DIVIDED BY THE FACTS: ASYMMETRIC PREFERENCES OVER LEGAL RULES AND BARGAINING ON COLLEGIAL COURTS

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Abstract. Judicial decisions, particularly those by high courts, have two separate effects: They resolve a particular dispute and they announce a legal rule that justifies this resolution. In this paper, we consider the micro-foundations of judicial preferences over legal rules. We argue that while judges may care about legal rules for a number of reasons, one reason is that legal rules shape the resolution of future cases. As a result, a judge prefers those rules that she expects will make more cases come out "right" (from her perspective) to those that she expects will make fewer cases come out "right." We demonstrate that if this is true, judicial preferences over rules will typically be asymmetric: A judge will be sensitive to deviations from her preferred rule if such deviations affect many future cases, while she may be willing to tolerate significant departures from her preferred rule if this departure does not affect many cases. We show that the direction and degree of this asymmetry are endogenous to the location of the judges' ideal points. Finally, we demonstrate that such asymmetric preferences can have important consequences for the legal rules that emerge from collegial courts, as well as for the nature of the coalitions that support a decision.

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1. Introduction

Judicial decisions, particularly those by high courts, have two separate effects: Most immediately, they resolve a particular dispute. But in addition, they announce a legal rule that justifies the resolution in the current case, and governs how similar cases will be adjudicated in the future. For example, in deciding whether the evidence obtained in a challenged search is admissible in a particular criminal proceeding, judges are not just deciding that case, but also whether evidence obtained in similar searches will be admissible in the future. Indeed, this second aspect of decisions is probably more important, and judges on high courts are likely to be more concerned about the legal rule that is announced than they are about the particular dispute. These legal rules instruct lower courts on how to resolve the far larger number of similar disputes that may arise in the future, and that the high court cannot hear itself. More significantly, perhaps, these legal rules shape the social, economic, and political order by guiding the interactions between individuals, as well as between individuals and the state, before any legal disputes ever arise (often through "anticipatory compliance").

Not surprisingly, scholars concerned with understanding judicial decision-making, especially on collegial courts, have focused on the preferences that judges have over legal rules. One central strand of this literature uses the so-called "case-space model" to study judicial policymaking formally (Kornhauser 1992; Lax and Cameron 2007; Lax 2007). Under this approach, legal rules are represented as thresholds that divide a continuous case space into permissible and impermissible outcomes. Judges have a most preferred rule in this space, and prefer rules that are closer to their ideal rule over rules that are further away. A central assumption in this literature – borrowed from spatial models of policymaking more generally – is that judicial preferences over legal rules are symmetric in the sense that rules that are equally distant from a judge's preferred rule are regarded as equivalent. Put differently, a judge does not care in which direction a rule "deviates."

In this paper, we contribute to this literature in two ways. First, we consider the microfoundations of judicial preferences over legal rules. We argue that while judges may care about the legal rules announced in their decisions for a number of reasons, one central reason they do so is that they care about what the social, economic, and legal order that results from their decisions looks like – both broadly in terms of the interactions between individuals, and between individuals and the state, as well more narrowly in how future disputes in the courts will be resolved. Judges prefer those rules that they believe will classify more of these interactions "correctly" (from their perspective) to those that they expect will classify fewer "correctly." (For ease of exposition, we will refer to the the general interactions that are ordered by legal rules, as well as the specific disputes that can arise in courts under those rules as "potential cases" from now on. But we stress that this is just a convenient convention; our interpretation extends to the anticipatory effects of legal rules that never lead to actual disputes.)

One central implication of this approach is that a judge will be more sensitive to deviations of legal rules from her preferred rule if such deviations are likely to affect many future cases, while she may be willing to tolerate significant departures from her preferred rule if this departure is not likely to affect many cases. In the context of a spatial model, this implies that judicial preferences will typically be *asymmetric*. As we show in the first part of the paper, the direction and degree of this asymmetry depend on the location of a judge's ideal point relative to the underlying distribution of potential disputes that the rule is supposed to regulate. In the second part of the paper, we demonstrate that the asymmetry of judicial preferences can have significant consequences for bargaining on collegial courts. As a consequence, the legal rules that emerge out of judicial decisions, and the coalitions of judges who will support these decision, can differ significantly when preferences are asymmetric as opposed to symmetric. Put differently, the assumption of symmetric preferences is not as innocuous as might appear on first glance.

The paper is organized as follows. In the next section, we motivate "derived rule preferences," and demonstrate that these preferences are likely to be asymmetric (in contrast to the symmetric preferences that characterize the current literature). We then demonstrate in an application that asymmetric preferences matter: the conclusion we draw about judicial behavior will differ in significant ways from those we derive using symmetric preferences. A final section concludes.

2. Case Distributions and Asymmetric Preferences

Over the past decade, the case-space model has become the dominant approach in the formal study of judicial decision-making (Kornhauser 1992; Lax and Cameron 2007; Lax 2007, 2012; Fox and Vanberg 2014). In the simplest version, "cases" are represented by points on a one-dimensional continuum, ordered in such a way that case facts become more "extreme" with reference to the relevant legal criterion as we move from left to right. For example, cases might represent the intrusiveness of a police search, and as we move to the right along the spectrum, searches become increasingly intrusive. A legal rule in the case-space model defines a threshold along the continuum that separates case facts that are legally acceptable from those that are legally unacceptable under the rule, i.e., case facts to the left of the rule are deemed "legal" (or constitutionally permissible) while case facts to the right are deemed "illegal" (or constitutionally impermissible). To illustrate, consider Figure 1. Searches to the left of rule r_1 are deemed permissible, while searches to the right of r_1 are deemed impermissible.

