainant's demand fully reveals the strength of her case, the complainant's filing strategy (that is, her choice between Article XXII and Article XXIII) is not driven by an

attempt to signal private information to the defendant. Rather the complainant's preference over a filing strategy represents her genuine preferences about the size of the audience.

Under an audience cost account, the complainant wants a large audience if she believes that she is likely to win a panel ruling and she wants to minimize the size of the audience if she believes that she will lose. So if the complainant has a strong case, the benefit of a large audience outweighs the cost. In contrast, weak types—who believe that they are likely to lose a panel ruling—prefer a small audience. So in Model I, weak types of the complainant prevent audiences while strong types promote. This separating behavior yields a key empirical implication: the complainant should be more likely to win a panel ruling if she has promoted audiences than if she has prevented.

However, audiences in Model II provide insurance to the complainant. The complainant wants a large audience if she believes that she is likely to lose the case. If the complainant has a strong case and is likely to win the panel ruling, then the cost of a large audience outweighs the benefits. This means that weak types will want to promote large audiences by filing under Article XXII, while strong types will want to prevent third party participation by filing under Article XXIII. This leads to the opposite of Model I's empirical implication. If Model II is correct—and audiences serve as insurance—then the complainant should be less likely to win a panel ruling if she has promoted audiences than if she has prevented. Proposition 3 summarizes this equilibrium behavior.

Proposition 3. *In Model I—the audience costs model—the complainant prevents audiences if she has a weak case, and promotes audiences if she has a strong case. So the complainant is more likely to win a panel ruling if she has promoted audiences than if she has prevented. In Model II—the insurance model—the complainant promotes audiences if she has a weak case, and prevents audiences if she has a strong case. So the complainant is less likely to win a panel ruling if she has promoted audiences than if she has prevented.*

As discussed above, early settlement is one of the key objectives of the WTO dispute settlement procedure. The two models yield very different explanations about the effect that third parties will have on early settlement. Under the audience costs account, large audiences lower demands from the complainant, which the defendant is more likely to accept.

So Model I predicts that the larger the size of the audience, the greater the probability of early settlement. However, large audiences increase the complainant's equilibrium demand in Model II. Larger demands are less likely to be accepted by the defendant. So the insurance model predicts that large audiences will lower the probability of early settlement.

Proposition 4. *In Model I—the audience costs model—the probability of settlement is increasing in the size of the audience. In Model II—the insurance model—the probability of settlement is decreasing in the size of the audience. Both of these effects are non-linear.*

In Model I, weak types want to prevent audiences while strong types want to promote them. In contrast, when audiences serve as insurance, weak types want to promote large audiences by filing under Article XXII, while strong types want to prevent large audiences by filing under Article XXIII. We cannot actually observe the *ex ante* beliefs of complainants about the strength of their cases. Similarly, we cannot observe the demands made in pre-trial negotiations since these occur behind closed doors. However, our theory suggests that complainants with stronger cases will demand more, and these demands are more likely to be rejected. This means that if we hold constant the size of the audience, then there will be differences in settlement rates across Articles XXII and XXIII.

The audience costs model supports the intuition of Porges (2003, 160), who believes that Article XXII cases—which promote large audiences—will be less likely to settle than Article XXIII. However, Model II—the audiences-as-insurance model—predicts the opposite: Article XXII cases will be *more* likely to settle than Article XXIII cases. In both models, the relationship between filing decisions and the likelihood of settlement is driven solely by selection effects in the equilibrium filing strategies. Proposition 5 summarizes this result, which is also shown graphically in Figure 2. These graphs also show the expected non-linear effect of audience size on the probability of settlement.

Proposition 5. *In Model I—the audience costs model—cases that promote audiences (Article XXII) are less likely to settle than cases that prevent audiences (Article XXIII), conditional on a given audience size. In Model II—the insurance model—cases that promote audiences (Article XXII) are more likely to settle than cases that prevent audiences (Article XXIII),*

conditional on a given audience size.

[Insert Figure 2 here.]

4.3 Robustness

Some past empirical studies have found a relationship between third party submissions and the behavior of WTO panelists. Busch and Reinhardt (2006) find that partisanship among third party submissions appears to affect the direction of the final ruling. Conversely, the absence of partisanship also seems to have an effect. Non-partisan third party submissions increase the odds of judicial economy, a maneuver by which courts refrain from ruling on one measure, given a finding on another related measure (Busch and Pelc, 2010). Along similar lines, Carrubba, Gabel and Hankla (2008) and Garrett, Kelemen and Schulz (1998) find that political factors affect rulings by the European Court of Justice (ECJ). They find that the ECJ is restrained when a ruling risks upsetting countries' sensibilities. One common theoretical explanation for such relationships is that international judges may strategically alter their rulings in response to anticipated reactions by member-states. If international judges dislike noncompliance with their rulings, then they have incentive to avoid rulings that member-states will oppose. In other words, judges may be biased in favor of politically palatable legal positions.

Our model does not allow for this possibility. We assume that the direction of panel rulings (i.e. who wins and who loses) is driven solely by the merit of legal claims, and not by third party participation. Nonetheless, it is worth asking whether our model results are robust to the inclusion of judicial bias. To answer this question, we constructed a model extension in which third parties directly influence both panel rulings and bargaining payoffs. This extension yields results that closely match most of our findings: the introduction of judicial bias does not invalidate our theoretical or empirical arguments.[25]

Moreover, our simpler models—in which judges are not influenced by how politically

[25]It is straightforward to establish that Propositions 1, 2, and 4 can continue to hold in such a model. However, it is not possible to get clear analytical results about strategic filing decisions. So we cannot make clear statements equivalent to Propositions 3 and 5. Results are available from the authors upon request.

palatable their rulings are—nonetheless allow for the type of correlation the literature observes. This is because strategic behavior by disputants can lead to perceived bias in judicial rulings, even if judges are not actually biased in their decision-making.[26] The existence of an empirical relationship between the behavior of third parties and the direction of panel rulings does not necessarily entail that third parties are having a causal effect on judicial decision-making. In the model above, the size of the audience plays no role in whether the complainant wins or loses a panel ruling. Panelists rule solely on the basis of legal merits. However, audiences affect bargaining payoffs, which in turn affect the likelihood of pretrial settlement. So audiences affect the likelihood that the panel hears the case, but not the likelihood that the complainant wins the case if it is heard. In other words, audiences give rise to a selection effect. Since the strength of the complainant's case affects her decision about whether to promote or prevent audiences, the audience selection effect leads to an observable relationship between third parties and the direction of the panel ruling. However, this relationship is not causal. In our empirical tests below, we are careful to account for such selection.

Table 2 compares the hypotheses from the two models. Not all of these hypotheses are testable in the context of the WTO. For example, pretrial bargaining takes place behind closed doors, so it is not possible to observe demands made during negotiations. This rules out systematic tests of Propositions 1 and 2. Similarly, we are hesitant to claim that we can directly test the separating behavior articulated in Proposition 3 because we have no way of systematically coding the initial beliefs of disputants about the strength of their cases. However, we can indirectly test this separating behavior by examining the relationship between filing decisions and the direction of panel rulings. Similarly, the impact of audience size and filing decisions on the likelihood of settlement are both testable. These three tests—of Propositions 3, 4, and 5—allow us to assess the explanatory power of the two different theoretical models.

