Judicial Predictability and Federal Stability:
Strategic Consequences of Institutional Imperfection

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Abstract: Institutions structure incentive environments for strategic actors. What is the effect of a flawed institution---one that is not perfectly predictable---on strategic behavior? This paper focuses on the influence of the judiciary on intergovernmental rivalry in a federation, in particular considering how shifts in judicial predictability affect federal opportunism. Results of the model indicate that governments in a federation challenge one another's behavior in court less frequently as the judiciary grows more predictable, but the effect of predictability on opportunism depends upon the cost of challenging an agent. When costs are low, increasing the predictability of the court increases opportunism, contrary to intuition. The model is extended to consider the effect of a biased court.

1   Introduction

Institutions structure incentive environments for strategic actors. What is the effect of a flawed

institution---one that is not perfectly predictable---on strategic behavior? Institutions overcome

environmental uncertainty by providing information, coordinating or constraining behavior, or serving as

commitment mechanisms (eg. Schelling, 1960, 1978; Olson, 1965; Shepsle & Weingast, 1987; Hardin,

1989; North, 1990; Greif, Milgrom & Weingast, 1994). Opportunism---when one agent uses the cover of

environmental uncertainty to take advantage of another actor---is a significant problem that institutions

can help to resolve by revealing information. One important class of institutions, adjudicatory

mechanisms, resolves disputes by providing an objective, disinterested forum for revelation of action or

information. With an adjudicatory mechanism, agents anticipate the institution's reaction, giving their

actions predictable consequences.

For example, Milgrom, North, and Weingast (1990) describe the importance of the law merchant

to facilitate long-distance trade. (See also Calvert, 1995.) As markets spread beyond neighbors,

economic transactions are strained by the new potential for opportunism since reputation---a repeated-

play deterrent---is not available with trade between strangers. The advantages of expanded trade may be

offset by the potential for uncurbed opportunism. While Milgrom, North, and Weingast model non-

repeated dyadic play, the goal is to solve the collective action problem where traders would like to punish

their dishonest members by excluding them from trade, but are impeded by uncertainty about what each

trader has done in the past. The law merchant is an institution that can restore efficiency by playing the

role that reputation can serve in closer quarters: the law merchant serves as a clearinghouse and collective

memory, helping the merchants decide whom to sanction. Agents are deterred from cheating, knowing

that the law merchant will reveal any dishonest past play.

Federations, too, have a collective action dilemma that emerges from play among subsets of its

governments.[1] One often interchanges the word "federation" with "union" because federations are

aggregations (or disaggregations) of subunits that hope to take advantage of the gains from cooperation, including trade and a common market, while recognizing politically their distinct interests as subunits. In federations, a constitution, past judicial decisions, and public opinion combine to create a set of expectations about government behavior. These expectations are sometimes referred to as the "federal bargain" (e.g. Riker, 1964; Filippov, Ordeshook, & Shvetsova, 2003) to emphasize both the cooperative and competitive nature of the accord. The existence of a federal bargain does not guarantee that all parties will obey it, and monitoring compliance is a problem. The dimensionality of intergovernmental relations in federations is highly complex---to expand upon Grodzins' (1966) timeless metaphor, it is essentially a marbled stack of public good provision problems glazed by an uncertain environment. When negative externalities are generated, the environmental uncertainty makes it difficult to discern between externality-generating opportunism and random negative environmental effects. While in the Law Merchant was designed to ensure that non-compliant behavior would be punished, here, the problem is in verifying compliance. In either case, deterrence of opportunism is problematic.

The court is one institution that can help verify compliance, and the written record of court decisions serves as a public declaration of contract violation. Court judgments levied against governments are not particularly severe punishments, but they may serve as triggers for a much greater potential punishment: expulsion from the union, voluntary secession, civil war, or federal disintegration can follow from repeated or severe violations. Courts are often referred to as the "umpire" of federalism for their ability to discourage foul play through judgment of actions, and some refer to them as a necessary ingredient in successful federalism (Bednar, Eskridge, & Ferejohn, 2001).

The formal literature on courts---like that on institutions more generally---commonly assumes that, like the law merchant, these adjudicatory institutions are infallible and disinterested (that is, it derives no utility from individual dispute resolutions), and so the court's reaction is predictable. But in more applied studies, critics often question the advisability of relying on the court which can be out of touch or biased. This paper shifts its study from the *presence* of the court to its *performance*. What can a flawed court do to prevent opportunism in federations?

Courts can err for reasons ranging from clerical errors to interpretive shifts to bias.[2] Conceptually, institutional imperfection is akin to a second spin for Nature: it is the introduction of a random element whose distribution is linked to the institution. While the court prefers to be correct, imperfection causes the it occasionally to misreport compliance for opportunism, or vice versa. Bias, of course, is a political factor that affects opportunism. This model builds a baseline case of court imperfection and adds to it the further complication of bias.

The imperfection of the legal system has serious ramifications: in private law, it can cause parties to seek private remedies, such as the mafia, for disputes (Hay & Shleifer 1998). In federalism, lack of an objective referee can cause governments to take their disputes out of the legal system, through civil war or secession. Certainly the *Dred Scott* decision helped to pitch the United States into civil war, and the lack of confidence in the Canadian Supreme Court has caused Quebec to pursue popular advice on secession. The court can aid union as well: it has been important in the development of the European Union (Stein, 1981; Burley & Mattli, 1993) and the Australian federation (Galligan, 1987). Changes to the institution alter the degree of predictability, sometimes improving it, through legal reform or additional resources, while changes to its jurisdiction or personnel might decrease predictability. This paper focuses on intergovernmental rivalry in a federation and asks: what is the effect of shifts in judicial predictability on federal opportunism?

This article develops a model of intergovernmental strategic behavior with imperfect courts. Strategic behavior---both opportunism and the frequency of challenging negative outcomes---depends on how predictable the courts are. Results of the model indicate that the frequency that governments challenge one another's behavior in court decreases as the judiciary grows more predictable. The effect of predictability on opportunism is less straightforward. The consequences of institutional shifts depend on the cost to challenge the suspected opportunist. When the cost of challenging is high, opportunism decreases as the judiciary becomes more predictable, but when an agent has a low cost to challenging, opportunism increases in judicial predictability.

In an extension, the paper turns from random fluctuations in the court's judgment to bias in favor of one agent, finding that bias toward one government increases the likelihood of opportunism, but also increases the likelihood of that government being challenged, despite the probability that the court will judge in its favor. I use these results to comment on the empirical dilemma of distinguishing between perceived and true bias. Finally, by examining the varying reliability of courts, we shed light on the development and persistence of asymmetrical power relationships in federations.