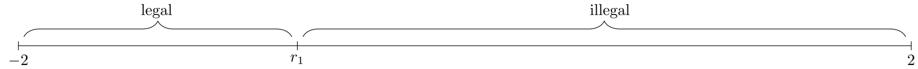

Figure 1. *The case-space model. As we move left to right, searches become more intrusive. Searches below r_1 are permissible under the legal rule and searches that fall above r_1 are impermissible.*

The preferences of judges over legal rules are typically modeled with standard loss functions (e.g., $U_i(r) = (I - r)^2$ or $U_i(r) = -|I - r|$, where I is the judge's ideal rule and r is the rule being evaluated.) Intuitively, such functional forms capture the notion that rules shape the disposition of cases, and that rules that are closer to the judge's most preferred rule are more likely to "get things right" (Lax 2012). Importantly, these functional forms also imply that rule preferences are symmetric: A judge is equally sensitive to deviations from her most preferred rule towards the left (rules that become more restrictive) and towards the right (rules that become more permissive). It is this symmetry that is the focus of our argument.

Consider the micro-foundations of judicial preferences over legal rules, that is, *why* do judges prefer one legal rule over another? There are, of course, a number of ways in which one could answer this question. But one particularly plausible and prominent way to do so – implicit in much of the literature on the case-space model – is the assumption that what judges ultimately care about is how interactions among individuals and between individuals and the state are ordered. Because legal rules affect these interactions by instructing lower courts on how to resolve disputes and (more importantly) by shaping individual behavior in anticipation of how courts would handle disputes that arise, judges have derived preferences over legal rules: Rules that order (from the judge's point of view) more of these interactions correctly are preferred to rules that order fewer of them correctly.

The critical point of our argument is that if judicial preferences over rules are ultimately derived from judges' preferences over how these rules structure "real world" interactions, then modeling such preferences as symmetric likely misses an important aspect. To see this intuitively, consider a judge who has to decide whether to sign on to a rule that is somewhat more restrictive than the rule she prefers (i.e., a rule to the left of her most preferred rule) or to sign on to a rule an equivalent distance to the right of her most preferred rule (i.e., a rule that is more permissive than she prefers). While both rules might seem – in an abstract, legal sense – to deviate equally from the judge's ideal rule, this does not imply that each rule will "mis-classify" the same number of interactions. Which rule will incorrectly dispose of a greater number of cases depends on how potential cases are distributed. Are more cases going to be affected by the more permissive rule, or will more be affected by the more restrictive rule?

Consider the search and seizure scenario again. As they go about their work, police will be tempted to engage in certain search techniques more frequently than others. For example, in stopping a car, police will routinely question the driver. Sometimes, they may want to ask the driver to step out of the car, or peek through the windows. On some occasions, they may want to look inside the glove box or the trunk. Only very rarely will officers be tempted to dismantle the car by removing bumpers, tearing upholstery, or removing door panels. Consider a judge who believes that searches up to (but not including) dismantling a car are legally permissible. If forced to choose between a rule that (a) allows dismantling the car, and a rule that (b) bans dismantling the car but also prohibits searches of the trunk, our judge may well prefer the more permissive rule (a) to the more restrictive rule (b) simply because (given that the police will want to dismantle a car only rarely) there are fewer instances in which the permissive rule results in an outcome she disapproves of than under the more restrictive rule.[1]

The implication of this example is clear. To the extent that judicial preferences are rooted in the expectations that judges have about how alternative rules will order political and social interactions, the case space model rests on an implicit assumption about the underlying distribution of potential cases. This "case distribution" should matter to how judges feel about rules: the greater the number of instances in which a rule induces the "wrong" outcome, the worse the rule.

2.1. **Derived rule preferences.** What do derived judicial preferences over legal rules look like when we incorporate the fact that potential future cases are distributed in case space?

[1] Of course, it is not only the *number* of misclassifications that matters, but also how misclassified cases are evaluated. For example, judges might dislike all misclassifications equally, or they might be more bothered by egregious mistakes than minor ones. We return to this issue below, and show that different assumptions in this regard affect the precise asymmetry of derived preferences, but not the general – and central – point that derived rule preferences will be asymmetric.

Because the critical issue is how often a rule misclassifies a potential case, the answer depends on the shape of the underlying case distribution, and on how judges evaluate individual misclassifications. To preserve consistency with traditional case space approaches, we assume a linear loss function for the misclassification of cases. That is, a correctly classified case yields a utility of 0, while an incorrectly classified case at location c yields $-|I - c|$. This leaves the underlying case distribution. To start with the simplest possibility, suppose this distribution is uniform: cases are equally likely to arise in any part of the case space. Using the search and seizure example, it is just as likely that a cop wants to dismantle a car as check the glove compartment. Given this distribution, a rule that is equidistant from the judge's most preferred rule incorrectly categorizes the same number of cases, and this is true no matter what the judge's most preferred rule is. To derive the judge's utility for any legal rule, we integrate the case loss function with respect to the uniform case distribution (letting a and b denote the lower and upper bounds of the support of the distribution):

$$EU_i(r) = \int_a^b -|I - c| \frac{1}{b-a}\, dc = -\frac{(I-r)^2}{2(b-a)} \tag{1}$$

Note that this derived rule utility is the standard quadratic loss function, multiplied by a scale factor that depends on the support of the uniform distribution. Put differently, if judges evaluate misclassified cases according to a linear loss function, then the standard quadratic rule preferences that are often assumed in models of judicial decision-making implicitly assume that the interactions/potential cases that are ordered by the rule are distributed uniformly in case space: all cases are equally likely to arise. We illustrate this case graphically in Figure 2, which plots the uniform case distribution as well as the derived rule utility function for judges with ideal rules at $I = -1$ and $I = 1$.

Now suppose that the case-distribution is *not* uniform. For simplicity, we employ a standard normal distribution with mean 0 and standard deviation s.[2] Given this distribution, for a judge with an ideal point to the right of the mean (i.e., $I > 0$), a rule that is more

[2] We are currently working to generalize this to the highly flexible beta distribution. The beta distribution is defined over the $[0, 1]$ interval and is characterized by two positive parameters, α and β, that determine the shape of the distribution.

