Courts and Compliance in International Regulatory Regimes

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International regulatory regimes are increasingly important parts of interstate politics. As these regimes multiply, the question of what exactly governments are agreeing to is becoming increasingly important. Some scholars see the high levels of observed compliance with these regimes as a sign that they are transforming interstate relationships. Others argue that compliance rates are uninformative since governments will only choose a depth of agreement that is self-enforcing. This study demonstrates that even seemingly deep agreements with well developed, and seemingly effective, adjudicating mechanisms can suffer from severe enforcement problems. The relevance of this model for a real world deep agreement, the European Union, is demonstrated, and predictions that can determine if a regulatory regime suffers from enforcement problems are derived.

Do international agreements facilitate international cooperation? In answering this question, scholars are particularly concerned with the issue of enforcement. That is, does the inability to force governments to comply with international agreements undermine the ability of these agreements to support international cooperation? On one end of the spectrum, Chayes and Chayes (1993) argue that high levels of compliance with existing agreements provide *prima facie* proof that enforcement problems are not undermining international cooperation. According to their argument, if there were substantial enforcement problems, then we should observe substantial noncompliance. On the other end, Downs, Rocke, and Barsoom (1996) argue that enforcement problems do limit international cooperation. The reason we do not observe high levels of noncompliance is that governments anticipate these potential enforcement problems when sculpting their agreements. By making only "shallow" agreements—i.e., commitments to changes in behavior that deviate only slightly from what they would do in the absence of the agreement—governments ensure that no one will choose to defect from the agreement.

In general, Downs, Rocke, and Barsoom's argument is persuasive. However, three concerns can be raised over their analysis. First, Downs, Rocke, and Barsoom make the strong assumption that the governments can perfectly control the incentive to defect from a regulatory regime. In their model, the incentive

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to defect from an agreement is a function of the depth of cooperation. The greater the agreed-upon policy change, e.g., the more trade barriers are lowered, the greater the incentive to defect by reraising those barriers. Thus, because governments get to determine how much the agreement will change behavior, governments are also perfectly controlling the incentive to defect from the agreement.

Second, while many international agreements may in fact be shallow, at least some seemingly deep agreements do exist. For example, the European Union (EU) certainly does not appear to be a shallow agreement. The member state governments have eliminated tariff barriers, outlawed trade distorting practices, formed a common currency, guaranteed the free movement of goods, persons, services, and capital, and instituted numerous environmental and social policies.

And third, many of the "deepest" agreements—such as the World Trade Organization (WTO), the North American Free Trade Agreement (NAFTA), and the EU—have established adjudicating bodies specifically designed to facilitate compliance with the agreements, and these bodies seem to really matter. Again, returning to the example of the EU, the European Court of Justice frequently hears cases against member state governments, those governments are often ruled against, and those governments regularly comply with the adverse rulings.

The first observation has implications for Downs, Rocke, and Barsoom's findings. If governments cannot perfectly control the incentive to defect from an unenforceable agreement, then governments are likely to want to defect at least periodically from that agreement. As a result, one would like to know to what degree Downs, Rocke, and Barsoom's conclusions hold when the incentive to defect is not perfectly controllable.

However, even more importantly, the second two observations suggest that agreements may be able to support more than shallow cooperation and that adjudicating bodies may be an important component in facilitating that deeper level of cooperation. As a result, one would also like to know in what ways adjudicating bodies may be facilitating compliance with unenforceable agreements.

To answer these questions, this study analyzes a model of a generic regulatory regime with an adjudicating body and examines in what ways that adjudicating body can facilitate compliance in the face of severe enforcement problems. In particular, it evaluates the ability of these bodies to help sustain cooperation when (1) the temptation to defect from the agreement varies over time, (2) each governments' temptation to defect is not common knowledge, (3) governments can violate agreements at will, and (4) governments can ignore the rulings of the adjudicating body at will.

The rest of the paper proceeds as follows. The second section presents the model, and the third derives a set of testable predictions. Next, I discuss implications of the model for one of today's most influential international regulatory regimes, the EU, and then conclude.

A Generic Model of an International Agreement

Imagine two governments have signed a mutually beneficial international agreement. However, this agreement is plagued with enforcement problems. Not only is either government free to renege on the deal at any moment in time, but the temptation to renege is strong. By defecting from the agreement a government can avoid engaging in some costly behavior, and at least for one period that government still benefits from the other government's continuing cooperation. In short, the two governments are playing a repeated prisoner's dilemma.[1]

This enforcement problem is compounded by the fact that the costs of compliance vary over time. For example, elections may be more or less pressing, special interests affected by a particular application of the regulatory regime may be more or less politically influential, etc. Further, these costs are not common knowledge. While governments get to observe whether the other government chose to comply, only the government experiencing the costs knows exactly how severe they are.[2]

To help manage these enforcement problems, the two governments create an adjudicating body and allow certain individuals and/or groups legal standing before this body in case of a dispute. Legal standing could be as restrictive as in the WTO where only governments are allowed to bring cases or as permissive as in the EU where private citizens can bring cases over EU law. If one of these actors believes its rights under the agreement have been violated, and it is willing to invest the energy, time, and resources, an action can be brought. If an action is brought, the plaintiff and defendant state their cases, all information becomes common knowledge,[3] and the adjudicating body makes its ruling. Note that for ease of exposition I will refer to the adjudicating body as a court from now on.

Importantly, the last move is up to the governments. If a government is found in noncompliance with the agreement, the government gets to decide whether to acquiesce with the court's ruling or not. Thus, governments always have the choice over whether to comply or not.