2   A Theory of Imperfect Courts

2.1   The Basic Model of Interaction

Consider a federation of n governments that interact with one another in a wide variety of policy domains. In any issue area one government's policy choice may generate externalities that affect another; if that other government is harmed, it may choose to challenge the first government's policy. In this model we consider the policy-making government to be Player 1, which has the discrete choice to comply or not with the terms of the federal bargain when setting its policy. Affected by Player 1's policy is a second government, here noted as Player 2. Player 1's action may generate externalities---positive or negative--- for Player 2. Negative externalities may be due to Player 1's failure to comply with the federal bargain, or they may be the result of unanticipated effects of compliant behavior, and therefore "blamable" on Nature.

The model considers two forms of uncertainty---environmental and institutional---that we can analyze separately. While it is possible that the two forms of uncertainty are correlated---for instance, in a democratic transition, where both institutions and governmental policy are untested---by assuming independence of the parameters we facilitate distinct analysis of institutional imperfection. First, consider environmental uncertainty, which can affect federalism's network of externalities by creating unintended consequences of policy for other members of the federation. To keep the model as simple as possible, we start from a presumption that the federation is designed to encourage positive externalities and minimize

negative ones. Compliance, then, should generate only positive externalities (or be neutral), while non-compliance can generate negative ones. Stochastic shocks may reverse the effect, creating unintended negative spillovers from compliance, or unexpected positive effects from non-compliance. For example, the onset of foreign conflict may cause the federal government to neglect its domestic commitments as it fulfills its national defense responsibilities, with the unexpected negative consequence that states must carry more domestic burden than forecast. Changes to federal tax law can affect states when the states peg their income taxes to the taxpayer's federal tax. Environmental uncertainty can also generate negative externalities by increasing a state's dependence on federal funds or decreasing its ability to contribute to the federal coffers: For example, in revenue-sharing agreements, one government's revenues may fall short due to an unexpected decline in the economy. In his work to explain the level of public good provision under the Articles of Confederation, Dougherty (2001) reports that the Anti-Federalists typically cited the faltering economy as the reason that the states did not contribute as much to the federal coffers as was expected of them. Likewise, floods, droughts, and other natural disasters not only reduce a state's ability to contribute to the union, but the state generally will increase its dependence on federal funds. Finally, policy changes are often experiments that can fail; one state may alter incentives for welfare recipients that burdens neighboring states when welfare recipients cross borders to select among welfare programs.

To simplify the depiction of incomplete information, assume that Nature masks Player 1's action from Player 2 and occasionally (up to half of the time) reverses the consequence of Player 1's action on Player 2. That is, let e be the probability that the environment reverses the effect of an action, with $e \in (0, 1/2]$. A particularly bad random shock can transform compliance to harmful deviance, and a good random shock can cause deviance to have positive externalities for Player 2. In other words, the exogenous shock stretches to explain both adverse and beneficial environments.[3]

The second form of uncertainty is a measure of the predictability of the court or clarity of the rule. Predictability is a common notion in the literature on judicial review, used normally to describe the

likelihood that a decision deviates from public expectations derived by precedent. [4] It captures the

likelihood that the judiciary's decision is the same as the political understanding of the federal bargain.

The gap between ruling and expectation can be explained in several ways. The court may simply be

inaccurate, explainable by judicial incompetence, or verifiability may be the problem, as harm can be

difficult to document. Or it may be the case that there is no legal restriction against the challenged action,

and therefore no legal remedy, although a political one may exist. Or (relatedly) the court may adhere to

a political question doctrine and refuse to adjudicate. The law may be vague, or public opinion may be

sharply divided, so we can capture the effect of interpretational ambiguity. The court weighs the costs

and benefits of the action to the interested parties, bearing in mind the aggregate social welfare. For

instance, the court is often asked to balance the interest of national welfare against regional diversity. We

might like the court to employ a standard of economic efficiency, but often the administration of such a

test is impractical or impossible. Even when the court can overcome the problem of devising a test of

efficiency, the appropriateness of the test is in question, particularly for a federal union, where the system

itself swaps economic efficiency for institutionalized heterogeneity.[5]

For the moment we suspend consideration of an interested court. This court's utility is not

affected by the outcome; it strives to make a decision that matches the federal bargain. Court bias toward

a party is considered in section 3. In the model, $s, s \in (1/2, 1]$, represents the predictability of the court's

decision. Lower values of s indicate a less predictable, less consistent court.

FIGURE 1 ABOUT HERE

See the extensive form game illustrated in Figure 1. With no deviations, the value of the union to

both players is v (for simplicity), but if one government (Player 1) chooses to behave opportunistically,

which it does according to its strategy with probability q, its potential payoff is $v + 1$. Player 2 accepts all

actions that bring it positive utility, but with some probability p will challenge harmful actions, letting the court judge Player 1.[6]

Should the court uphold the challenge from Player 2, Player 1 incurs a punishment of d as well as losing any gain from non-compliance. If the institution decides that Player 1 did not behave opportunistically---that the action was constitutional---then Player 2's utility is $v - c - 1$, as it incurs a political cost c for raising a failed challenge (perhaps fanning secessionist flames, or inducing inter- or intra-party punishment, or raising public skepticism) and it suffers disutility of -1 from the action. Therefore, challenging is costly to Player 2 if the court judges in Player 1's favor.

It will be useful to consider first the case without environmental uncertainty. If monitoring were perfect: if all actions and intentions could be untangled from misestimation of the effect of one's actions, or other natural forms of obscurity, then $e = 0$ and any negative externalities not bargained for should be attributed to opportunism. In this special situation, despite the indisputable evidence a negative externality would provide, governments might still choose to behave opportunistically, gambling that the court might make a mistake. To ensure against this instance, it is useful to set a minimal bound on the punishment that is inversely related to the accuracy of the court, so that $d > \frac{1 - s}{2s - 1}$. With this constraint, when $e = 0$, $q = 0$: no player will behave opportunistically with no environmental uncertainty and sufficient punishment.