[26] Gilligan, Johns and Rosendorff (2010) makes a similar argument about the well-known pro-complainant bias in the GATT/WTO.

5 Empirics

We test the contrasting implications of our two models on a dataset of all available WTO disputes. This nets a maximum sample covering 418 disputes, though the actual number of observations in the analyses tends to be far lower, both because we lack relevant information on the later stages of recent disputes, and because disputes by multiple complainants, though formally distinct, are dealt with in the same proceedings, and thus constitute a single dispute for our purposes.[27] The data on third parties come from Busch and Reinhardt (2006), which we update using the data from Horn and Mavroidis (2008), hosted by the World Bank, and data from the WTO itself for post-2008 cases.

It may be useful to begin by noting that the decision over whether to file in a way that promotes or prevents third parties cannot be explained by simple country characteristics. Richer complainants do not appear significantly more or less likely to file under Article XXII than poorer complainants. Similarly, key members such as the US or the EC do not seem to be more or less in favour of promoting audiences. Finally, disputes that are filed simultaneously by multiple complainants do not exhibit any significant relationship with the filing method.[28] These preliminary observations suggest that the decision over whether to promote or prevent audiences is affected by strategic behavior, in accordance with the case at hand.

5.1 Early Settlement

Next, we test the empirical implications of our two models, following the order in which they present themselves through the stages of a dispute at the WTO. We thus begin by testing hypotheses about the odds of early settlement. Recall that Propositions 4 and 5 show that if third parties generate audience costs (Model I), then Article XXII ("promote") cases will be less likely to reach an early settlement, and the number of third parties will be positively correlated with the odds of settlement. In contrast, if third parties serve as insurance (Model II), then the greater the number of third parties, the lower the odds of settlement. However,

[27] To give one example, disputes DS248, DS249, DS251, DS252, DS253, and DS254 all concerned US steel safeguards, were handled during the same consultations, under the same panel and AB report, and all third parties were shared throughout the proceedings. We thus consider them as a single dispute.

[28] These non-results are not shown to save space, but are available from the authors upon request.

the insurance model also leads to a counterintuitive prediction: filing under Article XXII—which increases the number of third parties—should be associated with *greater* odds of early settlement.

We test these competing formal results in Table 3 using a probit model. Our dependent variable is a dummy coded as 1 if the disputants reached a "mutually acceptable solution" short of a panel ruling, and 0 otherwise. Our main explanatory variable indicates the way in which a case has been filed. This variable—named "Article XXII"—is coded as 1 if the complainant filed the case under Article XXII ("promote"), and 0 if it was filed under Article XXIII ("prevent"). In the first column, we only control for one additional variable: a dummy for the presence of third parties, coded as 1 if any third parties were present, and 0 otherwise. In the second column, we expand the third parties variable to a full count, corresponding to the number of third parties at the latest stage reached in the dispute. We also add a host of control variables that we have reason to believe may well affect the odds of early settlement. To control for the market size of both the complainant and the respondent, we include the log of their respective GDPs, and the logged value of defendant's imports from the complainant for the products at issue, represented by *Log Merchandise Trade*. Yet not all disputes concern an identifiable good: some cases are filed over domestic legislation, or trade in services, in which case the value for *Log Merchandise Trade* is set at its minimum. We separately identify these cases using a dummy variable, *Non-Merchandise Issue*, which is coded as 1 if there is no identifiable product at issue, and 0 otherwise. We further control for whether any third parties joined by citing a "systemic interest" in the dispute, which may suggest an issue with far reaching consequences. Three additional variables measure the sensitivity of a dispute. The first is a dummy for non-violation cases. The second—named *Politically Sensitive Case* —is coded as 1 if a dispute challenges domestic legislation or invokes measures pertaining to national security, the environment, or sanitary and phytosanitary issues. The third is a dummy for cases where the complainant has invoked the General Agreement on Trade in Services (GATS), a relatively new agreement which may lead disputants to exercise care over any precedent that may have a decisive impact on this uncharted area. Finally, we control individually for participation by either of the two superpowers as either complainant

or defendant.

[Insert Table 3 here.]

The results from Table 3 offer unambiguous support for the "audiences as insurance" model. First, as supported by the literature, third parties appear to have a strong negative effect on the odds of settlement in both the first and second columns. More interestingly, the invocation of Article XXII ("promote") has a strong *positive* effect on the odds of settlement. The intuitive claim advanced by legal scholars such as Porges (2003, 160), to the effect that Article XXII cases—which promote large audiences—should have the same effect on odds of settlement as greater audiences do, turns out to be exactly wrong. If we set all variables, including the number of third parties, at their sample means, then the odds of observing early settlement more than doubles when a complainant invokes Article XXII rather than Article XXIII, jumping from 22.8% to 46.8%. Few other variables show any significant effect. Invoking systemic interest or politically sensitive issues significantly decreases the likelihood of early settlement, although the latter effect is only significant at the 10% level in the last estimation. For both the EU and the US, being a defendant is positively related to early settlement, and being a complainant is negatively related, though none of these coefficients approach statistical significance.

In the third estimation in Table 3, we add a squared third parties term. This allows for non-linearity in the effect of third parties on settlement, as expected from Proposition 4 and Figure 2. The squared term changes signs, yet falls short of high significance, suggesting that third parties' downwards effect on settlement tapers off at a certain point. To offer a better idea of this non-linearity, and of the differential impact of Article XXII vs. Article XXIII, we graph this empirical relationship in Figure 3. The two curves correspond to filings under the two respective articles, and are overlaid on a histogram indicating frequency of third party counts across disputes. What Figure 3 tells us is that past eight third parties, the marginal effect of an additional country in the room is nil. Yet as can be read from the histogram, there are also very few disputes that go beyond this number. It is telling that the non-linearity in this figure—which is generated from our empirical analysis of the data—so

closely mimics the theoretical relationship shown in panel (b) of Figure 2. Most importantly, Figure 3 graphically shows that Article XXII cases are systematically more likely to result in settlement than Article XXIII cases. In the fourth column of Table 3, we show that the significance of Article XXII does not rely on controlling for the number of third parties. However, the effect of Article XXII drops slightly in significance, as might be expected given its relationship to the number of third parties.

[Insert Figure 3 here.]

5.2 Direction of the Panel Ruling

Our next set of expectations, from Proposition 3, bears on the panel stage. If third parties serve as insurance (Model II), then our theory implies that complainants that invoke Article XXII (promote) will be less likely to win at the panel stage, conditional on reaching the verdict stage. The audience costs model generates the opposite prediction.

We are cognizant of the possible selection bias in directly estimating the effect of Article XXII on the direction of the ruling since, as shown in Table 3, filing decisions affect the odds of early settlement, and thus, by extension, the likelihood of seeing a ruling in the first place. We run a two-stage Heckman probit model to control for this selection effect. The first stage estimates the odds of a given dispute making it to a ruling. The second stage estimates the odds of a pro-complainant ruling, conditional on the first stage. Note that the probability of a ruling is not the complement of the probability of early settlement. A number of disputes do not reach either outcome. Complainants sometimes abandon disputes before either forming a panel or reaching a "mutually acceptable solution." Our initial sample is increased as a result.