In sum, two governments want to promote mutually beneficial cooperation with the regulatory regime, but face enforcement problems in doing so. Not only is defection from the regime tempting, but the severity of that temptation is also going to vary over time. The two governments have created a court to help promote cooperation, but have not granted it any enforcement powers. The fol-

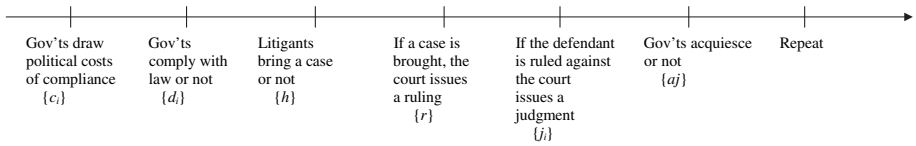
[1] While the repeated prisoner's dilemma is most commonly used to model trade agreements, it is relevant to any agreement in which signers have an incentive to defect.

[2] Making the cost private information reflects the fact that national governments have a better sense of how costly they perceive compliance to be than anyone else.

[3] While revealing this information obviously is not the ostensible reason for hearing a case, it is inherently a part of the process. It can occur through formal channels—e.g., filing briefs, and making observations on the legal and substantive issues delineated in the case—and informal backdoor channels—e.g., off-the-record meetings, etc.

FIGURE 1

The Sequence of Events



lowing game formalizes the scenario characterized above. Figure 1 illustrates the sequence of events.

The Game

Each period the governments privately draw a cost of compliance, c_i, where c_i is a low cost, c_l, with probability p_l, or a high cost, $c_h > c_l$, with probability $1\text{-}p_l$. The governments then simultaneously decide whether to comply. Define d_i as the probability of defecting on cost i. If a government complies it pays the cost, $c_i > 0$, and the other government receives a benefit, $b > 0$. To account for the fact that costs will at least occasionally exceed benefits, assume $c_h > b > c_l$.[4] If a government does not comply, the government pays no cost and the other government receives no benefit. While the cost of compliance is private information, whether a government complies or not is common knowledge.

If a government does not comply, a set of potential litigants has the opportunity to take that government to court. These are the individuals or groups who would have benefited if the government had complied with the agreement (or, more generally, would have liked to see the government comply for whatever reason). The potential litigants pay some cost in terms of time and resources for litigating, $k_{lit} > 0$. Since the cost of compliance is private information, define $h \in [0,1]$ to be the probability of the potential litigants bringing a case.

If the potential litigants choose to bring a case, a court hears the case, the true cost of compliance is revealed, the court decides whether to rule for or against the defendant ($r = \{against\ defendant,\ for\ defendant\}$), and determines what judgment to impose if it does rule against the defendant ($j_i > c_i\ for\ i = l,h$). Assume the court wants to maximize compliance with the regulatory regime's rules, where an instance of compliance occurs ex ante when a government chooses to comply or ex post when a government obeys an adverse judgment.

If ruled against, the defending government then decides whether to acquiesce ($aj_i = \{acquiesce,\ not\ acquiesce\}$). If the defending government acquiesces, the government pays the judgment, j_i, and the litigant receives some benefit from

[4] Because all agreements are incomplete contracts (i.e., all future contingencies and possible eventualities cannot be planned for), there is always some risk that the costs of cooperation will exceed the benefits.

winning the case. For simplicity, the benefit is defined as the judgement awarded by the court, j_i.[5] After all cases are tried, a new period is entered, a discount factor, $\delta \in (0,1)$, is accrued, and the game repeats.[6]

Before proceeding to the analysis, a brief example might help illustrate the basic dynamics of this model. The EU has declared that subsidies cannot be used to bail out troubled industries. However, despite this restriction, governments frequently are petitioned by domestic industry for exactly such subsidies. If the government resists the petition, all is well. However, if the government chooses to ignore EU rules and grant the subsidy, then that government may be taken to court. This is the situation France recently found itself in. In 2003, France granted bailout subsidies to both Bull and Alstom. The Commission made it clear that it considers these subsidies a violation of EU law and threatened to take France to court if these companies did not pay back the subsidies ($500 million in the case of Bull). Although there is little doubt that France has violated EU law, the government has been recalcitrant. In the case of Bull, the government declared that it will get the money back, but provided no timetable by which it will do so. Thus, for all intents and purposes, the government signaled that court ruling or not, it will remain in violation of EU law for as long as it deems desirable.

In sum, it seems likely that the French government has given in to the temptation to violate EU law for the short-run gain of subsidizing ailing industries. The French government is clearly trying to convince the Commission that compliance is sufficiently costly that it will not comply with an adverse ruling. And thus the Commission, as the potential litigant, is trying to decide whether it should take the French government to court. How the court would rule, given the French government's threat of refusing to reverse the subsidies, we do not yet know.

Analysis

As with any iterated game, the folk theorem states that there is always a range of possible solutions. However, as Kreps (1990) states, any solution is only important to the degree that it characterizes a plausible solution to the game. To demonstrate the plausibility of the following solution, I first define a punishment strategy that takes advantage of the existence of the court and then the on-equilibrium path behavior that necessarily follows.

[5] If the litigant was another government, one could simply define $j_i = b$, the benefit the government would have received if the defending government had complied with the regime rule in the first place. While the algebraic solution would differ slightly from what is presented here, all of the relevant characteristics of the solution hold.

[6] Note that this model assumes there is no uncertainty over whether a government has actually violated EU law. Obviously one of the central purposes of a court is to determine guilt or innocence. However, this uncertainty is assumed away not because resolving guilt or innocence is substantively unimportant, but rather because this study's results are robust to a model with or without uncertainty over guilt (proof available from author).