With environmental uncertainty, opportunism becomes more tempting. I concentrate on the equilibrium that minimizes a government's probability of deviance. In equilibrium, Player 2 accepts all positive outcomes, but may choose to challenge a negative one. Player 1 chooses $q*$ to make Player 2 indifferent about challenging. If Player 2 accepts a negative outcome, its payoff is $v - 1$. If it challenges a negative outcome, its payoff depends upon the conditional probabilities that Player 1's action was justifiable and Nature changed the effect of its action, and that Player 1 deviated and Nature did not change the effect. The probabilities are, respectively:

$$\frac{e(1-q)}{e-2eq+q} \quad \text{and} \quad \frac{q(1-e)}{e-2eq+q}.$$

Player 2's payoff also depends upon the realization of *s*, so it considers the probability of the court making the correct decision as it computes its expected payoffs. Player 2 accepts all positive outcomes, but considers challenging if it gets a negative outcome. It is indifferent when the expected value of challenging equals the expected value of accepting the negative outcome.

$$v-1 \;=\; \frac{e(1-q)\big(s(v-c-1)+(1-s)v\big)+q(1-e)\big(sv+(1-s)(v-c-1)\big)}{e-2eq+q}$$

$$q^* \;=\; \frac{se(c+1)-e}{s(c+1)-c(1-e)-e} \tag{1}$$

Likewise, Player 2 chooses *p** so Player 1 has no utility advantage from opportunism:

$$(1-e)v+ep\big(sv+(1-s)(v-d)\big)+e(1-p)v \;=\;$$
$$e(v+1)+(1-e)p\big(s(v-d)+(1-s)(v+1)\big)+(1-e)(1-p)(v+1)$$

$$p^* \;=\; \frac{1}{s(1-e+d)-de} \tag{2}$$

It can be shown that *q* increases in *c* and in *e* (see appendix); as the cost of challenging and being wrong increases, Player 1 will be more likely to behave opportunistically. Also, as Nature transforms the effect of behavior more often, the potential deviator is less constrained. For illustration and discussion, see Figures 2, 3, and 4 in Section 2.3.

2.2   Institutional Intervention

The effect of the court's predictability on the probability that a government behaves opportunistically is less transparent. As we will see, the political cost of an incorrect challenge *c* is a critical value in determining how the court's predictability *s* affects equilibrium behavior.

It is straightforward to show that if the court's reaction is perfectly predictable (if $s=1$) and it is costless to challenge ($c=0$), then no government will behave opportunistically.

Proposition 1: *When the court is predictable and it is costless to challenge, Player 1 always complies with the terms of the federal bargain.*

Proof: By eqn. (1), when $c = 0$ and $s = 1$, then $q^* = 0$; Player 1 will always comply with the terms of the federal bargain because for Player 2, *challenge* is the dominant response to a negative externality.

A predictable and costless court is an unattainable ideal. Of much more practical interest is the consequence of $s < 1$ and $c > 0$: of an inconsistent court or ambiguous constitution and of a challenger risking costs when turning to the court. While any increase in the cost of challenging increases opportunistic behavior, the effect of an unpredictable court depends on the magnitude of the cost of challenging.

Proposition 2: *For high costs of challenging (when* c > 1*), q decreases in* s*; the equilibrium probability of opportunism decreases as the court becomes more predictable.*

Proof:

$$\frac{\partial q}{\partial s} = \frac{[s(c+1) - c(1-e) - e][e(c+1)] - [se(c+1) - e][c+1]}{[s(c+1) - c(1-e) - e]^2}$$

The numerator simplifies and factors to:

$$e(c-1)(c+1)(e-1)$$

Since by assumption $0 < e < 1/2$, $\partial q / \partial s < 0$ when $c > 1$.

When one government faces a high cost to seeing its challenges fail in court, it has to be fairly certain that another government behaved opportunistically before it will level any challenge. Therefore, a

high cost to a failed challenge makes a government particularly vulnerable to opportunistic behavior, and when the government is hit with a negative outcome, there is a strong chance that another government is behaving opportunistically (that is, q is relatively high). As the court becomes more predictable, or the constitution more clear, the court is more likely to reveal opportunism, thereby reducing the realized cost of challenging a deviator. Player 2 will always challenge unless Player 1 reduces its level of opportunism. See Figure 3.

Corollary: *For low costs of challenging, when* $c < 1$*,* q *increases in* s*; counter-intuitively, Player 1 is more likely to deviate in the presence of a low-cost, highly predictable court.*

Proof: Follows directly from Proposition 2.[7]

The corollary considers the effect of increasing the predictability of the court when the cost of challenging is low. While the proposition is intuitive, the corollary is not. It is reasonable to ask: why would Player 1 be more likely to deviate as the court's accuracy increases, when challenging costs are low? Consider Player 2's decision. When it is harmed, if it accepts, its payoff is -1. If it challenges, its payoff depends upon the cost of being wrong, the predictability of the institution, and the conditional probability that it is at the upper node of its "negative outcome" information set (where Player 1 did not behave opportunistically but Nature switched the effect). When costs are low, Player 1 is rarely behaving opportunistically (See Figure 3). Therefore, most of the time when a harmed government suspects opportunism, it is due to Nature. As s increases, the court becomes more predictable, and since Player 1 is rarely abusing its power, the court finds Player 1 innocent more often. If q stayed the same, that is, if Player 1 did not change its strategy, then the harmed government would never challenge, wanting to avoid the cost of a failed challenge. Therefore, q increases as s increases.

We now turn to what the model predicts about the frequency of challenging.

Proposition 3: *The probability of challenging decreases as the institution becomes more predictable.*

Proof:

$$\frac{\partial p}{\partial s} = \frac{-(1-e+d)}{[s(1-e+d)-de]^2}$$

Since both $(1-e)$ and d are positive, $\partial p/\partial s \leq 0$. The probability of challenging decreases as the court becomes more accurate; the court's accuracy dampens temptation to behave opportunistically, as it is grows more likely to detect opportunistic behavior. Therefore, Player 2 need not challenge negative outcomes as frequently.

2.3 Discussion of Results and Comparative Statics

The model predicts that as the cost of a failed challenge increases, the likelihood increases that another government will behave opportunistically. One can see this effect generally in Figure 2.