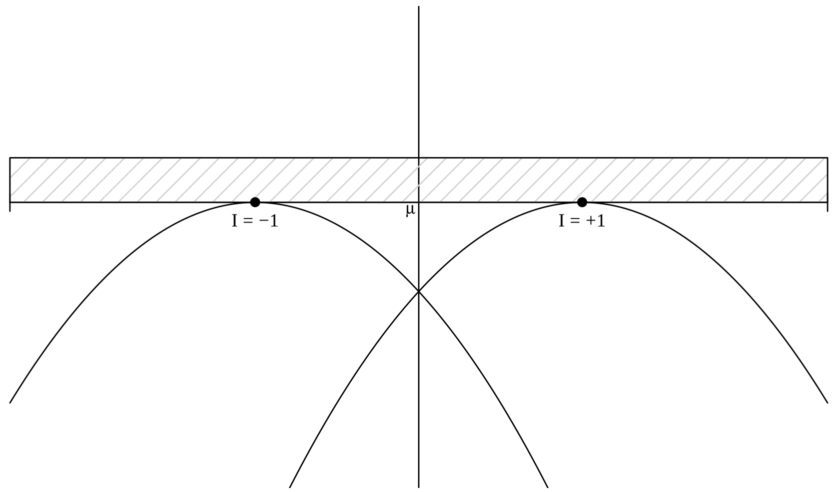

Figure 2. *Derived rule preferences when the underlying case distribution is uniform.*

restrictive than the judge prefers (i.e., a rule to the left of the judge's ideal rule) will classify more cases incorrectly than a more permissive rule that is equidistant to the right (and vice versa for a judge with an ideal rule below the distribution mean). Once again, to derive the judge's utility for any legal rule, we integrate the linear loss function with respect to this standard normal case distribution:

$$EU_i(r) = \int_{-\infty}^{+\infty} -|I - c| \frac{e^{\frac{-c^2}{2s^2}}}{s\sqrt{2\pi}} \, dc\sqrt{2})$$

which reduces to

$$EU_i(r) = \frac{s(e^{\frac{-r^2}{2s^2}} - e^{\frac{-I^2}{2s^2}})}{\sqrt{2\pi}} + \frac{I}{2}(\text{Erf}(\frac{r}{s\sqrt{2}} - \text{Erf}(\frac{I}{s\sqrt{2}})) \tag{2}$$

As Equation 2 makes clear, the derived utility function over rules is considerably more complex, and more difficult to interpret.[3] We therefore illustrate this utility function graphically in Figures 3 and 4, which plot the case distribution alongside the derived rule utility functions for judges with ideal rules at −1, 0, and 2. In Figure 3, we do so while holding the standard deviation of the case distribution at 1. In Figure 4, we increase this standard deviation to 2. Clearly, compared to the uniform case distribution, a very different

[3] The error function (Erf) that appears in this utility function is defined as $\text{Erf}(x) = \frac{2}{\sqrt{\pi}} \int_0^x e^{-t^2} dt$.

picture emerges. Most obviously, the derived rule utility functions are asymmetric (unless the judge's ideal rule is located exactly at the mean of the case distribution). The utility function over rules falls off more drastically in the direction towards the mean of the case distribution, and it is more shallow in the direction away from the mean. Put differently, legal rules that deviate from a judge's most preferred rule in the direction of the mean of the case distribution are worse than rules that are equidistant, but away from the mean of the case distribution. Second, as a comparison of Figures 3 and 4 reveals, as the standard deviation of the case distribution increases, i.e., as cases are more dispersed across case space, rule utility declines less sharply in the neighborhood of the ideal point as we move towards the mean of the distribution, and more sharply as we move away from the mean.

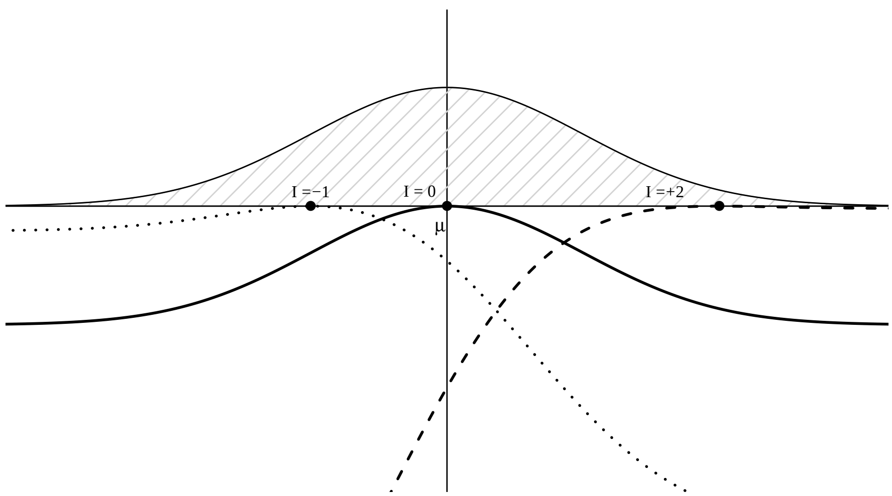

Figure 3. *Derived rule preferences when the underlying case distribution is normal (st.dev.=1).*

The intuition behind these changes is straightforward. Consider first the asymmetry. For judges with ideal rules near the center of the case distribution, rules that deviate from their ideal rule to the left or the right misclassify roughly the same number of cases. But for judges whose ideal rules are located away from the center of the case distribution, deviations from their preferred rule towards the mean of the case distribution are more costly than equivalent distributions away from the mean because deviations towards the mean will misclassify a greater number of future cases. (See the appendix for a mathematical proof of this property.) The change in the degree of drop-off as the standard deviation of the case distribution increases follows from the fact that a more dispersed distribution implies that misclassified cases are distributed more "evenly" on either side of the judge's ideal rule than under a less dispersed distribution.