PUNISHMENT PATH STRATEGIES. In this regulatory regime, governments cannot rely upon external factors to enforce compliance with the regime's rules or with the decisions of the court. Instead, these governments must rely upon the threat of retaliation. A government must anticipate that—while it is always free to violate the regime's rules and the court's decisions—the other government might retaliate by refusing to comply in the future. Only with a credible threat of retaliation is cooperation with the regulatory regime's rules sustainable. The punishment path strategies characterize the conditions that trigger retaliation as well as what that retaliation involves.

Ideally, the governments would like to coordinate on a punishment strategy that sustains cooperation whenever a low cost is drawn and allows defection whenever a high cost is drawn. This outcome would maximize the expected benefits of participating in the regulatory regime, because it maximizes instances of net beneficial cooperation ($b - c_l > 0$) and minimizes instances of net costly cooperation ($b - c_h < 0$). For example, Germany wants France to comply with EU law in general, but might be willing to let France off the hook over Alstrom if France can credibly demonstrate that compliance is more costly to France than it is beneficial to Germany. Germany wants to forgive France this violation, because Germany knows that some day in the future it will be in France's position and France will return the favor.

If there were no court, the best governments could do to promote cooperation is punish any observed defection. However, with a court, governments have the ability to tailor their punishments to only those instances they wish to punish. That is, governments can choose to target punishment to instances of low cost defection.[7] To take advantage of this possibility, I define the government's punishment strategy trigger as follows: governments are punished if and only if they defect upon drawing a low cost of compliance, are brought to court, are ruled against, and do not obey the court's ruling.[8] The punishment itself is defined as a t-period, renegotiation proof strategy.[9] That is, punishment lasts t periods and entails the government being punished having to cooperate while the punishing government defects. Thus, punishment hurts the defector, benefits the other government, and thereby ensures that the two governments would not want to "renegotiate" out of the punishment if it was ever triggered.

[7] Note that governments are not necessarily better off targeting their punishment to low cost defections. Under certain conditions, they may actually be better off punishing any observed defection (e.g., if the cost of complying over high costs is sufficiently small). However, in those cases, the court is irrelevant.

[8] For this trigger strategy to work, litigants must have an incentive to bring cases to court. Since litigants only want to bring cases if they can win, that means that governments must occasionally lose cases. Targeting punishment only at governments that are caught defecting on a low cost and that refuse to obey the court ruling ensures that this will be the case.

[9] A strategy is renegotiation proof if at no time during the punishment all actors prefer to end the punishment phase and return to cooperation.

ON-EQUILIBRIUM PATH BEHAVIOR. Given the anticipated patterns of retaliation, the observed government and court behavior necessarily follows. The subgame perfect solution to this model is characterized below. Proof is provided in appendix A.[10]

GOVERNMENT-COURT BEHAVIOR

$$d_i^* = \begin{cases} 1 & i = h \\ \dfrac{(1-p_l)k_{lit}}{p_l\left(j_l^* - k_{lit}\right)} & i = l \end{cases}$$

$$h^* = \frac{c_l}{j_l^*}$$

$$r_i^* = \begin{cases} for\ defendant & i = h \\ against\ defendant & i = l \end{cases}$$

$$j_i^* = \begin{cases} \varnothing & i = h \\ \theta & \text{if } \theta \le \dfrac{k_{lit}c_l}{2c_l - 1} \quad \text{and } i = l \\ \dfrac{k_{lit}c_l}{2c_l - 1} & \text{if } c_l < \dfrac{k_{lit}c_l}{2c_l - 1} < \theta \text{ and } i = l \\ c_l + \varepsilon & \text{if } c_l \ge \dfrac{k_{lit}c_l}{2c_l - 1} \quad \text{and } i = l \end{cases}$$

$$aj_i^* = \begin{cases} acquiesce & if\ i = l \text{ and } j_l \le \theta \\ not\ acquiesce & otherwise \end{cases}$$

$$\theta = k_{lit} + \frac{\delta - \delta^{t+1}}{1-\delta}\left[p_l\left(1 - d_l^*\right)b + (1-p_l)c_h\right]$$

In equilibrium, governments always defect from the regulatory regime when the cost of compliance is large ($d_h^* = 1$), and sometimes defect when the cost of compliance is small $\left(d_l^* = \dfrac{(1-p_l)k_{lit}}{p_l\left(j_l^* - k_{lit}\right)}\right)$. Litigants bring cases when a government has defected, although they do not always bring cases $\left(h^* = \dfrac{c_l}{j_l^*}\right)$. The court is only sure to rule against governments if the initial cost of compliance was small (c_l). And, the court will impose a judgment that minimizes the probability that governments get away with noncompliance (j_i^*). Finally, governments will only obey an adverse court ruling if the initial cost of compliance was small (c_l).

[10] Available at http://www.journalofpolitics.org.

This behavior is actually quite intuitive. To demonstrate why, it is easiest to start by considering a government that has been caught defecting from the regulatory regime and work backwards.

Proposition 1: Governments obey adverse rulings if and only if they are caught defecting when compliance would have been low cost.

If compliance would have been high cost ($c_i = c_h$), the defecting government is not punished for ignoring an adverse ruling, and therefore has no incentive to obey that ruling. If compliance would have been low cost ($c_i = c_l$), the defecting government is punished for ignoring an adverse ruling, and therefore will obey the court's ruling as long as the cost of obeying the judgment does not exceed the cost of being punished by the other government.

Proposition 2: The court rules against a government if and only if it observes a low cost defection and, when it does rule against that government, the court imposes a judgment that will be obeyed.

If the court observes a defection when compliance would have been high cost, it knows that the government will not obey an adverse ruling and therefore has no incentive to rule against the government.[11] If the court observes a low-cost defection, it knows that the government will obey an adverse ruling as long as the judgment is not too costly. Therefore, the court will rule against the government and impose a judgment that the government will obey.