Figure 2: Probability of Transgression as Challenging Cost Increases
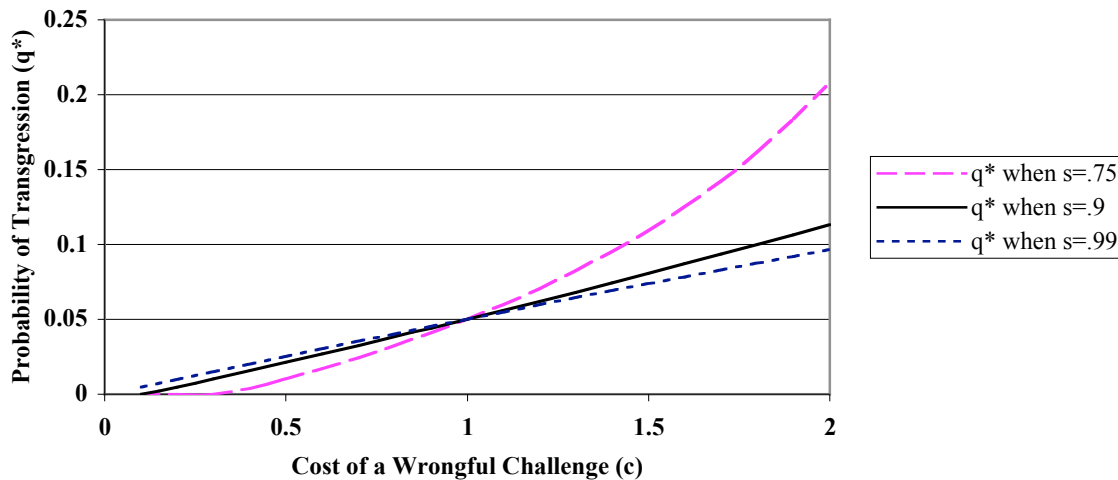
In addition to providing an illustration of Proposition 2 and its corollary, Figure 2 visually demonstrates another effect of the model: as the court's predictability grows, the relationship between the cost of challenging a transgression and the probability of transgressing becomes increasingly linear. Therefore, when the constitution is relatively ambiguous, or the court unpredictable, the non-linearity

causes an acceleration in the probability of opportunism as cost increases. The result of this effect is that for high costs of challenging, opportunism becomes less likely the as the court becomes more predictable, but, counterintuitively, for low costs, the likelihood of opportunism increases as the court's predictability increases. Figure 3 also demonstrates this point.

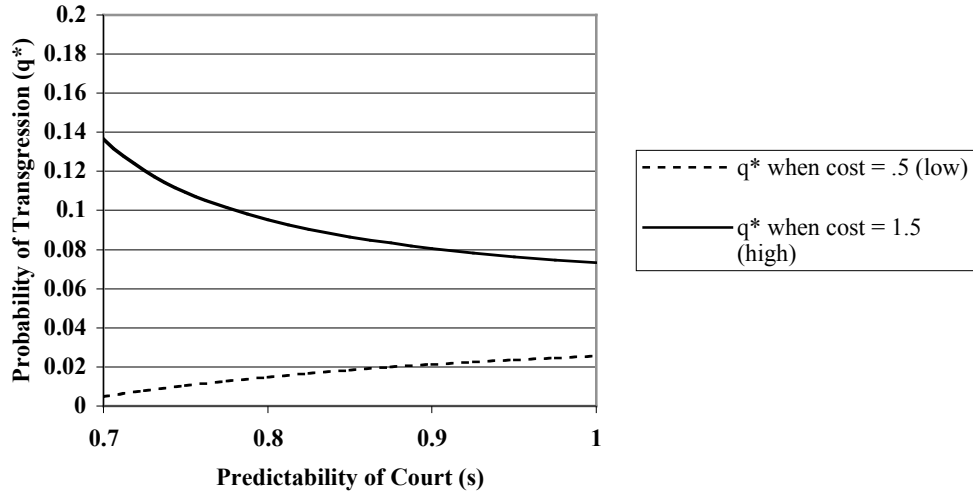**Figure 3: Probability of Transgression as Court Grows More Predictable**

Figure 3 plots probabilities of behaving opportunistically against the predictability of the court, shown for both high and low costs of having a challenge fail. Intuitively, opportunism is more likely when challenging costs are high than when low, and when the cost of challenging is high, increasing the predictability of the court does decrease the probability of opportunism.   When the costs of challenging are low, the probability of transgression slowly increases in the court's predictability, contrary to intuition. For both high and low challenging costs the marginal benefit of increasing predictability levels off when the court is already quite consistent, indicating that if the cost of improving the institution is high, a system might "satisfice" with a sub-perfect level of institutional effectiveness.

Proposition 3 made predictions about the frequency of challenging. Challenging depends upon court predictability and the cost of punishment. Figure 4 illustrates how the probability of challenge declines as the court becomes more predictable. It also declines in response to the severity of the punishment Player 1 would face if "convicted" of opportunism.

**Figure 4: Probability of Challenge by Predictability of Court,
shown for various levels of severity of punishment to the transgressor (d**
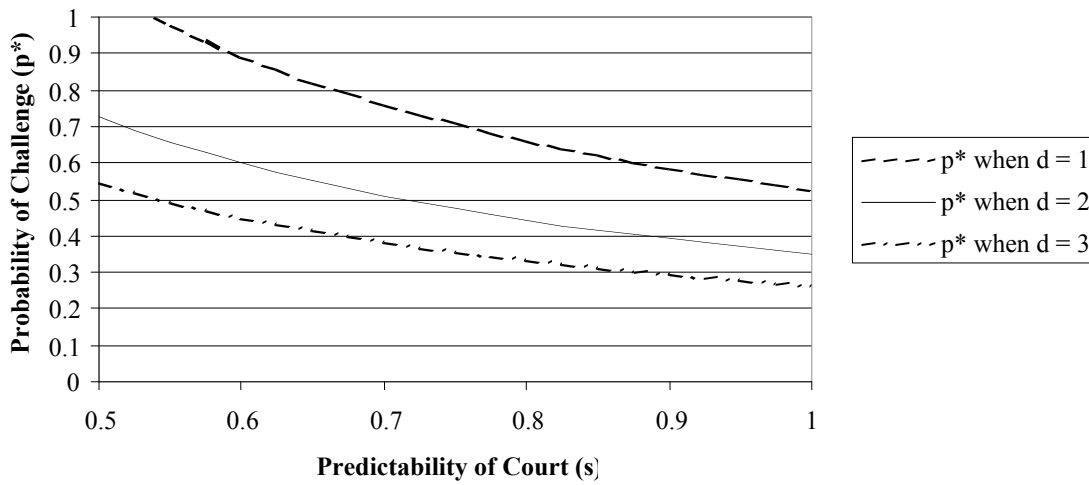
The natural level of uncertainty also affects the strategic behavior of the governments. Ambiguity regarding the effect of action, where unintended positive spillovers occur as well as negative ones, exacerbates environmental uncertainty. Figure 5 demonstrates that as uncertainty increases, both opportunism and challenges become more frequent. While the effect is shown for low costs of challenging, the effect is the same for high costs. As illustrated, the level of court predictability does not alter this trend.