[Insert Table 4 here.]

The dependent variable in the second stage is a measure of whether or not a panel has ruled in favor of the complainant. Given the well established pro-complainant bias at the WTO, we raise the bar on what constitutes a pro-complainant ruling, coding the variable as 1 if *all* main claims are ruled in favor of the complainant, and 0 otherwise. Because of the

well known sensitivity of the Heckman model, and the small number of observations we are dealing with, we first run a highly parsimonious model, including only the required controls in each stage, and collapsing our EC/EU dummies into a "US/EU Complainant" and "US/EU Defendant" dummy. Our second column then shows a fuller estimation where the first stage looks much like Table 3 model.

In both estimations, the first stage parallels our earlier findings about the odds of settlement. The presence of third parties makes rulings more likely, while the invocation of Article XXII, which promotes their presence, makes rulings less likely. Additionally, many of the controls are more significant than they were in Table 3, likely due in part to the greater sample size. Specifically, disputes where systemic interests are cited by third parties or where either superpower acts as the complainant are significantly more likely to see a ruling.

As predicted by the insurance model, and as opposed to the audience costs model's expectations, filing under Article XXII has a negative impact on the likelihood of a pro-complainant ruling. Note that this effect is slightly less significant ($p = 0.03$) than Article XXII's impact on the odds of a verdict being handed down in the first place, though this is likely attributable to the much smaller selected sample in second stage. Cases brought both by the EC and the US, conditional on reaching a verdict, are more likely of having the panel rule in their favor. This provides further support for the possible significance of legal capacity, though the effect of the complainant's market size is negatively related, suggesting that this effect may be limited to the two superpowers (Busch, Reinhardt and Shaffer, 2009).

5.3 Appeals

Finally, as an ancillary test of our models, we consider the impact of filing decisions on the odds of appeals to a panel ruling. Recall that in Model II—the insurance model—the complainant promotes audiences if she has a relatively weak case. This means that the defendant has a relatively strong case if the complainant files under Article XXII. A strong case is more likely to win the panel ruling than a weak case. However, rulings are stochastic in the model: we allow for the fact that with some small probability, a strong case will lose and a weak case will win. Our models do not explicitly consider appeals to panel rulings.

Nevertheless, it stands to reason that a disputant who has a strong case is more likely to appeal a ruling than a disputant with a weak case. So the logic of the insurance model suggests that cases filed under Article XXII should be more likely to be appealed by the defendant (who has a strong case), and less likely to be appealed by the complainant (who has a weak case). The opposite pattern should hold if third parties generate audience costs. We are able to test the implication about defendant appeals using a Heckman probit model. However, we are unable to test the implication about complainant appeals. These are relatively rare within our data, and so there is insufficient variation in this measure for a Heckman probit model to converge. We try and get at complainant appeals in an alternative fashion below.

To control for possible selection effects, we first estimate the odds of a ruling being handed down, and then use those estimates to consider the odds of appeal. We thus estimate an identical first stage model to Table 4. The findings are shown in Table 5. Note that we do not restrict the data in the second stage to only those cases where the panel ruled wholly in favor of the complainant, since defendants may appeal a ruling—even if it was in their favor—so as to have the Appellate Body modify a legal interpretation, or emit an even stronger verdict. However, since pro-complainant rulings should logically be more likely to be appealed by defendants (regardless of the strength of the defendant's case), we control for these in the second stage. Note that this control corresponds exactly to our dependent variable in the second stage of Table 4. Hence, our second stage dependent variable is now coded as 1 if the defendant appeals the ruling, and 0 otherwise. With the addition of the control variable for strict pro-complainant rulings, we run exactly the same estimation as in Table 4, substituting the dependant variable for appeals by the defendant.

[Insert Table 5 here.]

The findings are striking. Apart from the coefficient on pro-complainant rulings, which, as expected, has a significant positive effect on the odds of the panel decision being appealed by the respondent, Article XXII is the only explanatory variable with *any* significant impact on the decision to appeal, across our two estimations. In accordance with the insurance model, the defendant is significantly more likely to appeal a panel ruling if the complainant

files under Article XXII. Filing decisions that are driven by the strength of the case allow us to account for an event that is notoriously hard to predict.

As mentioned above, the dearth of complainant appeals keeps us from estimating the likelihood of a complainant appeal using a Heckman model. However, if we remove the selection stage and directly estimate the impact of filing decisions on complainant appeals, we find strong support for the insurance model. Article XXII cases are still significantly more likely to be appealed by the defendant, and significantly less likely to be appealed by the complainant, even though this seldom occurs.[29] The absence of a selection stage keeps us from trusting these findings unconditionally. They are nonetheless a further indication that audiences generate insurance within the WTO.

6 Conclusion

Our empirical findings, as well as anecdotal evidence, support the claim that third parties serve as insurance in WTO disputes. Yet audience costs undeniably loom large in both theoretical and empirical accounts of international disputes. It is for this reason that we have made the unusual decision to fully develop two alternative models and generate empirical expectations for each. We do not claim to provide a systematic analysis of when one mechanism will prevail over the other. Nonetheless, several aspects of our theoretical framework allow us to highlight important institutional attributes that may affect the role of audiences.

First, most audience cost models are motivated by the impact of *domestic* audiences. These audiences have a means of rewarding or punishing a state leader that lies outside of the crisis in question. In WTO dispute settlement, the audience is made up of other states. The payoffs would likely look very different if the participants allowed into the room were the domestic industries whose interests were at stake in the dispute. Other states create competition over the spoils of victory and normative support for losses in a way that domestic audiences do not. The composition of audiences may thus be a determining factor explaining which model is likely to prevail. Keeping domestic interest groups out of negotiations is key

[29] These results are available from the authors upon request.

to the insurance mechanism. If domestic interest groups were allowed to participate directly in trade disputes, it is likely that audience costs would predominate and filing in a way that increases the expected size of the audience would exacerbate the risk inherent in international disputes.

Second, the quintessentially diplomatic nature of the GATT/WTO elevates the role of perception, and thus the extent to which third parties can qualify losses. As (Hudec, 1987, 214) observed, "[t]he basic force of the procedure [comes] from the normative force of the decisions themselves and from community pressure to observe them." In other words, the effectiveness of judicial rulings is affected by community beliefs about whether and to what extent rulings should be enforced (Johns, 2011). Such pressure can be exerted in the WTO to qualify, and possibly reverse, the implications of a loss, as in the case of Section 301. Absent such power to influence the perceived outcome of panel rulings, it is unlikely that third parties could serve a strong insurance function for complainants.

In closing, it is worth noting which views our findings allow us to *reject*. The even distribution of Articles XXII and XXIII filings across all countries and levels of development suggests that filing decisions are not the result of fundamental or intrinsic country attitudes towards privacy and transparency. Our theoretical model and empirical analysis demonstrate that the choice between privacy and transparency is fundamentally strategic and driven by the particular circumstances of a given dispute.