Note that the court would like to set a judgment that ensures maximal overall compliance—i.e., minimize the probability that a government ends a period having not complied with the regulatory regime's rules. If this optimal judgment is less than the lower boundary on the judgment, c_l, then the court will set the smallest possible judgment, $c_l + \varepsilon$. If the optimal judgment is larger than what a government would be willing to obey, then the court sets the largest possible judgment the government will obey, θ. Otherwise, the court sets the optimal judgment, $\frac{k_{lit}c_l}{2c_l - 1}$.

Proposition 3: Litigants occasionally bring cases, governments always defect when compliance would have been high cost and occasionally defect when compliance would have been low cost.

Conditional on what happens if a case is brought, the litigants and governments both have to take calculated risks. For litigants, bringing a case is a costly action that only yields a return if they win. For governments, defecting when the initial cost of compliance was small is the risky action. If no case is brought, the gov-

[11] Strictly speaking, the court is indifferent over ruling against the government when it observes a high cost. Since one of the points of this analysis is to demonstrate that high compliance rates are consistent with a regulatory regime in which enforcement is problematic, I assume the court does not rule against the government when it is indifferent. Of course, this indifference becomes a strict preference if there is even the tiniest—e.g., legitimacy—cost to the court for having a ruling ignored.

ernment is strictly better off. However, if a case is brought, the government is going to acquiesce in a ruling that leaves it worse off than if it had just complied in the first place.

By implication, cases must be brought probabilistically and governments must defect in low-cost situations probabilistically.[12] To see why, consider what would happen if the litigant did not play probabilistically. If litigants always bring cases, governments will never defect on low costs, because they will always be caught. Of course, if government never defect on low costs, litigants have no incentive to bring a case, since they can never win. Thus, litigants cannot always bring cases. If litigants never bring cases, governments will always defect on low costs, because they will never be caught. However, if litigants ever want to bring cases, they will want to always bring them in this situation.[13] Thus, litigants must bring cases at least occasionally. Similar logic applies for government behavior.

IMPLICATIONS OF THIS SOLUTION. What does this model and its findings suggest about international regulatory regimes with adjudicating institutions? In fact, several implications can be drawn from this analysis.

First, this analysis demonstrates the limits of a court's ability to help overcome enforcement problems in international agreements. According to the regime's rules, governments should comply independently of the actual cost of compliance. However, while governments will comply when the cost of doing so is low, governments will not comply when the cost of doing so is high. The court is incapable of changing this situation, because a government is only going to obey a court ruling if it anticipates being punished by other governments for not obeying. Thus, while the court can facilitate compliance when governments want the court to facilitate compliance, the court cannot do so otherwise. Or, said differently, the court's ability to enforce compliance with the regime's rules is limited by the willingness of other governments to enforce the court's rulings.

This observation leads directly to implications over what we can learn about international cooperation from compliance rates with court decisions. In particular, this analysis demonstrates that a regulatory regime troubled with severe enforcement problems is observationally equivalent to a regulatory regime in which enforcement is not a problem. In either case, governments are brought to court for violations of the regulatory regime's rules, governments are found guilty, and governments obey the court even when they lose. Thus, this finding is consistent with Downs, Rocke, and Barsoom's findings over compliance. Just as one cannot infer from observing high rates of compliance with a regime's rules that enforcement problems are not undermining cooperation, one cannot infer from

[12] In fact, litigants must keep governments indifferent over defecting on low costs, and governments must make litigants indifferent over bringing cases (i.e., mixed strategies).

[13] If k_{lit} is sufficiently large litigants still would not want to bring cases. However, this scenario is uninteresting, since the implication is that the judicial process is unused.

observing high rates of compliance with a court's rulings that the court is able to force governments to comply with the regime's rules.[14]

Comparing to a World without a Court

Despite the limitations characterized above, this analysis also demonstrates that a court can help governments overcome enforcement problems in international agreements. To see how, consider an international regulatory regime as modeled above, but without the court. That is, each period simply consists of governments drawing costs of compliance and then deciding whether to defect or not.

How will behavior differ in this world? With no institutionalized "fire alarm" system available to them, governments cannot target punishment to just those instances in which they want compliance. Rather, punishment strategies necessarily are going to entail governments punishing any observed defections with some number of periods of noncompliance in return. Assuming governments at least occasionally find themselves unwilling to comply with the regime's rules (i.e., c_h is sufficiently large such that punishment cannot deter defection upon drawing a high cost), we then will observe governments complying over low costs (except when they are punishing the other government for an unprovoked defection), defecting over high costs, and entering periods of punishment any time a high cost is drawn.[15] Note that this solution differs from the solution to the model with a court in two ways that prove critical—governments occasionally enter periods of punishment, but, unless in a period of punishment, governments never defect upon drawing a low cost. See appendix B[16] for proof.[17]

Simple closed-form solutions to this alternative model are not available. Thus, outcomes in the two models are compared using numeric solutions.[18] Figure 2 compares the expected value of participating in a hypothetical international regulatory regime with and without a court as a function of two parameters of the model. The lower x-axis varies the probability of drawing a low cost (p_l), and the upper x-axis varies how costly it is to comply upon drawing a low cost (c_l). Each parameter is varied while holding all other parameters constant.[19]

[14] For a similar argument concerning the relationship between national high courts and legislatures see Vanberg (2001) and Vanberg (forthcoming).

[15] Again, because all agreements are incomplete contracts, it is implausible to assume that costs could not be sufficiently large. If cooperation over high costs were sustainable, we would observe universal compliance with the regime.

[16] Available at www.journalofpolitics.org.