Figure 5: Probability of Transgression or Challenge by Degree of Uncertainty, for Low Cost of Challenge
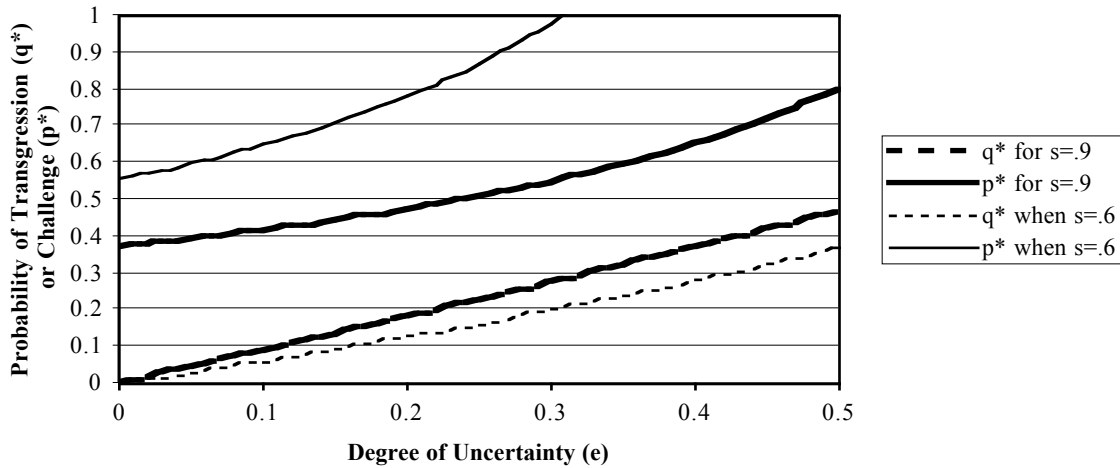
In sum, what could the court do for federal stability? Only a costless and perfectly predictable court eliminates all opportunism, an ideal impossible to reach. However, the presence of a court, albeit a costly or somewhat unpredictable one, eliminates the need for the members of the union to threaten and then implement a punishment regime, effectively ending the union. Even an unpredictable court makes it possible for the federation to withstand bad random shocks and helps to minimize opportunism. Although imperfect institutions open up a window of opportunity for deviations, the losses associated with moderate opportunism are well made up for by the gains from the elimination of punishment regimes (where all players retreat into stony non-compliance), the mechanism necessary for stability in an institution-free union. Furthermore, an imperfect institution could have uncelebrated benefits: federations will be most stable when they have a built in flexibility to adjust to environmental and systemic changes; therefore, a controlled level of opportunism can be desirable, and imperfect institutions provide the room for experimentation.

The potential cost to the challenger of being wrong plays a critical role in the model, determining the effect of increasing institutional perfection on opportunistic behavior, and deserves further consideration. While it is true that the challenge itself is a burden on the agent, the potential costs are

much greater than legal fees or payment to legislative aides. The agent incurs a *political* cost for challenging another member of the union.

Challenges themselves can endanger a union; if the members of the union feel that they are constantly being tried for their actions, they could embrace separation from the union as a tempting escape from harassment. Or the cost could come from the political embarrassment of fighting a battle that it loses, reducing the voters' esteem for the agent. Of course politics also motivate a low cost, in particular for a regional agent; not every action taken in the federation benefits all, although we assume that the aggregation of all actions is beneficial to all agents. Whenever an action burdens an agent, the agent is tempted to try to shift the burden on to the shoulders of another agent. Even when the agent knows that it is fighting a battle it cannot win by challenging, its voters might appreciate the quixotic attempt and reward the agent with reelection; the cost of challenge is low. For the most part, however, wrongful challenges are costly, burdening the agent more than its loss from the single period deviation.

The model also provides an intuition for the impact of institutional change on federal stability. For most costs of challenging, the probability that agents will deviate from the federal bargain decreases as the court becomes more predictable, or the constitution more clear. However, for challengers with low costs of wrongful challenges, an increase in the court's predictability actually increases the probability of deviation.

3   Institutional Bias

Riker's (1964) skepticism about the capacity of judiciaries to remain objective when judging the actions of federal governments pervades the federalism literature in law and political science, despite theory and evidence that exonerate it, at least in part (Eskridge & Ferejohn, 1994; Yoo 1997). In most cases the court's ability to stem opportunism is merely ignored or dismissed, but in some federations suspicions of judicial bias toward the federal government have disturbed the stability of the federal

system. As such, bias may be a particular problem of interlevel disputes, between the federal government and a state or provincial government. The model can be adjusted to capture judicial bias.

To this point we have treated the court as a disinterested party; its utility is not linked to the utility of any government and is therefore unmodeled. Issuance of surprising decisions is random. We now expand our analysis to think about what happens if the institution's utility function is somehow linked to the outcome of one of the governments, so that it prefers to see one government do well, or, conversely, it holds some animus against a government and abuses its position to pursue a vendetta.[8] Or perhaps it favors no government explicitly, but it is ideologically attached to a version of federalism (e.g., increasingly centralized, as in the case of the European Court of Justice) so that its actions are equivalent to bias, as long as the central government argues for greater centralization and the provincial government for more decentralization. Intuitively, we look for some lopsided treatment as our clue that an institution is biased in favor of or against a government. I begin with a caution about potential misinterpretation of these data.

3.1   Apparent Bias

Often it will be the case that an agent will believe that the court is biased against it, when nothing of the sort is happening. Nevertheless, the government may be able to muster evidence of bias to support its claim, evidence that may convince many and ultimately prove disruptive to the harmony of the federation. The model can explain the source of the (mis)perception about judicial bias, and in so doing cast shadows on the "proof" of bias.

If the court charges one government more often with cheating, we must consider the possibility that the charges are true. Under what conditions would a government deviate more often than another? There are three possibilities: (1) the constitutional bargain may distribute benefits or costs asymmetrically, (2) one agent might have institutional constraints that prevent it from deviating as often as another, and (3) costs of challenging may differ; perhaps one government has a lower cost of exit than others.

The first is straightforward: the terms of the federal bargain themselves could be biased to advantage one player more, in which case the second player would be driven to deviate, given the gap between its preferences and the union directives,[9] in hopes that Nature will reverse the consequences of its actions, or that the court will make an error.