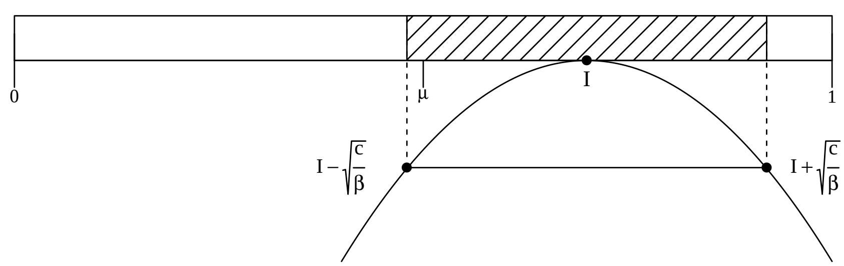

Figure 4. *Derived rule preferences when the underlying case distribution is normal (st.dev.=2).*

3. Approximating Asymmetric Preferences

The closed form expression for the derived rule utility function (based on the assumption that "cases" follow a standard normal distribution) displayed in Equation 2 is cumbersome, and does not easily lend itself to applied work.[4] Fortunately, the economics literature offers a widely-used, tractable utility function that is designed precisely to capture the fact that preferences in a spatially ordered context may be asymmetric. This linear-exponential loss function (LINEX function), first introduced by Varian (1974), approximates the rule utility function we derived above closely. The LINEX function is defined by two parameters: an

[4] We work with the standard normal because it is more tractable; any single-peaked density function would generate similar asymmetries in the derived utility function, but the derived utility functions could be even more complex than equation (2).

ideal point and a shape parameter.[5] The function allows for different directions and degrees of asymmetry about the ideal point, and is given by the following equation, where I is the judge's ideal rule and the shape parameter α determines the direction and degree of asymmetry.

$$U_i(r) = -\frac{e^{\alpha(I-r)} - \alpha(I-r) - 1}{\alpha^2} \tag{3}$$

For positive shape parameters ($\alpha > 0$), the judge's utility drops off more sharply for rules above the ideal rule than for those below. Negative shape parameters ($\alpha < 0$) produce the opposite effect, such that rules that deviate below a judge's ideal rule are worse than those that are equidistant above. In addition to the direction of the asymmetry, the α parameter also determines the severity of the asymmetry in preferences. As $\alpha \to 0$, the LINEX function reduces to the symmetric (quadratic) loss function. As the absolute value of the shape parameter increases, the function drops off more sharply in one direction.

A critical feature of the derived utility function given by Equation 2 is that the direction of asymmetry in the derived rule utility is endogenous to the location of a judge's ideal point relative to the location of the mean of the underlying distribution: The derived utility for legal rules drops off more sharply towards the mean of the underlying case distribution than in the direction away from the mean of the case distribution. To capture this feature in our LINEX approximation, we define the shape parameter (α) according to the distance between the ideal point (I) and the mean of the underlying distribution (μ):

$$\alpha = -(I - \mu) \tag{4}$$

Thus, a judge whose ideal rule is located at the mean of the case distribution has symmetric preferences about this point.[6] Judges whose ideal rule lies to either side of the mean of the case distribution find deviations toward the mean more costly than those away from it. For

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5 LINEX utility functions have been widely employed in the economics literature. Varian (1974) first employed it in the context of real estate appraisals. More recently it has been adopted by scholars to describe central bank preferences, a context in which central bankers may be more sensitive to deviations above their inflation targets than deviations below these targets (or vice versa). See Ruge-Murcia (2003); Nobay and Peel (2003); Surico (2007); Sweidan (2008); Ainsley (2013).

6 Recall that as $-(I - \mu) \to 0$, the LINEX function reduces to the symmetric (quadratic) loss function.

example, consider a judge with an ideal rule below the mean of the underlying distribution ($I < \mu$). This judge has a positive shape parameter ($-(I - \mu) > 0$), which implies that the LINEX function drops off more sharply towards the right than it does towards the left. In other words, the judge evaluates a rule that is below her ideal rule (and away from the mean of the case distribution) more positively than an equidistant rule above her ideal rule in the direction of the mean.

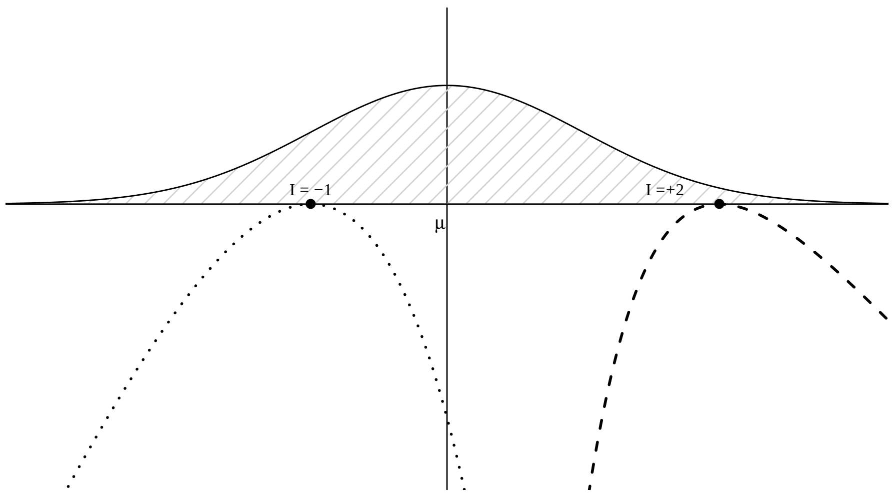

Figure 5. *LINEX approximation of asymmetric rule utility ($\phi = 1$)).*

Finally, to capture the fact that an increasing standard deviation of the case distribution makes (in the vicinity of the judge's ideal point) the drop-off in rule utility in the direction of the case distribution mean more shallow, while increasing the drop-off in the direction away from the mean, we scale the shape parameter by a positive constant ($\phi > 0$).[7] The final LINEX approximation, which we illustrate graphically in Figure 5, is given by the following equation:

[7] Smaller values of ϕ correspond to preferences derived from an underlying case distribution with a larger standard deviation. By scaling down the shape parameter the utility function becomes increasingly symmetric about the judge's ideal point, which is what we observe in the derived function as the underlying distribution becomes more dispersed, and potential cases are more evenly dispersed to either side of the judge's ideal rule. Conversely, when the underlying distribution of cases has a low variance, legal rules that deviate towards the mean will misclassify many potential cases. This corresponds to a large value of ϕ, which scales up the magnitude of the shape parameter and thus the severity of the asymmetry.