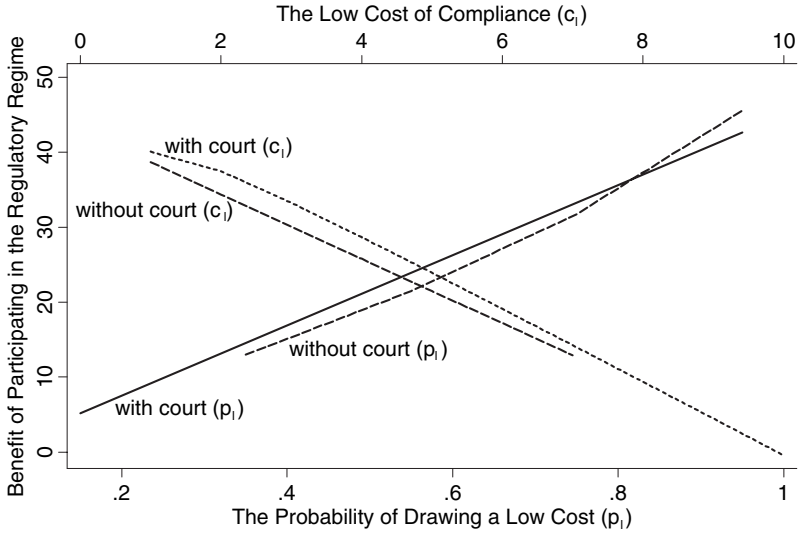
[17] There are obviously many ways to characterize a regulatory regime without a court. The one described here is designed to be minimally different from the model with a court. In particular, it is consistent with the model above in terms of: (1) the game structure, including the cost structure, choice set, and payoffs; and (2) the choice of punishment strategy, specifically requiring it to be a t-period renegotiation proof strategy upon which the governments would choose to coordinate.

[18] The benefit of cooperation was fixed at an arbitrary value ($b = 10$), and then all other values were allowed to vary with respect to that fixed value. The ranges were as follows: c_l 1–10, c_h 11–15, p_l .15–.95, and δ .75–.95.

[19] For p_l, values were fixed at $c_l = 5$, $c_h = 13$, $\delta = .9$. For c_l, values were fixed at $p_l = .55$, $c_h = 13$, $\delta = .9$. Equivalent findings hold for other values.

FIGURE 2

The Effect of Having an International Court



These solutions illustrate the effect of having an international court. First, consider the solution as p_l varies from .15 to .95. Below .35 cooperation is only sustainable if the regime has a court, between .35 and .75 cooperation is sustainable in both regimes, but the benefit of participating in the regulator regime is somewhat larger with a court, and above .75 the benefit of participating is actually larger without a court. Thus, the benefit of having a court increases as the sustainability of cooperation decreases. When high-cost situations are sufficiently frequent ($p_l < .35$), a court is the difference between the survival and failure of the regulatory regime. Without a court, governments would be entering periods of punishment—what can substantively be thought of as trade wars—frequently enough that cooperation would be unsustainable. When high-cost situations are moderately frequent ($.35 < p_l < .75$), a court marginally increases the benefit of participation. Governments are occasionally going to get away with defecting on low costs with a court, but this loss is outweighed by the fact that they will be avoiding unnecessary trade wars. And, when high-cost situations are rare ($p_l > .75$), a court actually reduces the benefit of participation. Now trade wars would be infrequent enough that the benefit of avoiding them is actually outweighed by the fact that governments get away with occasional low-cost defections.

The solution in which the low cost of compliance is allowed to vary demonstrates similar logic. When the net benefit of cooperation ($b - c_l$) is sufficiently small, cooperation is only sustainable with a court. When the net benefit of cooperation is larger, cooperation is sustainable with or without a court, although the benefit is consistently greater with a court.

In sum, the court generally, but not always, facilitates cooperation. The court is most efficacious when cooperation would otherwise be unsustainable, but it is also generally beneficial even when cooperation could be sustained without a court. The only time a court actually reduces the benefit of participating in the regulatory regime occurs when enforcement problems (i.e., the incentive to defect from the regime) are particularly minimal.

Comparative Statics and Model Testing

Now return to the world with a court. As noted previously, observing use of and compliance with a regulatory regime's courts does not allow us to infer that a regulatory regime is not troubled with severe enforcement problems. In fact, this model allows us to deduce a number of empirically verifiable predictions over whether problems with enforcement are undermining cooperation. We can derive predictions over the frequency with which governments should defect from the regime's rules, cases are brought against governments, and governments lose cases. Each of these is presented as a corollary to the results of the model and then intuition behind the findings is provided.

Note, for ease of exposition, I characterize only the scenario in which an interior solution to the size of judgment is feasible $\left(j_l^* = \frac{k_{lit} c_l}{2c_l - 1} \right)$. The comparative statics would differ depending upon which j_l^* is used. Proofs are provided in appendix C.[20]

Corollary 1: If governmental noncompliance is a credible threat, governments are more likely to disobey a regime's rules when compliance with the regime's rules tends to be more costly (p_l smaller), or low-cost compliance is costlier (c_l larger).

To understand why these relationships hold, it is important to first recognize that the frequency with which governments disobey a regulatory regime's rules is determined not by the interests of the government, but by the interests of the potential litigants. This seeming paradox arises because a government always defects when the cost of compliance is large and then strategically defects when the cost of compliance is small to keep litigants indifferent over bringing cases (recall, litigants only win when the cost of compliance turns out to be small). Thus, governments defect less often in low cost situations, and therefore defect less often overall, when the expected benefit to litigants of bringing cases is larger.