7 Appendix

Let $x(\pi, a)$ denote a demand made by type π given audience size a. Let $s(x)$ denote the probability that the defendant settles by accepting demand x. We assume that: if the complainant prevents audiences, then $a \sim U[a_L, a_L + \alpha]$; and if the complainant promotes audiences, then $a \sim U[a_H, a_H + \alpha]$ where $0 < a_L < a_H < a_L + \alpha < a_H + \alpha < \min\left\{\frac{1}{2}, \frac{\pi_L + k}{2(1-\pi_L)}\right\}$. The upper bound on audience size ensures that the complainant always prefers winning the panel ruling to losing, and the complainant's demand is an interior solution. We begin by deriving the fully separating equilibrium for each model. In each model we assume that off-the-equilibrium-path beliefs satisfy the refinement of universal divinity (Banks and Sobel, 1987). We then provide proofs for Propositions 1-5.

***

Lemma 1. *In Model I ('audience costs'), for small k there exists a universally divine weak Perfect Bayesian equilibrium in which:*

- *there exists an interior cutpoint, $\tilde{\pi} \in (0,1)$, such that the complainant prevents audiences if $\pi < \tilde{\pi}$ (a 'weak' case), and promotes audiences if $\tilde{\pi} \leq \pi$ (a 'strong' case);*
- *equilibrium demands are $x^*(\pi, a) = \pi - 2a(1-\pi) + k$; and*
- *the probability that the defendant settles by accepting demand $x \in [\min\{x^*(\pi, a)\}, \max\{x^*(\pi, a)\}]$ is $s^*(x) = \exp\left(\frac{-x}{2k}\right)$.*

Proof of Lemma 1. Conditional on receiving a demand x, the defendant is willing to play a mixed strategy if and only if:

$$1 - x - a = -\pi a + (1-\pi)(1+a) - k \quad \Leftrightarrow \quad x^*(\pi, a) = \pi - 2a(1-\pi) + k \tag{1}$$

This is an interior solution for small k. Let $T_C(\pi)$ denote the complainant's expected utility from a trial. Then the complainant's expected utility from a demand x is:

$$\begin{aligned} EU_C(x|\pi, a) &= s(x)(x+a) + [1 - s(x)]\, T_C(\pi) \\ \Rightarrow \frac{\partial EU_C(x|\pi, a)}{\partial x} &= s(x) + s'(x)(x+a) - s'(x) T_C(\pi) = 0 \\ &\Leftrightarrow \quad x = T_C(\pi) - a - \frac{s(x)}{s'(x)} \end{aligned} \tag{2}$$

Since both (1) and (2) must hold simultaneously in equilibrium:

$$\begin{aligned} \pi - 2a(1-\pi) + k &= \pi(1+a) - (1-\pi)a - k - a - \frac{s(x)}{s'(x)} \\ \Leftrightarrow \quad 2k\, s'(x) &= -s(x) \\ \Rightarrow \quad s^*(x) &= \exp\left(\frac{-x}{2k}\right) \end{aligned}$$

This is always an interior solution. Universal divinity ensures that if the defendant observes an off-the-equilibrium path demand $x > \max\{x^*(\pi, a)\}$, then she rejects the demand. Similarly, if she observes an off-the-equilibrium path demand $x < \min\{x^*(\pi, a)\}$, then she accepts.

The complainant's expected utility from playing the bargaining and trial subgame as a function of (π, a) and equilibrium strategies (x^*, s^*) is:

$$\begin{aligned} V_C(\pi, a) &= s^*\left(x^*(\pi, a)\right)\left[x^*(\pi, a) + a\right] + \left[1 - s^*\left(x^*(\pi, a)\right)\right] T_C(\pi) \\ &= \pi\left(1 + a\right) - (1 - \pi)a - k + 2k\,\exp\left(\frac{-x^*}{2k}\right) \end{aligned}$$

Note that:

$$\frac{\partial V_C(\pi, a)}{\partial a} = (2\pi - 1) + 2(1 - \pi)\exp\left(\frac{-x^*}{2k}\right)$$

As k grows arbitrarily small, $\frac{x^*}{2k}$ grows arbitrarily large. This means that $\exp\left(\frac{-x^*}{2k}\right)$ approaches zero. So:

$$\lim_{k \to 0} \frac{\partial V_C(\pi, a)}{\partial a} = 2\pi - 1 > 0 \quad \Leftrightarrow \quad \pi > \frac{1}{2}$$

Recall that $\pi_L < \frac{1}{2} < \pi_H$. So for small k, type π_L wants to prevent and type π_H wants to promote. Define:

$$\begin{aligned} \Delta(\pi) &\equiv EU_C\left(promote|\pi\right) - EU_C\left(prevent|\pi\right) \\ &= \int_{a_H}^{a_H+\alpha} V_C(\pi, a) f\left(a|promote\right) da - \int_{a_L}^{a_L+\alpha} V_C(\pi, a) f\left(a|prevent\right) da \\ &= \frac{1}{\alpha}\left[\int_{a_L+\alpha}^{a_H+\alpha} V_C(\pi, a) da - \int_{a_L}^{a_H} V_C(\pi, a) da\right] \end{aligned}$$

Then—by the argument above—$\Delta\left(\pi_L\right) < 0$ and $\Delta\left(\pi_H\right) > 0$ for small k. Function $\Delta(\pi)$ is continuous, so by the implicit function theorem, there exists a cutpoint $\tilde{\pi} \in (\pi_L, \pi_H)$ such that $\Delta\left(\tilde{\pi}\right) = 0$. In order to have an equilibrium in which all types $\pi < \tilde{\pi}$ prevent and all types $\tilde{\pi} \leq \pi$ promote, we must show that the indifference cutpoint $\tilde{\pi}$ is unique. Note that:

$$\begin{aligned} \frac{\partial \Delta(\pi)}{\partial \pi} &= \frac{1}{\alpha}\left[\int_{a_L+\alpha}^{a_H+\alpha} \frac{\partial V_C(\pi, a)}{\partial \pi} da - \int_{a_L}^{a_H} \frac{\partial V_C(\pi, a)}{\partial \pi} da\right] \\ &= \frac{1}{\alpha}\left[\int_{a_L+\alpha}^{a_H+\alpha} (1 + 2a) da - \int_{a_L}^{a_H} (1 + 2a) da \right. \\ &\qquad \left. - \int_{a_L+\alpha}^{a_H+\alpha} (1 + 2a)\exp\left(\frac{-x^*}{2k}\right) da + \int_{a_L}^{a_H} (1 + 2a)\exp\left(\frac{-x^*}{2k}\right) da\right] \end{aligned}$$

As k grows arbitrarily small, $\frac{x^*}{2k}$ grows arbitrarily large. This means that $\exp\left(\frac{-x^*}{2k}\right)$ approaches zero. So:

$$\lim_{k \to 0} \frac{\partial \Delta(\pi)}{\partial \pi} = \frac{1}{\alpha}\left[\int_{a_L+\alpha}^{a_H+\alpha} (1 + 2a) da - \int_{a_L}^{a_H} (1 + 2a) da\right] > 0$$