The second condition for an asymmetrical frequency of deviance is a difference in the opportunity that each player has to deviate. Ex ante constraints (not modeled here) such as institutional fragmentation (i.e., bicameralism, separation of powers) or other decision-making obstacles can reduce the effective strategy space of one agent more than another. The relatively unfettered government will try its luck by deviating more often.

Federalism, with its infinite menu of institutional patterns, provides a plethora of opportunities to constrain one government more than another. We see the differences most often between central and regional governments. In the United States, the central government is subject to ex ante constraints on its ability to behave opportunistically because the states are included as important decision-makers within the federal government, although the extent to which the Senate protects states *qua* states is entirely unproven, at least in this century (Riker 1955). Nevertheless, theorists such as Wechsler (1954) and Choper (1977) maintain that state representation in federal government decisions is an effective mechanism to policy federal activity, and other political safeguards theorists (Kramer 2000; Filippov, Ordeshook, & Shvetsova, 2003) highlight the role of the party system in constraining the federal government. The central government can "retaliate" by imposing constraints in its redistribution of funds (e.g. unfunded mandates in revenue-sharing programs). Had Madison had his way, the central government would be able to negative state legislation (Rakove, 1996), a power the Indian national government enjoys, and which, in equilibrium, considerably constrains the ability of the state governments of India to deviate from the federal bargain.

A third source of (mis)perception of bias is more subtle, and best understood within the context of the model. Recall that the frequency with which one agent deviates depends upon the cost to another agent of challenging and being wrong. Specifically, if it is relatively costly for an agent to challenge

another, the other agent is able to exploit the first's reluctance to challenge to its own advantage, by deviating fairly frequently (see Prop'n 1: $\partial q/\partial c > 0$). For example, suppose one region in a federation has a viable exit option, perhaps due to historical allegiances. (The Trentino-Alto Adige provinces of northern Italy come to mind, because of the latter's Germanic heritage; of course Quebec's claim of an exit option is well known.) It is relatively costly for other regions or for the center to challenge the region, as it might decide that it would prefer to exit the union. In this case, the privileged region can ransom its historical alliance for special treatment: as the cost c to the challenger for challenging and being wrong is high, so the privileged agent can use its advantage to claim more benefit (or less sacrifice) from the union, in the form of deviation.

If the privileged government itself has a lower cost of challenging others (indeed, privilege---the exit option---and cost of challenging are highly correlated), then an asymmetry in deviance exists: because its cost of challenging is low, others rarely deviate, and therefore the privileged agent deviates more than they do.

In all three of these instances: (1) greater short term benefit from deviation, (2) fewer ex ante constraints, and (3) higher costs of challenging for others, an agent will deviate more often than other agents. Therefore, in each of these cases, if the agent is challenged, and the court is more predictable than not (an assumption of the model, $s \in (1/2, 1)$), it will find the agent guilty of deviating more often than other agents.

Notice that as $s \to 1$, that is, as the court becomes increasingly predictable, it finds the agent guilty *more* often. Therefore, what we might identify as an increase in "bias"---as charged by the defendant and perhaps supported statistically---may in fact be caused by the court's better detection of deviance! In sum, the more predictable the court becomes, the more biased it may seem.

3.2 True Bias

But what happens if the court truly is biased? Courts are intended to be objective; while they do not always make the right decisions, their faults should not systematically favor one agent over another. If

they do, then they have assumed an interest in the outcome of the interaction. The model does not specify the court's utility function, although we implicitly assume that the court cares about its legacy and its legitimacy, and that therefore it strives to be perfect. One dimension of perfection is not to be fooled by Nature, a subject the paper has already considered. Another form of perfection is to announce accurately what the court perceives. That is, if the court sees opportunism, it should declare it so, or, conversely, if it perceives an agent to be compliant, it should say so. To fail to do so indicates bias.

The court may be biased for a number of reasons. Most commonly, it might be dependent upon one government or otherwise beholden to it. Supreme courts have been called the "handmaiden" of the executive,[10] making them biased toward the center and against the regions. More subtly, courts can develop an interpretive bias, if they are able to shape rules as well as compel agents to abide by them. For example, in the first few decades of the European Community's existence, the European Court of Justice played both institutional sides. In the absence of other sure-footed and legitimate European leadership, the Court seemed to take quite literally the phrase "an ever evolving Europe," strengthening the union to the benefit of the EU institutions and those member states at its core.

In order to determine how judicial bias affects governmental interaction, we modify the model slightly to include a bias parameter. If an action is challenged, the court's predictability is modified additively by the degree of its bias. It can be biased in two ways: it might be biased toward one government (say, the federal government) and it might be biased against a particular government (for example, it is possible that the Canadian Supreme Court is biased against the province of Quebec, but is objective toward all other governments, including the federal government.)

When the institution is biased in favor of one agent, we see several reactions, as characterized in the following propositions. The proofs can be found in the Appendix.

Proposition 4: *When the court is biased in favor of a potential deviator, as the level of bias (in favor of the agent) increases, the agent becomes more likely to deviate, and the other agent becomes more likely to challenge.*

Proposition 5: *When the court is biased against a potential deviator, as the level of bias (against the agent) increases, deviations decrease, as does the likelihood of challenging.*

Institutional bias has the effect on deviation that we expect: when biased toward an agent, the agent deviates more, when biased against, the agent deviates less. However, when looking for evidence of bias we may be stymied. Evidence of bias requires judicial action, which is triggered only in the case of a challenge. Challenges work against our intuition: they increase when the challenger is disadvantaged (to ward off exploitation by the favored agent) and decrease when the challenger is advantaged (because challenges aren't needed as often to deter opportunism). Because of this counterintuitive force, we run the risk of misinterpreting statistical evidence of bias. If we look only at the relative judgments against and for different agents, it may very well be that the most favored agent has more judgments against it, simply because it is challenged much more often. Similarly, we may find very little evidence of judicial bias against an agent, since it rarely appears in court.

An interesting extension of these results on bias would be an examination of the incentive to create or reform institutions, especially the judiciary. Institutional reforms often are promoted by the government most advantaged by the current institution---for example, the federal government---who would naturally introduce institutions further biased in its favor. However, if it is believed that reform would decrease predictability, and the advantaged government faces a high cost to a failed challenge, then any gains that might come from an institution biased in its favor may be offset by the decline in that institution's predictability.[11]

4   Discussion

Opportunism is defined as breaking a rule to advantage oneself. There are two ways that informational uncertainty can complicate rule-following: random environmental fluctuations can alter the effect of one's action, causing opportunism to appear to be compliance, and compliance to be opportunism. But the rule

itself may have fuzzy definitions: it may be unclear if one is breaking it or not. This paper has shown that fluctuations in rule predictability affect strategic behavior.