A litigant's expected benefit of bringing a case depends upon three factors: the ex ante chances of winning the case (p_l), the cost of losing the case (k_{lit}), and the benefit of winning the case (j_l^*). The court sets j_l^* to maximize the overall rate of compliance. In making this choice, the court balances between two incentives. A larger judgment causes governments to defect less frequently on low costs, but it

[20] Available at http://www.journalofpolitics.org.

also causes litigants to bring cases less frequently.[21] The result of these incentives is that the judgments are larger when the cost of bringing a case is larger (k_{lit}), or when the cost of complying over low costs is larger (c_l). This finding has two implications. First, since litigants benefit more when judgments are larger, and judgments are larger when the cost of complying over low costs is larger, litigants also will benefit more when the cost of complying over low costs is larger. Second, since litigants directly benefit more when the cost of bringing a case is smaller, but judgments are also larger when the cost of bringing a case is larger, the overall expected benefit of bringing a case is actually independent of the cost of bringing a case (i.e., judgments increase proportionally with the cost of bringing cases). Thus, in sum, government rates of defection depend upon, and only depend upon, the ex ante chance of winning a case and the low cost of compliance.

Corollary 2: If noncompliance is a credible threat, governments are taken to court more often when compliance with the regime's rules tends to be more costly (p_l smaller), low-cost compliance is costlier (c_l larger), or bringing cases is less expensive (k_{lit} smaller).

Now consider the frequency with which governments will be taken to court. Cases occur when a government defects from the regulatory regime's rules and a litigant brings a case. We already know when governments are more likely to defect from corollary one. Thus, all that remains is to evaluate when litigants are more likely to bring cases.

Just as governments must defect with a probability that makes litigants indifferent over bringing cases, litigants must bring cases with a probability that makes governments indifferent over defecting upon drawing a low cost (see the modeling section for intuition on why). We know governments have a stronger incentive to defect on low costs when that low cost is costlier (i.e., c_l is larger) and when the costliness of losing a case is smaller (i.e., j is smaller). Further, we know that the judgment will be smaller when the low cost of compliance is higher (c_l) and when the cost of bringing a case is smaller (k_{lit}) from corollary one. Thus, the frequency at which governments are brought to court will be higher when compliance tends to be less costly (i.e., p_l is smaller), the low cost tends to be more costly (i.e., c_l is larger), and the cost of bringing cases tends to be smaller (i.e., k_{lit} is smaller).

Corollary 3: If noncompliance is a credible threat, governments are ruled against more often when compliance with the regime's rules tends to be more costly (p_l smaller), low-cost compliance is costlier (c_l larger), or bringing cases is less expensive (k_{lit} smaller).

Finally, governments lose cases when they defect, are taken to court, and prove to have defected on a low cost. The frequency with which governments defect and are taken to court is already characterized in corollary two. Thus, the only

[21] Governments are keeping litigants indifferent over bringing cases, and litigants are keeping governments indifferent over defecting on low costs.

issue is when governments are more likely to defect on a low cost. Since governments must keep litigants indifferent over bringing cases, and litigants have a stronger incentive to bring cases when it is more likely they will win, governments will defect on low costs less often when the cost of bringing cases is smaller or the benefit of winning them is larger. Thus, the probability of a defection being over a low-cost situation and the probability of defecting in the first place both increase as the cost of bringing a case increases or the benefit of winning a case decreases. And therefore, governments tend to lose more often (corollary three) exactly when they tend to be brought to court more often (corollary two) and when they tend to defect more often (corollary one).

In sum, these corollaries provide predictions generated over when governments should violate a regulatory regime's rules more often, when governments should be taken to court for violations more often, and when governments should lose cases more often. While not all of these predicted relationships necessarily are equally testable, this analysis allows scholars interested in evaluating the presence and severity of enforcement problems an array of possible tests. A concrete example of how to test these predictions is provided in the next section.

Before proceeding, however, it is worth noting two additional implications that can be drawn from corollaries 2 and 3. Corollary 2 demonstrates that the rate at which governments are taken to court is solely determined by exogenous factors, such as how costly compliance tends to be (p_l), while corollary 3 demonstrates that the rate at which a governments are taken to court is solely a function of exogenous factors such as the cost of compliance (c_l). Thus, for arbitrarily large parameters of the game, we could observe arbitrarily large probabilities of being taken to court and being ruled against. And, by implication, enforcement problems can plague an agreement no matter how frequently governments are taken to court and no matter how frequently governments are ruled against.

The Case of the European Court of Justice

The previous sections used a simple model to demonstrate in what ways judicial institutions can help overcome enforcement problems with an international regulatory regime. In this section, I demonstrate that the model and its findings are relevant to our understanding of a real world international regulatory regime, the EU. In particular, this study throws into question the emerging consensus in the EU literature over the European Court of Justice's (ECJ) ability to promote European integration.

The European Union consists of an ever-increasing array of policy commitments. As stated previously, member states have eliminated tariff barriers, outlawed trade distorting practices, formed a common currency, guaranteed the free movement of goods, persons, services and capital, and instituted numerous environmental and social policies.[22] Of course, these commitments are only mean-

[22] While not all of these policies necessarily are best characterized by the prisoner's dilemma, as long as there are cross-national distributional implications from agreeing to a policy, at least one of the parties involved has an incentive to renege.

ingful if governments actually comply with the regulatory regime's rules. Thus, to help ensure compliance with EU law, the member states created the ECJ.