So for small k, $\Delta(\pi)$ is a strictly increasing function. This means that there is a unique

indifference cutpoint. □

Lemma 2. *In Model II ('audiences as insurance'), for small k there exists a universally divine weak Perfect Bayesian equilibrium in which:*

- *there exists an interior cutpoint, $\tilde{\pi} \in (0,1)$, such that the complainant promotes audiences if $\pi < \tilde{\pi}$ (a 'weak' case), and prevents audiences if $\tilde{\pi} \leq \pi$ (a 'strong' case);*
- *equilibrium demands are $x^*(\pi, a) = \pi + 2a(1-\pi) + k$; and*
- *the probability that the defendant settles by accepting demand $x \in [\min\{x^*(\pi,a)\}, \max\{x^*(\pi,a)\}]$ is $s^*(x) = \exp\left(\frac{-x}{2k}\right)$.*

Proof of Lemma 2. Conditional on receiving a demand x, the defendant is willing to play a mixed strategy if and only if:

$$1 - x + a = \pi a + (1-\pi)(1-a) - k \quad \Leftrightarrow \quad x^*(\pi, a) = \pi + 2a(1-\pi) + k \tag{3}$$

This is an interior solution for small k. Let $T_C(\pi)$ denote the complainant's expected utility from a trial. Then the complainant's expected utility from a demand x is:

$$\begin{aligned} EU_C(x|\pi, a) &= s(x)(x-a) + [1 - s(x)]\, T_C(\pi) \\ \Rightarrow \frac{\partial EU_C(x|\pi,a)}{\partial x} &= s(x) + s'(x)(x-a) - s'(x)T_C(\pi) = 0 \\ &\Leftrightarrow \quad x = T_C(\pi) + a - \frac{s(x)}{s'(x)} \end{aligned} \tag{4}$$

Since both (1) and (2) must hold simultaneously in equilibrium:

$$\begin{aligned} \pi + 2a(1-\pi) + k &= \pi(1-a) + (1-\pi)a - k + a + \frac{s(x)}{s'(x)} \\ \Leftrightarrow \quad 2k\ s'(x) &= -s(x) \\ \Rightarrow \quad s^*(x) &= \exp\left(\frac{-x}{2k}\right) \end{aligned}$$

This is always an interior solution. Universal divinity ensures that if the defendant observes an off-the-equilibrium path demand $x > \max\{x^*(\pi,a)\}$, then she rejects the demand. Similarly, if she observes an off-the-equilibrium path demand $x < \min\{x^*(\pi,a)\}$, then she accepts.

The complainant's expected utility from playing the bargaining and trial subgame as a function of (π, a) and equilibrium strategies (x^*, s^*) is:

$$\begin{aligned} V_C(\pi, a) &= s^*\left(x^*(\pi,a)\right)\left[x^*(\pi,a) - a\right] + \left[1 - s^*\left(x^*(\pi,a)\right)\right] T_C(\pi) \\ &= \pi + a(1-2\pi) - k + 2k\exp\left(\frac{-x^*}{2k}\right) \end{aligned}$$

Note that:

$$\frac{\partial V_C(\pi,a)}{\partial a} = 1 - 2\pi - 2(1-\pi)\exp\left(\frac{-x^*}{2k}\right)$$

As k grows arbitrarily small, $\frac{x^*(\pi,a)}{2k}$ grows arbitrarily large. This means that $\exp\left(\frac{-x^*(\pi,a)}{2k}\right)$ approaches zero. So:

$$\lim_{k\to 0}\frac{\partial V_C(\pi,a)}{\partial a} = 1-2\pi > 0 \quad \Leftrightarrow \quad \pi < \frac{1}{2}$$

Recall that $\pi_L < \frac{1}{2} < \pi_H$. So for small k, type π_L wants to promote, while type π_H wants to prevent. Define:

$$\begin{aligned}
\Delta(\pi) &\equiv EU_C\left(promote|\pi\right) - EU_C\left(prevent|\pi\right) \\
&= \int_{a_H}^{a_H+\alpha} V_C(\pi,a) f\left(a|promote\right) da - \int_{a_L}^{a_L+\alpha} V_C(\pi,a) f\left(a|prevent\right) da \\
&= \frac{1}{\alpha}\left[\int_{a_L+\alpha}^{a_H+\alpha} V_C(\pi,a) da - \int_{a_L}^{a_H} V_C(\pi,a) da \right]
\end{aligned}$$

Then—by the argument above—$\Delta\left(\pi_L\right) > 0$ and $\Delta\left(\pi_H\right) < 0$ for small k. Function $\Delta(\pi)$ is continuous, so by the implicit function theorem, there exists a cutpoint $\tilde{\pi} \in (\pi_L, \pi_H)$ such that $\Delta\left(\tilde{\pi}\right) = 0$. In order to have an equilibrium in which all types $\pi < \tilde{\pi}$ promote and all types $\tilde{\pi} \leq \pi$ prevent, we must show that the indifference cutpoint $\tilde{\pi}$ is unique. Note that:

$$\begin{aligned}
\frac{\partial \Delta(\pi)}{\partial \pi} &= \frac{1}{\alpha}\left[\int_{a_L+\alpha}^{a_H+\alpha} \frac{\partial V_C(\pi,a)}{\partial \pi} da - \int_{a_L}^{a_H} \frac{\partial V_C(\pi,a)}{\partial \pi} da \right] \\
&= \frac{1}{\alpha}\left[\int_{a_L+\alpha}^{a_H+\alpha} (1-2a) da - \int_{a_L}^{a_H} (1-2a) da \right. \\
&\qquad \left. - \int_{a_L+\alpha}^{a_H+\alpha} (1-2a)\exp\left(\frac{-x^*}{2k}\right) da + \int_{a_L}^{a_H} (1-2a)\exp\left(\frac{-x^*}{2k}\right) da \right]
\end{aligned}$$

As k grows arbitrarily small, $\frac{x^*}{2k}$ grows arbitrarily large. This means that $\exp\left(\frac{-x^*}{2k}\right)$ approaches zero. So:

$$\lim_{k\to 0}\frac{\partial \Delta(\pi)}{\partial \pi} = \frac{1}{\alpha}\left[\int_{a_L+\alpha}^{a_H+\alpha} (1-2a) da - \int_{a_L}^{a_H} (1-2a) da \right] < 0$$

So for small k, $\Delta(\pi)$ is a strictly decreasing function. This means that there is a unique indifference cutpoint. □

***

Proof of Proposition 1.

$$\begin{aligned}
\text{In Model I:} \quad & \frac{\partial x^*(\pi,a)}{\partial \pi} = 1 + 2a > 0 \\
& \frac{\partial s^*(x)}{\partial x} = -\exp\left(\frac{-x}{2k}\right)\left(\frac{1}{2k}\right) < 0 \\
\text{In Model II:} \quad & \frac{\partial x^*(\pi,a)}{\partial \pi} = 1 - 2a > 0 \\
& \frac{\partial s^*(x)}{\partial x} = -\exp\left(\frac{-x}{2k}\right)\left(\frac{1}{2k}\right) < 0
\end{aligned}$$