$$U_i(r) = -\frac{e^{-\phi(I-\mu)(I-r)} + \phi(I-\mu)(I-r) - 1}{\phi(I-\mu)^2}. \tag{5}$$

4. Do Asymmetric Preferences Matter? Bargaining on a Collegial Court

So far, we have demonstrated that if judges' rule preferences are derived from expectations of how legal rules will structure potential cases, and the distribution of underlying cases is not uniform, derived judicial preferences over rules will be asymmetric. We also introduced a tractable utility function that captures this asymmetry and is "workable" in applied modeling. But this leaves a critical question: Is incorporating such realism regarding judicial preferences useful? If the added complexity of asymmetric preferences has no impact on the fundamental predictions of existing theories of judicial decision-making, then traditional approaches remain perfectly adequate. Our purpose in this section is to answer this question. To do so, we explore how one application, bargaining on a collegial court, is affected by introducing asymmetric rule utility functions. We demonstrate that the legal rules contained in majority opinions can be shaped powerfully by asymmetry in utility functions, as can the composition of the coalitions that sustain such decisions.

The canonical approach to modeling bargaining on a collegial a court is to assume n judges deciding under majority rule, using an open amendment procedure. One judge, generally the opinion writer, proposes a rule, which can then be amended through alternative proposals by the other judges. An "opinion" emerges once the process settles down because no alternative proposal that can secure a majority is forthcoming. In these models, judges typically care only about the rule contained in a decision, and the costs of writing opinions (i.e., making "counterproposals"). The farther the rule is from a judge's ideal rule, the smaller her payoff (Epstein and Knight 1998; Ferejohn and Weingast 1992). These theories generally predict that if counterproposals are costless, opinions will be located at the ideal rule of the median justice. As counterproposals become more costly, opinion writers can exercise influence over opinions to shade the final rule away from the median towards the opinion writer's ideal rule; the larger opinion writing costs, the greater the influence of the opinion writer (Epstein et al. 2005; Martin, Quinn and Epstein 2005; Hammond, Bonneau and Sheehan 2005; Lax and Cameron 2007; Maltzman, Spriggs and Wahlbeck 2000).

Because these models rely solely on the assumption that judges have single-peaked preferences, and bargain only under the constraint imposed by the cost of making counterproposals, the more nuanced shape of an asymmetric utility function would not affect these predictions. However, recent research suggests that these voting models – largely derived from the literature on legislative bargaining – do not adequately capture bargaining on a collegial court. Specifically, there is considerable evidence that judicial opinions are systematically non-median, and that the position of the opinion writer is not sufficient to explain these deviations (Clark and Lauderdale 2010). A number of novel approaches to modeling bargaining on collegial courts provide theoretical accounts that are consistent with these findings (Carrubba et al. 2012; Cameron and Kornhauser N.d.). For these types of models, the shape of the underlying utility function becomes critical, as we illustrate next.

4.1. **Expressive Preferences, Join Regions, and Non-median Outcomes.** We illustrate how the introduction of asymmetric preferences can affect key predictions of existing models by considering a version of the Carrubba et al. (2012) (CFMV) model.[8] The CFMV approach differs from previous approaches in two critical ways. First, in addition to caring about the legal rules embodied in majority opinions, judicial preferences also have an "expressive" component: Justices care about whether an opinion they express public support for (i.e., an opinion they sign) reflects their views, and they find it increasingly costly to sign on to an opinion the more they disagree with its content. Second, the model incorporates the fact that justices who are dissatisfied with the Court's opinion are free to write (at a cost) a concurrence. The ability to write a concurrence matters because it allows justices to

[8] We simplify the CFMV model by eliminating aspects that are irrelevant for the current application, in particular the assumption that justices receive a separate disposition payoff for the current case. Doing so has no impact on the results. It is also consistent with the fact that in the current paper, rule preferences are derived from primitive preferences over dispositions, a step that is not part of the original CFMV model.

side with the majority on the disposition of a case without having to sign on to the legal rule contained in the proposed majority opinion. Put simply, a judge is always free to "say what she thinks" in a concurrence.

The fact that judicial preferences include an expressive component, and that judges are free to write a concurrence, implies that we can characterize judicial behavior with a "join region:" A justice is willing to sign a proposed majority opinion that is located within the "join region" surrounding her ideal point. But if the proposed opinion falls outside this region, the judge will not join and instead write a concurrence (if she agrees with the disposition) or a dissent (if she disagrees with the disposition). The intuition behind these join regions is straightforward. Because judges value establishing binding precedent for rules that they find attractive, and because writing separate opinions is costly, they are willing to sign opinions that are sufficiently close to their ideal rule. However, there is a limit to this willingness: Publicly identifying themselves with an opinion that is not their most preferred is costly, and increasingly costly the further the opinion is from the ideal rule. Because writing separately is always an option, there is a "floor" below which a judge cannot be forced: Once an opinion is too far from the judge's ideal rule, she will simply choose to go her separate way. How "tight" this join region is around the judge's ideal rule depends both on how much she values expressing her views accurately, and how costly it is to write a separate opinion.

To express this idea more formally, consider the following simplified version of the CFMV model. Note that we initially assume – in keeping with conventional approaches – that judicial preferences over legal rules are symmetric. The utility function of judges is comprised of two components: The payoff they receive from the rule established in the majority opinion, and the expressive payoff they receive from the rule with which they identify publicly. We assume that establishing binding precedent precisely at the judge's ideal rule results in a payoff of $K > 0$. We normalize the weight attached to the "rule payoff" to 1, and let $\beta \geq 0$

denote the weight placed on the expressive component of utility.[9] Thus, the utility of a judge with ideal rule I who joins a majority opinion located at r (which implies that she is publicly identified with this rule) is given by

$$U_i(join) = K - (I - r)^2 + \beta(K - (I - r)^2) \tag{6}$$

where the first part of the expression captures the payoff from establishing binding precedent at r, and the second part of the expression captures the expressive benefit of having signed on to this rule.