Challenges over noncompliance with EU law are brought to the ECJ primarily through one of two procedures, direct actions and preliminary rulings. A direct action entails either a member state government or the European Commission bringing a charge of noncompliance directly to the ECJ.[23] A preliminary ruling entails a national litigant bringing a challenge to a domestic court, that domestic court requesting an opinion from the ECJ, and then the domestic court making a ruling.[24]

Since the early 1980s, scholars have debated the ECJ's ability to facilitate compliance with EU law. Many scholars believe that governments are constrained to obey ECJ rulings, and they justify this perception through one of two types of arguments. The first argument is a legalistic one, that governments cannot circumvent adverse rulings because the law acts as a "mask and shield" for ECJ decisions (Burley and Mattli 1993; Mattli and Slaughter 1995, 1998). In particular, the "mask of technical discourse" often hides the political repercussions of a case from governments, and "'the shield' of domestic norms of rule of law and judicial independence" provides a normative constraint on a government's willingness to subvert court rulings (Mattli and Slaughter 1998, 181).[25]

Others have made more institutionally based arguments, where the particulars of the argument depend upon the procedure by which the case arose. Scholars argue that governments are constrained to obey preliminary references, because national courts, rather than the ECJ, are making the final rulings (Alter 1996, 1998; Pollack 1997), while governments are constrained to obey direct actions, because the ECJ can impose financial penalties for noncompliance with previous decisions (Tallberg 2002).[26] Thus, for a variety of reasons, numerous scholars believe that the ECJ can count on governments complying with its decisions.[27]

Another group of scholars initially took a very different position. In a pair of articles in the 1990s Garrett and others forcefully argued that the ability of the ECJ to enforce EU law was seriously constrained by the threat of government noncompliance (Garrett 1995; Garrett and Weingast 1993). In fact, Garrett went so far as to argue that cases in which governments were brought to court, ruled

[23] The Commission brings cases under article 226 and governments bring cases under article 227 of the Treaty of European Union (TEU).

[24] While not initially designed to challenge noncompliance with EU law, the court helped transform the preliminary ruling procedure through the doctrines of Direct Effect and Supremacy.

[25] Others who have made more legally based arguments include Stein (1981), Cappelletti, Seccombe, and Weiler (1986), Mancini (1991), Weiler (1981, 1991, 1993, 1994), Volcansek (1993), and Wincott (1995). Also see Shapiro and Stone (1994) and Stone Sweet and Brunell (1998a, 1998b) for other arguments.

[26] Other institutionally based arguments have been made for why governments obey the ECJ as well. For example, Tallberg also argues that "management issues"—i.e., problems that lead to noncompliance but are not the result of a government intentionally choosing to defect—are mitigated by certain powers delegated to the Commission (Tallberg 2002).

[27] In general, these scholars do not claim that governments are incapable of ignoring adverse rulings. Rather, they believe noncompliance is rare for the reasons stated above.

against, and complied were simply cases in which governments really wanted to or were willing to lose. However, this position softened by the late nineties when Garrett, Keleman, and Schulz (1998) acknowledged constraints on a government's ability to ignore court rulings. And, as of his most recent work, the threat of noncompliance was relegated to a footnote (Tsebelis and Garrett 2001). Thus, while initially strongly disagreeing over the role of the ECJ in European integration, scholars have converged on a common theoretical perspective; the ECJ generally can count on governments complying with its rulings. This conclusion is important, because it suggests not only that the ECJ is capable of ensuring compliance with existing law, but also that the ECJ can use this influence to actually promote further integration through expansive application of EU law.

Both in-depth studies of individual cases and overall patterns in litigation appear to be evidence in support of this consensus. The in-depth studies provide direct evidence of ECJ influence. Probably the best known example of this type of case is *Cassis de Dijon* (1979). The German government had banned the sale of Cassis in Germany, because it did not meet the German minimum alcohol by volume requirement for a drink to be sold as liquor. This action was charged as simple protectionism for the German alcohol industry, and the German government was brought to court. While the German government argued vehemently in favor of the law, going so far as to argue that the ban was really a public health issue, the ECJ found the German law inconsistent with EU Common Market law and required the German government to admit Cassis. Despite its vehement protests during trial, the German government complied with the court ruling and lifted the ban on Cassis. This type of case, it is argued, provides prima facie proof that the ECJ can rule against a government and get compliance even when the government is demonstrably opposed to such a ruling (Alter and Meunier-Aitsahalia 1994).[28]

The overall litigation patterns provide additional indirect evidence of ECJ influence. Here, the evidence is comprised of three stylized facts. First, governments are regularly brought to court for violations of EU law. While relatively small numbers of cases were heard by the ECJ in the 1960s and 1970s, on average two to three hundred cases a year have been brought to the Court since the early 1980s and the majority of those cases are over government violations of EU law. Second, governments regularly lose their cases. For example, in 1998 governments lost close to 90% of the cases they defended. And third, governments regularly comply with these rulings. For example, the Court has only had to use its power to impose financial penalties for noncompliance with previous direct action rulings a handful of times. Thus, from all appearances, litigants are unafraid of taking governments to court, courts are unafraid of ruling against the governments, and governments obey those rulings when they lose.

[28] This interpretation of the *Cassis* case is not universally accepted. Garrett (1995) argues that the *Cassis* case is actually a case that Germany was happy to lose, because it would set a precedent for complying with the ECJ over Common Market law in the future.

Does this pattern of compliance really imply that the Court does not have to worry about noncompliance with its decisions (and all that such a problem would imply)? First, consider the case study evidence. Observing a government being taken to court, arguing vehemently against an adverse ruling, losing the case, and complying is certainly consistent with a legal system in which governments must comply with court decisions. However, it is also perfectly consistent with a legal system in which governments are free to ignore court rulings. It would simply be a case in which the government would be punished by other governments for ignoring the ruling (Propositions 1, 2, and 3).

For example, reconsider the *Cassis* case. As Garrett (1995) has argued, complying with EU law in the first place probably would have been relatively low cost. Allowing Cassis into Germany was not going to be a serious blow to any domestic political or economic interest. However, once the government decided to oppose the sale of Cassis, and was taken to court, it did everything it could to win the case. This behavior is perfectly consistent with the model, since the government still would be strictly better off if it did manage to win the case. However, having lost the case, the government conceded and permitted importation of Cassis, as it would if compliance were relatively low cost.