□

Proof of Proposition 2 .

$$\begin{aligned}
\text{In Model I:} \quad & \frac{\partial x^*(\pi,a)}{\partial a} = -2(1-\pi) < 0 \\
\text{In Model II:} \quad & \frac{\partial x^*(\pi,a)}{\partial a} = 2(1-\pi) > 0
\end{aligned}$$

□

Proof of Proposition 3. The statements about the likelihood of winning a panel ruling follow directly from the promote-prevent separating behavior derived in Lemmata 1 and 2 above. □

Proof of Proposition 4.

$$\begin{aligned}
\text{In Model I:} \quad & \frac{\partial s^*\left(x^*(\pi,a)\right)}{\partial a} = \exp\left(\frac{-x^*(\pi,a)}{2k}\right)\left(\frac{1-\pi}{k}\right) > 0 \\
& \frac{\partial^2 s^*\left(x^*(\pi,a)\right)}{\partial a^2} = \exp\left(\frac{-x^*(\pi,a)}{2k}\right)\left(\frac{1-\pi}{k}\right)^2 > 0 \\
\text{In Model II:} \quad & \frac{\partial s^*\left(x^*(\pi,a)\right)}{\partial a} = -\exp\left(\frac{-x^*}{2k}\right)\left(\frac{1-\pi}{k}\right) < 0 \\
& \frac{\partial^2 s^*\left(x^*(\pi,a)\right)}{\partial a^2} = \exp\left(\frac{-x^*}{2k}\right)\left(\frac{1-\pi}{k}\right)^2 > 0
\end{aligned}$$

□

Proof of Proposition 5. Recall that π is randomly distributed according to distribution function f on the interval $[\pi_L, \pi_H]$.

<u>In Model I</u>, high types ($\tilde{\pi} \leq \pi$) promote, while low types ($\pi < \tilde{\pi}$) prevent. So conditional on an audience of size a, the probabilities of early settlement in equilibrium as a function of

filing decisions are:

$$\begin{aligned} s^*\left(x^*\left(promote|a\right)\right) &= \int_{\widetilde{\pi}}^{\pi_H} s^*\left(x^*\left(\pi,a\right)\right) f\left(\pi|promote\right) d\pi \\ s^*\left(x^*\left(prevent|a\right)\right) &= \int_{\pi_L}^{\widetilde{\pi}} s^*\left(x^*\left(\pi,a\right)\right) f\left(\pi|prevent\right) d\pi \end{aligned}$$

In Model I, the equilibrium probability of settlement is decreasing in π:

$$\frac{\partial s^*\left(x^*\left(\pi,a\right)\right)}{\partial \pi} = -\exp\left(\frac{-x^*(\pi,a)}{2k}\right)\left(\frac{1+2a}{2k}\right) < 0$$

So cases that promote audiences are less likely to settle than cases that prevent audiences: $s^*\left(x^*\left(promote|a\right)\right) < s^*\left(x^*\left(prevent|a\right)\right)$.

In Model II, high types ($\tilde{\pi} \leq \pi$) prevent, while low types ($\pi < \tilde{\pi}$) promote. So conditional on an audience of size a, the probabilities of early settlement in equilibrium as a function of filing decisions are:

$$\begin{aligned} s^*\left(x^*\left(promote|a\right)\right) &= \int_{\pi_L}^{\widetilde{\pi}} s^*\left(x^*\left(\pi,a\right)\right) f\left(\pi|promote\right) d\pi \\ s^*\left(x^*\left(prevent|a\right)\right) &= \int_{\widetilde{\pi}}^{\pi_H} s^*\left(x^*\left(\pi,a\right)\right) f\left(\pi|prevent\right) d\pi \end{aligned}$$

In Model II, the equilibrium probability of settlement is also decreasing in π:

$$\frac{\partial s^*\left(x^*\left(\pi,a\right)\right)}{\partial \pi} = -\exp\left(\frac{-x^*}{2k}\right)\left(\frac{1-2a}{2k}\right) < 0$$

So cases that promote audiences are more likely to settle than cases that prevent audiences: $s^*\left(x^*\left(promote|a\right)\right) > s^*\left(x^*\left(prevent|a\right)\right)$. □

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Figure 1: Structure of the Model

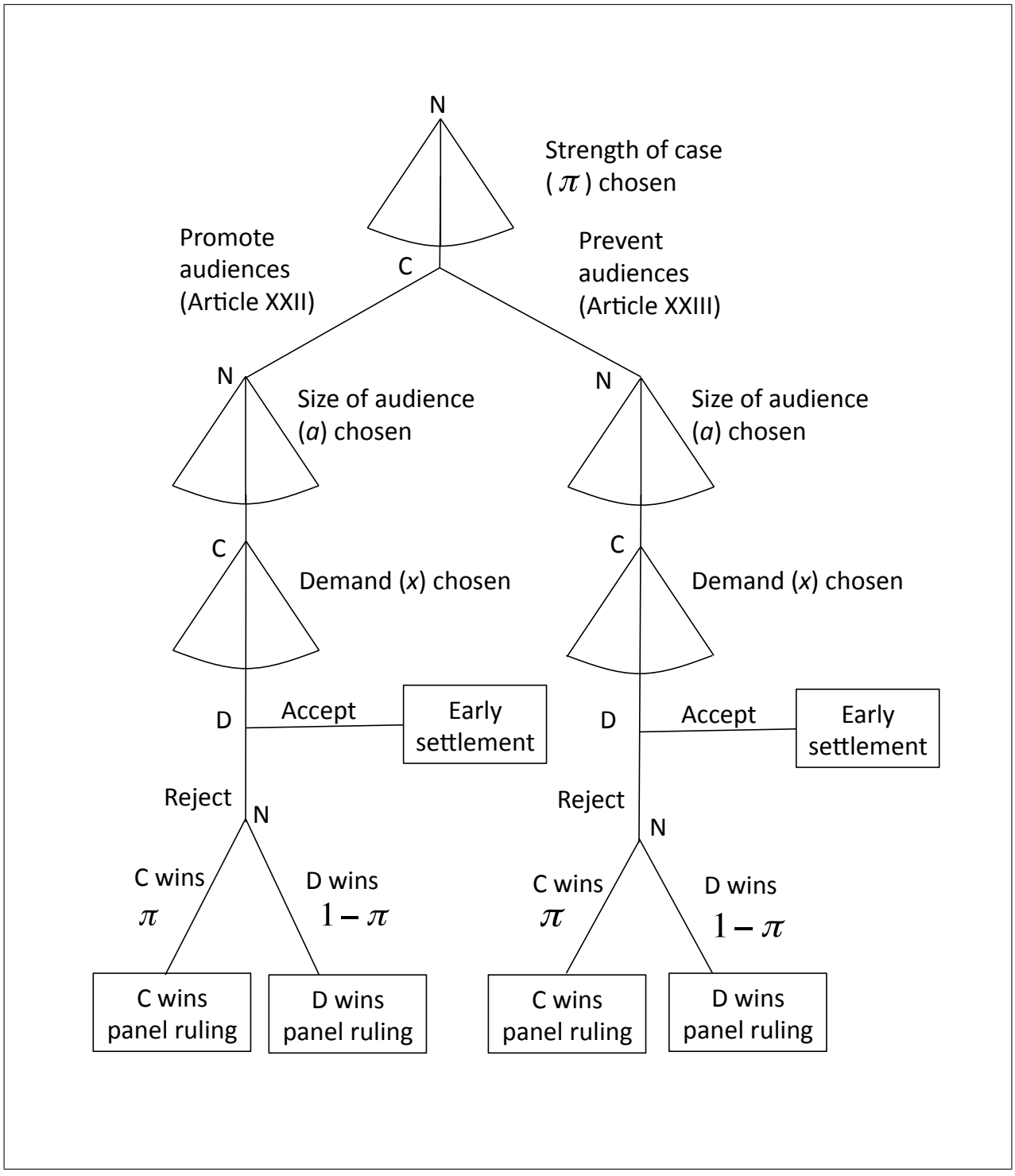
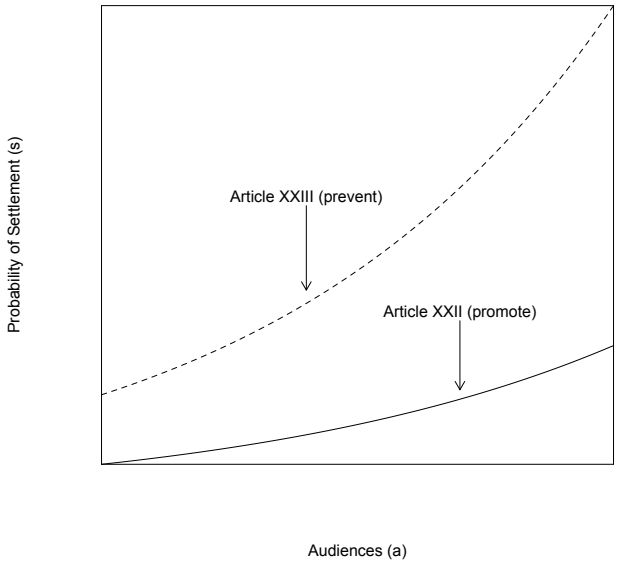