In contrast, if the judge opts to write a separate opinion, she must pay the cost of writing separately (c), but she can write this separate opinion *precisely* at her ideal point, which provides maximum expressive benefits (but leaves her with the rule payoff associated with the majority opinion at r):

$$U_i(separate) = K - (I - r)^2 + \beta K - c \tag{7}$$

Given these utilities, judge i will join an opinion r that falls in the following interval JI_i:

$$JI_i = [I - \sqrt{\frac{c}{\beta}}, I + \sqrt{\frac{c}{\beta}}] \tag{8}$$

This join interval, illustrated in Figure 6, depends sensibly on the model parameters: The larger the cost of writing a concurrence, the wider the interval becomes, while it becomes more narrow the greater the value placed on expressive benefits. As is intuitive, judges are *less* willing to sign opinions that deviate from their preferred legal rule, the more weight they place on expressive preferences, and the cheaper it is to write separately. Note also that this join interval – derived from standard quadratic preferences – is symmetric about the judge's ideal rule.

The critical step in the CFMV model is that a majority opinion can emerge only if there exists overlap in the join regions for a majority of judges: If such overlap exists, an opinion in the intersection of the join regions can command majority support and establish binding

9 We focus here on the case in which the majority opinion receives five votes, and thus establishes binding precedent. The analysis is essentially unchanged if the opinion does not receive a majority of votes. See the appendix for details.

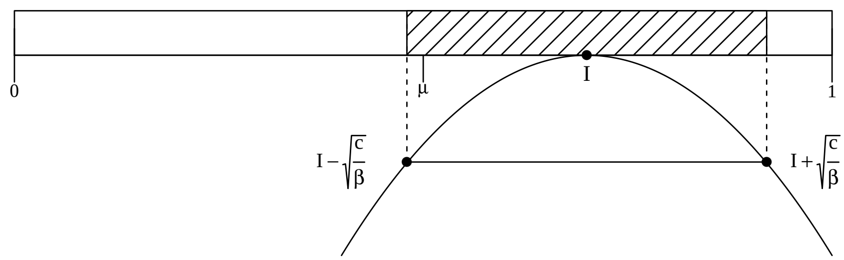

Figure 6. *Justice's join region with symmetric preferences derived from a uniform underlying case distribution.*

precedent. If no such overlap exists, it is impossible to write an opinion that can secure a majority. Formally, letting n denote the number of judges on the court, and letting $k \in [\frac{n+1}{2}, n]$, a majority opinion is possible if and only if is possible to identify k judges, indexed $1, \ldots, k$ such that the following is true:

$$M_S = \{r \mid r \in \cap_{i=1}^{k} JI_i\} \neq \emptyset \tag{9}$$

That is, M_S identifies the set of possible majority opinions for symmetric rule preferences. If this set is non-empty, the majority opinion must be located in it. Where *precisely* in M_S the opinion comes to rest depends on the features of the bargaining process.[10] However, for the critical point we need to show – namely that asymmetric preferences matter for the location of majority opinions and the coalitions that support them – we do not need to impose any specific structure, and can instead contrast how M_S (and therefore any possible equilibrium rule) changes when we impose asymmetric rule preferences.

[10] Carrubba et al. (2012) develop a cooperative solution concept that implies that the majority opinion is located at the ideal point of the median member of the majority coalition if this ideal point is located in M_S. If the ideal point of the the median member of the majority coalition is outside of M_S, the opinion comes to rest at the boundary of M_S closest to the ideal of the median of the majority coalition.

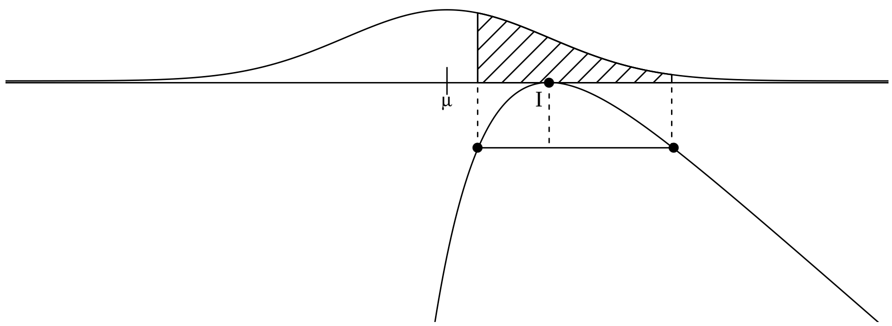

Figure 7. *Justice's join region with LINEX preferences approximating the asymmetric preferences derived from a standard normal underlying case distribution.*

4.2. **Asymmetric Rule Preferences and Join Regions.** Now consider how join regions change once we incorporate asymmetric rule preferences. To demonstrate this, we substitute the LINEX function for the quadratic loss function in the judges' utility functions (setting $\phi = 1$):

(10)

$$U_i(join) = K - \frac{e^{-(I-\mu)(I-r)} + (I-\mu)(I-r) - 1}{(I-\mu)^2} + \beta(K - \frac{e^{-(I-\mu)(I-r)} + (I-\mu)(I-r) - 1}{(I-\mu)^2})$$

$$U_i(separate) = K - \frac{e^{-(I-\mu)(I-r)} + (I-\mu)(I-r) - 1}{(I-\mu)^2} + \beta K - c \tag{11}$$

In Figure 7, we illustrate the join regions implied by these asymmetric utility functions. Most importantly, note that the join intervals are no longer symmetric about the judge's ideal point.[11] Instead, the join region extends *further* from the judge's ideal point in the direction away from the mean of the underlying case distribution, and it is shorter on the side extending towards the mean of the case distribution. This asymmetry reflects the fact that a rule that deviates from the ideal rule towards the mean of the case distribution will

[11] Deriving a closed form expression for the join region, analogous to equation 5 is not possible; however, the properties of the join region under the LINEX function compared to the symmetric utility function can be proven.

misclassify a greater number of potential/future cases than a rule that deviates by the same distance away from the mean of the case distribution. Put in practical terms, a judge is more willing to sign on to an opinion that deviates from her most preferred rule if that deviation occurs in the direction away from the mean of the case distribution (in Figure7, if the rule gets more permissive) than if the deviation is towards the mean of the distribution (in Figure7, if the rule gets more restrictive) because the former rule misclassifies a fewer number of cases.