Now consider the litigation patterns. As demonstrated in the previous section, we can observe governments being brought to court arbitrarily often, ruled against arbitrarily often, and always complying with adverse rulings even when governments are free to ignore court rulings (Corollaries 2 and 3). Thus, while the existing evidence is consistent with a world in which the ability of a government to ignore a court ruling is highly constrained, it is also consistent with a world in which the court must rely upon other governments to enforce its rulings.[29] These observations suggest that the existing consensus on the ECJ is premature. Without discriminating evidence, all that remains is a set of theoretically plausible hypotheses.

[29] Two substantive concerns could be raised at applying this study's model to the EU litigation process. First, one could argue that the model is not relevant to the preliminary ruling process, because national courts, not the ECJ, make the actual rulings. This distinction is relevant if governments would pay a sufficiently large "legitimacy" cost for ignoring a national court ruling that it would not pay for ignoring an ECJ ruling (Alter 1996, 1998, 2001; Mattli and Slaughter 1998; Pollack 1997). While this cost may well exist, to date there is no systematic evidence that a government would find ignoring national court rulings on EU law measurably more costly than ignoring ECJ rulings. Second, one could argue that the model is not relevant to direct action cases, because the Court can enforce its rulings by imposing financial sanctions upon repeat offenders (Tallberg 2002). However, while the addition of financial sanctions does expand the types of judgments the court can issue, it is not an enforcement power per se. Governments can choose to not pay the financial penalty just as they can ignore any other ruling. Finally, also note that the Commission does not "win" j_i, if they win the case. Rather, they would gain some benefit, call it b_c, if they win the case. This benefit can be thought of as the professional benefit to the Commission lawyer of winning the case, the policy benefit to a Commissioner of having her preferred policy obeyed, etc. This technical change does not substantively change any findings from the model.

While existing evidence does not discriminate, the model suggests at least two avenues for testing whether the ECJ is actually exerting independent influence over government behavior. First, the comparative statics in the previous section provide a number of possible tests. In particular, while rates of defection with EU law are notoriously difficult to evaluate (Borzel 2001), the rates at which governments are taken to court and the rates at which governments lose cases can be systematically collected for preliminary references and direct actions. In fact, the first has already been done for preliminary references (Stone Sweet and Brunell 1998a, 1998b). Just to pick one of the hypothesized relationships, both rates of being taken to court and of losing cases are predicted to increase when governments tend to draw high costs of compliance (i.e., when p_l is smaller). This expectation could be tested with election cycle data. The closer an election, the more costly alienating domestic interests is likely to be, and therefore the more cases that will be brought and the more often those cases will be decided against the defending government.

Second, the model also suggests another possible test. While the outcome of any particular case does not discriminate between a court that constrains government behavior and one that does not, the conditions under which a government is ruled against can discriminate. In particular, if the court is relying upon implicit government threats of retaliation for enforcement of its rulings, governments should be ruled against less frequently when other governments signal that they will not punish it for ignoring a court ruling. Finding that government defendants tend to win more cases when more governments file briefs on their behalf would be consistent with that expectation.[30]

In sum, the model demonstrates that an emerging consensus in the literature on the ECJ may be premature. While existing evidence is consistent with the claim that the ECJ is a powerful body, capable of ruling against governments and getting compliance with its ruling even when governments are not willing to enforce its rulings, the evidence is also consistent with the opposite story. The court is highly, if not totally, dependent on governments for enforcement of its rulings. Fortunately, empirical tests that do discriminate among these alternative explanations can be performed.

Conclusion

A critical question in the study of international regulatory regimes is whether governments are really cooperating in the regime's designated policy areas and, if so, why and to what degree? Downs, Rocke, and Barsoom (1996) demonstrated that a high level of compliance with an agreement does not necessarily indicate

[30] Of course, one would have to appropriately control for alternative explanations in any test. Such a test has been performed for one year's worth of ECJ decisions, and the results are consistent with the model defined herein (see Carrubba et al. 2005).

a deep level of cooperation in that area. If governments anticipate enforcement problems with an agreement, they will strategically choose a depth of agreement that keeps these problems from being evident. However, Downs, Rocke, and Barsoom are silent on how international courts might or might not help overcome this compliance problem.

This study demonstrates in what ways, and under what conditions, international courts can help overcome problems of enforcement in international agreements. On the positive side, international courts can facilitate cooperation with international agreements in two ways. International courts can help sustain agreements that would otherwise fail, and international courts can promote more extensive cooperation with an agreement than would exist in the absence of the court. However, international courts are limited in one very important way. They cannot promote "deeper" cooperation with an agreement than governments are implicitly willing to enforce. Thus, as long as agreements, with or without courts, must rely upon governments' threats of retaliation to create an incentive to cooperate, there remain substantial limits to international cooperation.

Some argue that this constraint is more theoretical than empirical, because we observe compliance with international courts all of the time. However, even when litigants freely take governments to court for violating an agreement, when the courts freely rule against those governments, and when governments obey whenever they are ruled against, enforcement problems can be substantial. No matter how active the court and no matter how high the compliance rates with court rulings, enforcement problems could be severely undermining cooperation.

While compliance rates cannot be used to evaluate if or how severely enforcement problems are plaguing a regulatory regime, this study does provide a number of testable predictions that can be used to answer this critical question. In particular, the rates at which governments defect from an agreement, the rates at which they are taken to court, and the rates at which they are ruled against are informative. Thus, this study provides a direction for future empirical work that can help provide evidence over how severely enforcement problems are troubling more institutionally developed international agreements.

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