Figure 2: Theoretical Relationship Between Filing Choices and Early Settlement

(a) Model I: Audience Costs



(b) Model II: Audiences as Insurance

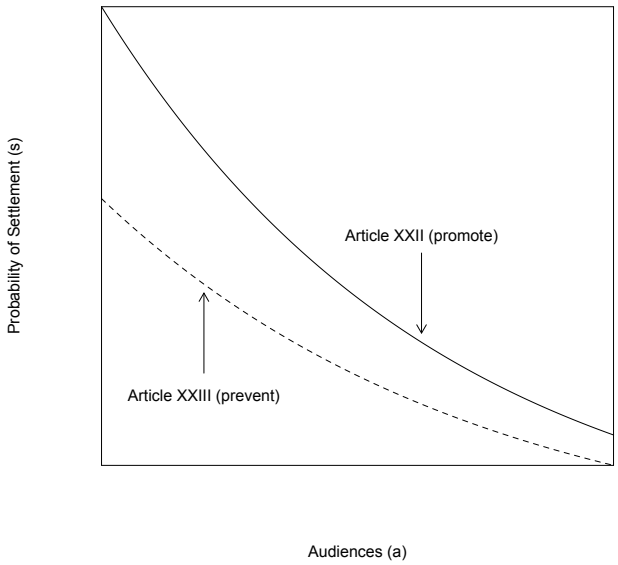


Figure 3: Empirical Relationship Between Filing Choices and Early Settlement

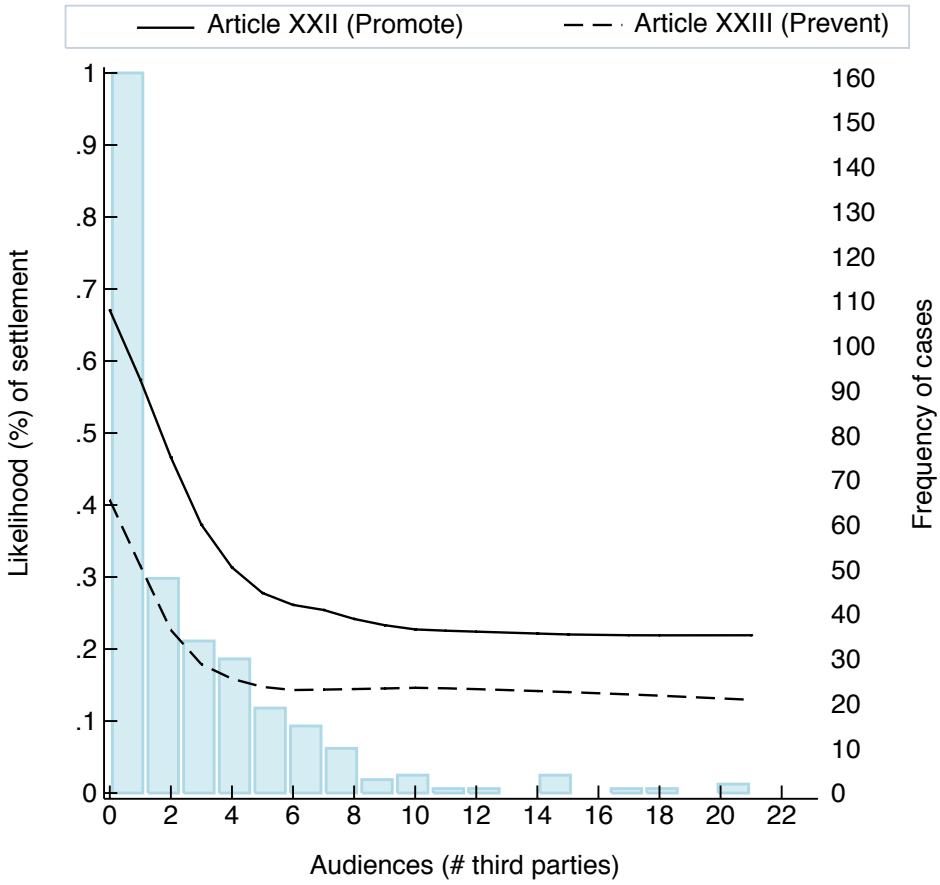


Table 1: Model Payoffs

(a) Payoffs for Model I: Audience Costs

	Early settlement	C wins panel ruling	D wins panel ruling
Complainant	$x + a$	$1 + a - k$	$-a - k$
Defendant	$1 - x - a$	$-a - k$	$1 + a - k$

(b) Payoffs for Model II: Audiences as Insurance

	Early settlement	C wins panel ruling	D wins panel ruling
Complainant	$x - a$	$1 - a - k$	$a - k$
Defendant	$1 - x + a$	$a - k$	$1 - a - k$