Opportunism contributes to federal instability. The model can help us account for the variance in federal stability, as well as the timing of eruptions of instability, by considering the function adjudicatory institutions perform that enables them to buoy a federation. The courts that flesh out the federal constitutional skeleton help to sustain the polity by providing an outlet for one agent to challenge another's actions in the face of an undesirable outcome. Although costless and perfect courts eliminate all intentional deviance, costly or imperfect courts can contribute to stability as well. In either case, agents in the federation do not need to resort to threats of secession in order to maintain the union.

When the court is not perfectly predictable, the relationship between a shift in predictability and the probability that an agent will behave opportunistically depends upon the cost of challenging. When the challenger's cost is high, an agent will be less likely to deviate as the court becomes more predictable. However, for low challenge costs, the probability of opportunism actually increases with the court's predictability. Therefore, changes in predictability affect the stability of a union, helping to explain the timing of changes in domestic tension. When coupled with the cost of challenging, institutional shifts help to explain the asymmetry in power relations in a federation, especially when they run counter to our expectations. The model also helps us to better understand the effect of judicial bias and, importantly, offers a counterthesis to evidence that might appear to point to bias. Decreased predictability, when it coincides with variation in costs of challenging, can produce outcomes that might appear to indicate bias.

While this paper is a theoretical analysis of judicial review, it is not meant to preclude the importance of other impediments to opportunism, such as party systems and the electoral system. These institutions may operate similarly. Furthermore, one might consider the inverse extension: the model applies to the effect of court decision-making in any number of legal dimensions, including tort law. Finally, in an effort to preserve a straightforward analysis, I refrained from introducing the severity of the opportunism in the analysis. One could do so by partitioning Player 1's strategy space. One could then

let predictability be a function of the degree of opportunism, presumably assuming that the court's

reaction becomes more predictable as the opportunism becomes more egregious.

Mathematical Appendix

Proof that *q* increases in *c* and *e*:

$$q^* = \frac{e\big(s(c+1)-1\big)}{s(c+1)-c(1-e)-e}$$

$$= \frac{esc + e(s-1)}{c(e+s-1)+s-e}$$

$$\frac{\partial q}{\partial c} = \frac{\big(c(e+s-1)+ec+s-e\big)es - \big(esc+e(s-1)\big)(e+s-1)}{\big[c(e+s-1)+s-e\big]^2}$$

The numerator simplifies and factors to

$$e\big((2s-1)(1-e)\big)$$

Since $0 < e < 1/2$ and $s \geq 1/2$, $\partial q/\partial c \geq 0$. The probability that Player 1 deviates increases with the cost of a wrongful challenge.

Next we want to support the claim that $\partial q/\partial e \geq 0$.

$$q^* = \frac{e\big(s(c+1)-1\big)}{e(c-1)+s(c+1)-c}$$

For convenience, let $x = s(c+1)$.

$$q^* = \frac{e(x-1)}{e(c-1)+x-c}$$

$$\frac{\partial q}{\partial e} = \frac{(x-1)\big((x-c)+(c-1)e\big)-e(x-1)(c-1)}{\big[e(c-1)+x-c\big]^2}$$

The derivative is positive if the numerator is positive. The numerator factors to $(x-1)(x-c)$.

Replacing $s(c+1)$ for x, $\partial q/\partial e > 0$ if $s(c+1)-1>0$ and $s(c+1)-c>0$. These two conditions represent the benefit from checking a deviator and a complier, respectively. In order for the game to make sense, it must always be profitable to challenge a known deviator (when $e = 0$) and never profitable to challenge a known complier, indicating some restrictions on *s* and *c*.

The appropriate condition for challenging a known deviator is:

$$v - 1 \leq sv + (1-s)(v-c-1)$$
$$0 \leq s(c+1) - c$$

and for a known compliant player:

$$v - 1 \geq (1-s)v + s(v-c-1)$$
$$0 \leq s(c+1) - 1$$

As long as these conditions hold, $\partial q / \partial e \geq 0$.

Proof that p decreases in d:

$$p^* = \frac{1}{s(1-e) + d(s-e)}$$

$$\frac{\partial p}{\partial d} = \frac{e-s}{[s(1-e) + d(s-e)]^2}$$

Since by assumption $e - s < 0$, the proof is complete: $\partial p / \partial d < 0$.

BIAS

Proof of Proposition 4:

Suppose the court is biased in favor of Player 1 or against Player 2, with the effect of finding Player 1 innocent more often.

_ Deviation:

$$v - 1 = \frac{(1-q)(e)[(s+b)(v-c-1) + (1-s-b)(v)] + (q)(1-e)[(s-b)(v) + (1-s+b)(v-c-1)]}{e - 2eq + q}$$

$$q^* = \frac{b(ec+e) - e + esc + es}{b(2ec + 2e - c - 1) - e - c + sc + s + ec}$$

$$\frac{\partial q}{\partial b} = \frac{[b(2ec + 2e - c - 1) - e - c + sc + s + ec][ec+e] - [b(ec+e) - e + esc + es][2ec + 2e - c - 1]}{[b(2ec + 2e - c - 1) - e - c + sc + s + ec]^2}$$

Since we are only trying to sign the derivative, we can drop the denominator, since it is positive. The numerator simplifies and factors to:

$$-e(c+1)^2(e-1)(2s-1)$$

Since, by assumption, $0 < e < 1/2$ and $s > 1/2$, the expression and $\partial q/\partial b$ are positive. Player 1 is more likely to deviate when the court is biased in its favor.

_ Challenge:

$$(1-e)v + ep\big(v(s+b) + (v-d)(1-s-b)\big) + ev(1-p)$$

$$= e(v+1) + (1-e)\big(p\big((s-b)(v-d) + (1-s+b)(v+1)\big) + (1-p)(v+1)\big)$$

$$p^* = \frac{1}{b(2ed - d + e - 1) - ed + ds + s - es}$$

$$\frac{\partial p}{\partial b} = \frac{-(2ed - d + e - 1)}{\big(b(2ed - d + e - 1) - ed + ds + s - es\big)^2}$$

Again, we focus on the numerator, as the denominator is positive. Simplifying, it becomes $d(1-2e) + (1-e)$. Since $0 < e < 1/2$ and $d > 0$, $\partial p/\partial b > 0$. Player 2 is more likely to challenge when the court is biased in favor of Player 1.