4.3. **The impact of asymmetric join regions.** We illustrate the impact of these changes in the join regions on the potential location of majority opinions through a series of five figures for a three member court.[12] Each figure compares the set M_S under normal, symmetric preferences to the set M_{AS} that denotes the set of possible majority opinions under asymmetric rule preferences, derived from a single-peaked case distribution. We fix the mean of the underlying distribution at zero, and assume that (counting from the left), judges 2 and 3 are "natural allies" in the sense that their preferences are more aligned with each other than with Judge 1. We shift the location of judicial ideal points relative to the mean of the case distribution as we move across the five figures.[13] The solid lines indicate the set M_S for symmetric rule preferences while the dashed lines indicate the set M_{AS} for asymmetric rule preferences. This exercise yields four substantively important results.

Proposition 1. *Asymmetric rule preferences will produce more extreme majority opinions than symmetric rule preferences.*

Figures 8a and 8b illustrate this proposition. In figure 8a all three judges have ideal rules to the right of the case distribution mean. In figure 8b only the two more closely aligned judges are to the right of the mean. In both cases, the majority opinion is joined by Judges 2

[12] We are currently in the process of completing the formal appendix that will provide formal proofs for the propositions.

[13] In shifting ideal points, we hold the absolute distances between the judges fixed, so that Judge 1 is 2.5 units away from Judge 2, and Judge 2 is 2.25 units away from Judge 3. Doing so ensures that changes we observe are the result of changing positions relative to the case distribution, and not the product of changes in relative distances between the judges.

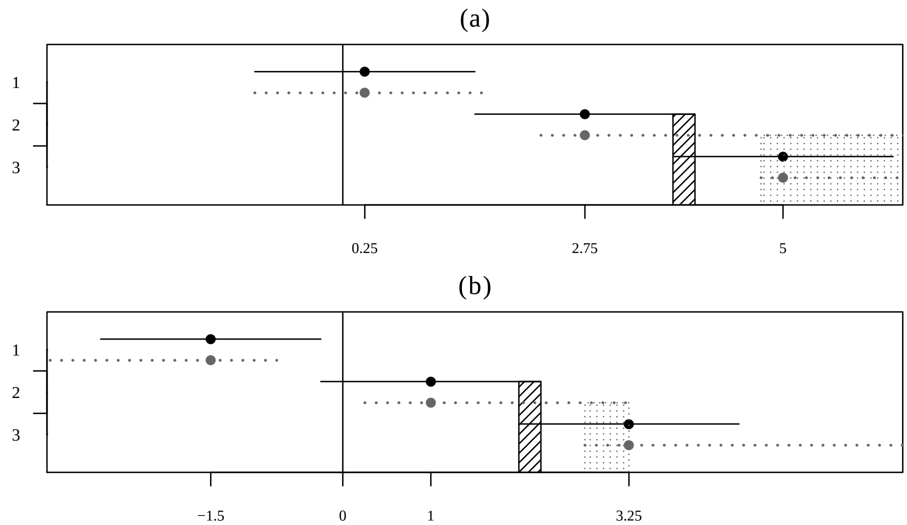

Figure 8. *Join regions for justices with ideal rules at a)* $0.25, 2.75$ *and* 5 *and b)* $-1.5, 1$ *and* 3.25*.* M_S *and* M_{AS} *are denoted by the shaded regions.*

and 3. Importantly, M_{AS} is located to the right of M_S in both cases, which implies that the rule embodied in the majority opinion will be more extreme under asymmetric preferences than under symmetric preferences. This is a result of the fact that in the asymmetric case, join regions shift systematically away from the mean of the case distribution. In short, while opinions in these scenarios are supported by the same majority, the location of rules differs systematically.

The second result demonstrates that majority opinions are more extreme under asymmetric preferences in another sense: The rules announced in majority opinions will be further from the ideal rule of the median judge than under symmetric preferences.

Proposition 2. *The farther majority opinion judges are from the mean of the case distribution, the more the final rule will reflect the preferences of the more extreme judge.*

As can be seen in figures 8a and 8b, M_{AS} is closer to Judge 3's ideal rule than to Judge 2's ideal rule. Further, M_{AS} moves increasingly close to Judge 3 as the two judges move away from the mean of the case distribution. Once again, this results from the fact that the judge's utility functions become increasingly asymmetric as they move away from the mean of the case distribution.

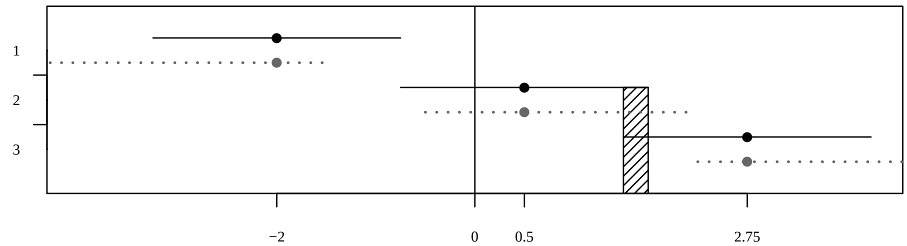

Figure 9. *Join regions for justices with ideal rules at a)* $-2, 0.5$ *and* 2.75. M_S *is denoted by the shaded region.*

Increasing extremity of rules is not the only product of our more nuanced utility functions. In figure 9, we demonstrate a scenario in which Judges 1 and 3 are on opposite sides of the mean of the case distribution, and Judge 2 is relatively close to it. In this case, we might expect an outcome that is "more median." After all, the median judge is relatively centrist, and, being so, has a much more symmetric join region. However, this is not the case. Instead, we find that bargaining completely breaks down: Although the relative distances of the judges have not changed, it is no longer possible to find an opinion that secures majority support. The set M_{AS} is empty.