Table 2: Comparing the Models

Proposition	Model Predictions	Model I: Audience Costs	Model II: Audiences as Insurance	Testable?
1	Impact of case strength on demands	Positive	Positive	No
1	Impact of demand size on the probability of settlement	Negative	Negative	No
2	Impact of audience size on demands	Negative	Positive	No
3	Separating behavior	Weak types prevent. Strong types promote.	Weak types promote. Strong types prevent.	No
3	Direction of the panel ruling	Complainant is more likely to win if she has promoted audiences than if she has prevented.	Complainant is less likely to win if she has promoted audiences than if she has prevented.	Yes (Table 4)
4	Impact of audience size on the probability of settlement	Positive	Negative	Yes (Table 3)
5	Relationship between the filing decision and the probability of settlement	Cases that promote audiences are less likely to settle than cases that prevent audiences.	Cases that promote audiences are more likely to settle than cases that prevent audiences.	Yes (Table 3)

Table 3: The Effect of Article XXII on Likelihood of Early Settlement

Variable	**(1)**	**(2)**	**(3)**	**(4)**
Article XXII	0.71**	0.77**	0.80**	0.62*
	(0.26)	(0.30)	(0.30)	(0.28)
Third Parties Dummy	-1.23**			
	(0.27)			
Third Parties Count		-0.23**	-0.32**	
		(0.11)	(0.08)	
Third Parties Count Squared			0.01	
			(0.01)	
Log Complainant GDP		0.16	0.15	0.11
		(0.16)	(0.16)	(0.15)
Log Defendant GDP		-0.25	-0.25	-0.23†
		(0.14)	(0.14)	(0.13)
Log Merchandise Trade		-0.01	-0.01	-0.03
		(0.04)	(0.04)	(0.04)
Non-Merchandise Issue		-0.47	-0.48	-0.51
		(0.49)	(0.49)	(0.47)
Systemic Issue		-1.24*	-1.19*	-1.73**
		(0.51)	(0.51)	(0.47)
Nonviolation Complaint		0.02	0.05	0.10
		(0.46)	(0.45)	(0.43)
Politically Sensitive Case		-0.65	-0.61	-0.68†
		(0.44)	(0.44)	(0.41)
GATS Issue		1.05	1.01	0.35
		(0.71)	(0.69)	(0.58)
EU Defendant		1.47	1.49	1.07
		(1.24)	(1.25)	(1.19)
EU Complainant		-0.61	-0.67	-0.87
		(1.39)	(1.40)	(1.31)
US Defendant		1.15	1.16	0.77
		(1.20)	(1.21)	(1.16)
US Complainant		-0.69	-0.78	-0.72
		(1.37)	(1.38)	(1.30)
Intercept	0.11	0.28	0.33	0.32
	(0.20)	(0.69)	(0.70)	(0.66)
N	146	134	134	134
Log-likelihood	-79.25	-60.73	-60.32	-66.04
$\chi^2_{(2)}$	24.24	40.06	40.89	29.44

Significance levels : † : 10% * : 5% ** : 1%

Table 4: The Effect of Article XXII vs. Article XXIII on WTO Panel Ruling Direction

Variable	Coefficient	(SE)	Coefficient	(SE)
Equation 1 : Likelihood of Pro-Complainant Ruling				
	(1)		**(2)**	
Article XXII	-0.65*	(0.30)	-0.65*	(0.30)
Third Parties Count	-0.03	(0.04)	-0.03	(0.05)
Log Complainant GDP			-0.22	(0.17)
Log Defendant GDP			-0.10	(0.16)
Log Merchandise Trade			0.04	(0.03)
Non-Merchandise Issue			-0.14	(0.47)
Systemic Issue			0.47	(0.38)
Number of Complainants			0.10	(0.18)
US/EU Complainant	0.60*	(0.25)		
US/EU Defendant	0.08	(0.30)		
US Complainant			1.22*	(0.60)
US Defendant			0.64	(0.71)
EU Complainant			1.07†	(0.55)
EU Defendant			0.20	(0.78)
Intercept	-0.38	(0.51)	7.09	(6.09)
Equation 2 : Likelihood of Ruling				
Article XXII	-0.57**	(0.22)	-0.65**	(0.25)
Third Parties Dummy	1.46**	(0.26)	1.04**	(0.31)
Log Complainant GDP			-0.13	(0.12)
Log Defendant GDP			0.09	(0.11)
Log Merchandise Trade	0.04†	(0.03)	0.05†	(0.03)
Non-Merchandise Issue	0.20	(0.30)	-0.05	(0.37)
Systemic Issue			1.20**	(0.27)
Number of Complainants			-0.02	(0.08)
US/EU Complainant	0.40*	(0.18)		
US/EU Defendant	0.05	(0.22)		
US Complainant			0.99*	(0.47)
US Defendant			-0.24	(0.49)
EU Complainant			0.88*	(0.44)
EU Defendant			-0.71	(0.54)
Intercept	-2.24**	(0.49)	-1.18	(3.96)
N	242		242	
Log-likelihood	-147.56		-129.8	
χ^2	9		14.3	

Significance levels : † : 10% * : 5% ** : 1%

Table 5: The Effect of Article XXII on Likelihood of Appeals by the Defendant

Variable	Coefficient	(SE)	Coefficient	(SE)
Equation 1 : Likelihood of Defendant Appealing				
	(1)		**(2)**	
Article XXII	0.87**	(0.32)	0.88*	(0.44)
Third Parties Count	-0.01	(0.03)	-0.04	(0.06)
Log Complainant GDP			0.24	(0.22)
Log Defendant GDP			0.09	(0.21)
Log Merchandise Trade			0.04	(0.05)
Non-Merchandise Issue			-0.23	(0.64)
Systemic Issue			0.15	(0.64)
Number of Complainants			0.33	(0.24)
US/EU Complainant	-0.27	(0.28)		
US/EU Defendant	-0.07	(0.33)		
US Complainant			-0.79	(0.76)
US Defendant			-0.27	(0.88)
EU Complainant			-1.05	(0.77)
EU Defendant			0.00	(1.00)
Pro Complainant Ruling	1.03**	(0.34)	1.30**	(0.42)
Intercept	0.02	(0.59)	-10.53	(7.13)
Equation 2 : Likelihood of Ruling				
Article XXII	-0.51*	(0.22)	-0.67**	(0.24)
Third Parties Dummy	1.34**	(0.28)	1.05**	(0.29)
Log Complainant GDP			-0.12	(0.12)
Log Defendant GDP			0.09	(0.12)
Log Merchandise Trade	0.05*	(0.02)	0.05†	(0.03)
Non-Merchandise Issue	0.11	(0.30)	0.03	(0.35)
Systemic Issue			1.16**	(0.26)
Number of Complainants			-0.03	(0.08)
US/EU Complainant	0.40*	(0.18		)
US/EU Defendant	0.02	(0.22)		
US Complainant			0.91*	(0.46)
US Defendant			-0.21	(0.51)
EU Complainant			0.81†	(0.43)
EU Defendant			-0.73	(0.54)
Intercept	-2.35**	(0.46)	-1.24	(3.97)
N	242		242	
Log-likelihood	-144.46		-128.35	
χ^2	13.68		17.63	

Significance levels : † : 10% * : 5% ** : 1%