Proof of Proposition 5:

Suppose instead that the court is biased against Player 1 or in favor of Player 2, with the effect of finding Player 1 guilty more often. To find the effect of this new form of bias on the strategies, we need no further computations. We notice that the new bias effect is the reverse of the one just studied, and so we can substitute a $(-b)$ where (b) appears in the equations above. The remaining conclusions follow: $\partial q/\partial b < 0$ and $\partial p/\partial b < 0$.

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[1] Bednar (1997) shows that with a continuous action space under uncertainty, the full compliance equilibrium cannot be sustained. Furthermore, moderate compliance is sustained by periodic punishment regimes---eras of non-compliance---costly to all participants. With a discrete action space, full cooperation can be sustained, but as long as there is environmental uncertainty, only with a finite punishment regime. The objective of federal institutional design is to induce compliance with institutions that are more efficient than a punishment regime.

[2]   One additional source of imperfection is judicial moral hazard. Usman (2002) considers the choice of a judicial agent to expend effort to improve the accuracy of its decision.

[3]   Contrast this assumption with the model of decentralized decision-making in Bendor & Mookherjee (1987), where the random shock has only a negative effect.

[4]   For a general discussion, see Schauer (1987). The Casey decision (*Planned Parenthood* v. *Casey*, 505 U.S. 833 (1992)), upholding the *Roe* v. *Wade* precedent, was argued in part on predictability grounds. For discussion see Wallace (1994) and Paulsen (2000).

[5]   See Swinton (1990, pp. 155-170) for a discussion of balancing in the Canadian context.

[6]   This paper focuses on the formal institutional mechanism of the court, but the harmed government might turn to the voters to recognize Player 1's abuse of power, if such remedy is available.
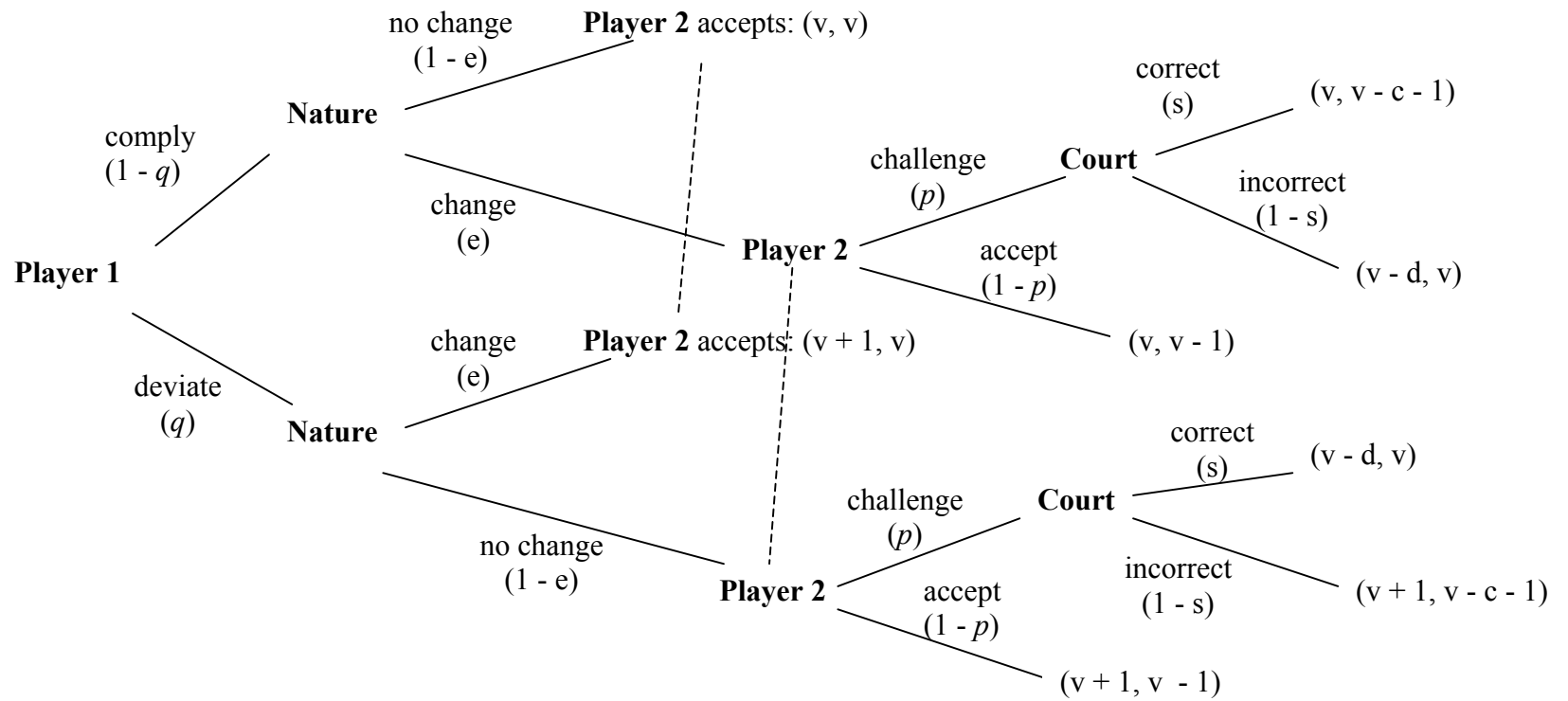
[7]   The result is subject to $s > \dfrac{c(1-e)-e}{c+1}$ (from eqn. 1). A sufficient condition is $s > \dfrac{c}{c+1}$.

[8]   Recently, positive theories of the court have augmented empirical investigations by examining the court's strategic motivations. For a good introduction, see Epstein and Knight (1998).

[9]   One might also interpret this motivation as one agent having higher short-term benefits to deviation than another.

[10]   The phrase comes from Riker (1964); the rationale is elaborated in Choper (1980).

[11]   I thank an anonymous referee for this point.

no change
Player 2 accepts: (v, v)
(1 - e)

correct
(s)
(v, v - c - 1)

Nature

challenge
(p)
Court
incorrect
(1 - s)

comply
(1 - *q*)

change
(e)
Player 2
accept
(1 - *p*)
(v - d, v)

Player 1

(v, v - 1)

change
(e)
Player 2 accepts: (v + 1, v)

deviate
(*q*)

correct
(s)
(v - d, v)

Nature

challenge
(p)
Court

no change
(1 - e)
Player 2
accept
(1 - *p*)
incorrect
(1 - s)
(v + 1, v - c - 1)

(v + 1, v - 1)

Figure 1: The extensive form game. Strategies are in italics.