Proposition 3. *Minority opinions become increasingly likely as the median judge prefers rules close to the mean of the case distribution.*

The intuition behind this proposition is that as the median judge moves closer to the mean of the case distribution, the median's right join-region gets smaller faster than Judge 3's left join-region gets longer. There are simply "too many" potential cases that are affected by the differences in the judge's preferred legal rules; the judges are "divided by the facts." The result is a breakdown in bargaining. More generally, such breakdown is more likely as the median judge's ideal rule approaches the underlying mean.

Another important implication is that majority opinions can be supported by a *different coalition* when preferences are asymmetric rather than symmetric. In figures 10a and 10b Judges 1 and 2 are on the same side of the mean of the case distribution. M_S is located between Judges 2 and 3, and its relative position does not change across the figures. Thus,

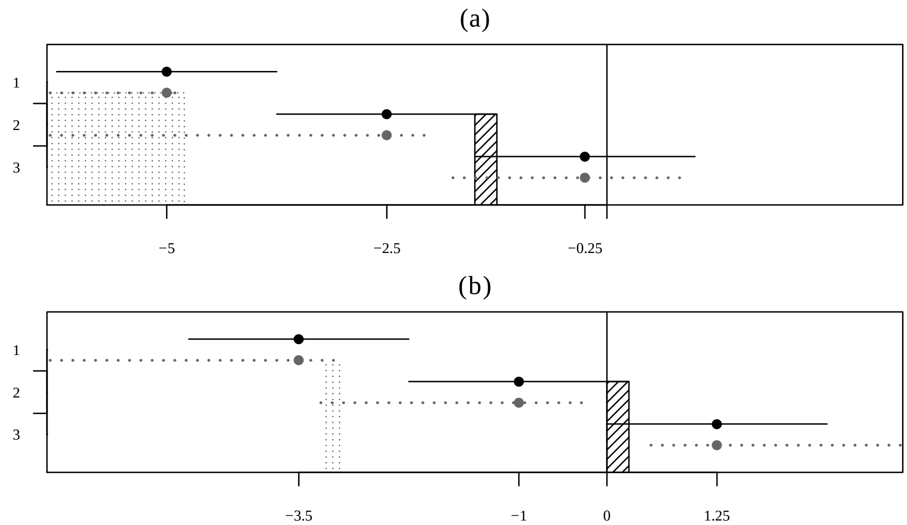

Figure 10. *Join regions for justices with ideal rules at a)* $-5, -2.5$ *and* -0.25 *and b)* $-3.5, -1$ *and* 1.25*.* M_S *and* M_{AS} *are denoted by the shaded regions.*

in the symmetric case, the majority opinion continues to be a compromise between the two judges who are in greater agreement over the ideal rule. The situation is very different in the asymmetric case. Here, M_{AS} emerges from overlap between judges 1 and 2. Moreover, M_{AS} is closer to Judge 1's ideal rule than to the (median) Judge 2. In short, not only is the rule that emerges more extreme (farther from the median judge's preferred rule) than under symmetric preferences, but the majority coalition itself is comprised of different judges.

Proposition 4. *When the median judge is on the same side of the mean of the case distribution as the more distant judge,* M_S *and* M_{AS} *can entail different coalitions.*

Once again, this result is a product of the way in which join regions shift. The farther out from the mean, the shorter the join region towards the mean and the longer the join region away from the mean. The result is that the overlap in join regions for the "natural coalition" disappears, and an overlapping join region with the "extremist" emerges. Of course, this shift does not occur whenever the median is to the left of the underlying mean. The closer the "natural allies" and the more "extreme" the extremist, the farther to the left of the underlying mean the judges need to be for the result to emerge.

5. Conclusion

High courts – most of which are collegial, and therefore require bargaining among a group of justices – are primarily "in the business" of constructing legal rules that structure the social, economic, and political interactions within their polities. Legal rules shape the "order of interactions" both because they instruct lower courts on how to resolve disputes that come before them, but also because they affect how individuals – in their capacity as private citizens and in their capacity as agents of the state – interact with one another in anticipation of how courts would resolve disputes brought to them.

Because legal rules are so central to how judicial decisions affect social and political life, it is not surprising that scholars have expanded considerable energy to understand how judges on collegial courts bargain over legal rules. The formal, game-theoretic literature that has considered this problem (Kornhauser 1992; Lax and Cameron 2007; Lax 2007; Carrubba et al. 2012) – largely in response to important modeling approaches from the literature on legislative bargaining – has typically assumed that judges have symmetric, single-peaked preferences over legal rules.

Our goal in this paper has been twofold. First, we provide a micro-foundation for judicial preferences over legal rules. This foundation rests on the assumption that judges care about legal rules primarily because they care about the "order of interactions" that results from their opinions. They prefer rules that structure more of these interactions in ways that are – from their perspective – "correct" over rules that classify fewer interactions correctly. Critically, this implies that judicial preferences over legal rules do not just depend on judges' legal philosophy and jurisprudential principles. They *also* depend on empirical facts, namely on how frequent different types of interactions are. Importantly, this case distribution will typically *not* be uniform. As we have shown, this implies that judicial preferences over legal rules will be *asymmetric*, that is, judges will be more willing to agree to rules that depart from their more preferred rule in one direction (say, become more permissive) than in the other direction (say, become more restrictive).

The second step in our argument was to demonstrate that such asymmetric preferences can have significant effects for how bargaining on collegial courts proceeds, and what kinds of bargains are struck as a result. Summarizing briefly, the legal rules that emerge from opinions under asymmetric preferences are likely to be more "extreme" than rules that emerge under symmetric preferences (e.g., rules are located further from the ideal rule of the median judge), the composition of the coalition that supports a majority opinion can be different under asymmetric preferences than under symmetric preferences, and it is more likely that bargaining breaks down in the sense that it is not possible for a majority of judges to agree on a joint opinion for the court. In short, asymmetry of preferences over legal rules may have significant implications for the "outputs" produced by collegial courts. Facts – in the sense of how legal rules structure social, economic, and political interactions – matter, and one way to think about what asymmetric rule preferences demonstrate is that judges can be "divided by the facts" as much as by legal disagreements.

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