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## Judicial Choice among Cases for Certiorari

Álvaro Bustos\*

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*How does the Supreme Court choose among cases to grant cert? In a model with a strategic Supreme Court, a continuum of rule-following lower courts, a set of potential cases for revision, and a distribution of future lower court cases, we show that the Court takes the case that will most significantly shape future lower court case outcomes in the direction that the Court prefers. That is, the Court grants cert to the case with maximum salience. If the Court is rather liberal (or conservative), then the most salient case is that which moves the discretionary range of the legal standard as far left (or right) as possible. But if the Court is moderate, then the most salient case will be a function of the skewedness of the distribution of ideologies of the lower courts and the likelihood that future cases will fall within the adjusted discretionary range. The extent of the political alignment of lower courts affects not only substantive lawmaking by the Supreme Court but also the earlier decision of whether to grant a given case cert to begin with.*

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## 1. INTRODUCTION

Public choice of legal issues has long focused on questions of how the Supreme Court shapes its own agenda (e.g., Jacobi 2008; Stearns and Zywicki 2009). Since the 1970s, an extensive empirical literature on certiorari has developed, establishing that ideology significantly shapes a justice's vote on whether to take a case (e.g., Boucher and Segal 1990), as does the ideological positions of the other justices (e.g., Caldeira, Wright, and Zorn 1999). But almost all of this analysis considers the dichotomous decision of whether or not to take a case (e.g., Linzer 1979; McGuire and Caldeira 1993), rather than the public choice question of how to choose between cases that each represent an opportunity to shape doctrine in a given area as well as an opportunity cost.<sup>1</sup> With a limited docket, there are deep economic and legal consequences in taking any given case and not taking other cases. This article considers how the justices choose among cases for cert.

To do so, we utilize a model of doctrinal development that captures common-law decision-making as a gradually diminishing range of discretion: in a unidimensional plane, there are two extreme intervals of determined cases, which bind future decision-making, and an internal interval of remaining discretion, in which lower court judges have freedom to choose (Baker and Mezzetti 2012; Niblett 2013). Each Supreme Court determination further reduces the discretionary range in one direction or the other. This model is an ideal vehicle for analyzing choice over cert because it enables us to represent, in a very simple fashion, the factors that are central to that decision: individual judicial ideology, the overall ideological preferences of the Supreme Court, the level of alignment between the Court and the lower court judges, the range of feasible outcomes of a case, the potential doctrinal impact of a decision, and the distribution of likely future cases. We show that this last factor, although previously seldom considered, is a very important one and leads to results that are not obvious.

When the Court decides which of two cases to take, it is also deciding whether to alter the upper or the lower bound of the doctrinal range. Each option decreases the discretionary range, to a greater or lesser extent, and also shapes the nature of the remaining doctrinal range: altering the lower bar makes the remaining discretionary range more conservative, and altering the upper bar makes the remaining

<sup>1</sup> But see Daughety and Reinganum (2006); Cameron, Segal, and Songer (2000); and Spitzer and Talley (2000), who address the certiorari decision as a strategic game played by the Supreme Court and the lower courts (both appeal and first instance) in which information plays a central role.

discretionary range more liberal. What will ensure that the Court prefers to change the lower bar rather than the upper bar? The answer depends primarily on two factors: first, the extent to which the Court is ideologically aligned with the lower court judges, who will sincerely decide future cases within the newly decreased discretionary range set by the upper and lower bars, one of which will be altered; and, second, the distribution of future cases that the lower courts face. Together, these two factors affect the salience of the chosen case and how significant it can be in shaping future lower court case outcomes in the direction that the Court prefers.

Importantly, when the Supreme Court decides which cases it should consider, it will not always choose cases that move the case law maximally in the direction of the preferences of the current justices. Each case decided by the Court eliminates some of the discretion of lower courts, as it gradually clarifies the law. When lower courts have ideological views that are compatible with the Supreme Court, then the value to the Court of narrowing the discretionary range is mitigated. Then the Court will be better off focusing on cases in which the lower courts are more likely to diverge from the Supreme Court's preferences. Political alignment between the Supreme Court and the lower courts has been shown to affect optimal decisions relating to application of substantive doctrine, such as applying Chevron deference (Cohen and Spitzer 1994), as well as how those doctrines are optimally shaped, for instance, using rules versus standards (Jacobi and Tiller 2007); this article shows that it can also affect the earlier decision of whether to hear a given case.

In particular, we find that ideologically extreme Courts grant cert to cases that unequivocally move the opposite boundary of the discretionary range as close as possible to the ideology of the Court. In contrast, ideologically moderate Courts might decide to move either boundary of the range. The reason for this finding is extreme Courts understand that lower courts with opposing ideologies can be constrained by imposing a discretionary range that is closer to the ideology of the Court because then more cases will be decided by the lower courts in the way that the Court wants. Moderate Courts will face the danger of undesirable lower court rulings in both directions and so will instead focus on granting cert to cases that will adjust the lower court discretion in a way to maximize impact over their future decisions.

We also examine the relative influence of the distribution of expected future cases and lower court ideology. We find that for the Court to alter the lower bar, it is sufficient that all or most of the lower court judges are liberal, regardless of the distribution of the cases (as long as the leftward distribution of cases is nonzero). However, the

reverse is not true: it is not sufficient that all of the cases be likely to arise at the liberal end of the distribution, regardless of the ideologies of the judges. When the distribution of the cases and the lower court judges are concentrated in opposite directions, the two factors play off against each other but the ideology of the lower courts dominates. Then the Court may want to change the lower bound, even if the impact of changing the lower bound is small (the distribution of cases tends to the right), as long as the distribution of the ideologies of the lower courts tends sufficiently leftward. Thus, overall, it is not the distribution but the salience of the cases that matters—that is, the expected effect of the new standard as a product of the number of cases.

This helps explain some seeming puzzles that we see in judicial behavior. In some areas, such as criminal procedure, the Court regularly expends resources taking numerous cases that each make tiny changes in doctrine. In contrast, for a long time, scholars commented that patent law was neglected by the Court and overdue for doctrinal adjustment. Our findings shed new light on these contrasting judicial strategies. In some areas the Court will give close attention to seemingly almost insignificant doctrinal changes, whereas in others it will seemingly neglect opportunities for large doctrinal shifts. More specifically, our baseline model can be extended to show that the opportunity cost of forsaking large changes in one area of law may be compensated by even small changes in other areas because the distribution of expected cases and lower court ideologies can be very different in the different areas of law.<sup>2</sup>

The rest of the article is organized as follows. Section 2 provides additional background and discusses key elements of our model. Section 3 presents the model. Section 4 solves the model and derives the main results. The model is flexible enough to support various extensions. Section 5 presents and discusses seven extensions, showing which assumptions are harmless and which vary the conditions for granting cert: strategic lower courts, cases that cross multiple legal issues, potential overlap between the upper and lower boundaries, a three-justice Court, imperfect knowledge of future lower court cases, changes in the number of petitions for review, and permitting confirmations as well as reversals. In section 6, we conclude.

## 2. KEY CONCEPTS AND BACKGROUND

This section describes the relevant literature, assumptions, our setup, and extensions.

<sup>2</sup> See sec. 5.2, where we allow the Court to choose cases that relate to different areas of law.

## 2.1. Model Framework and Advantages

We incorporate the choice of certiorari into a model of legal evolution developed by Baker and Mezzetti (2012) and Niblett (2013). These authors model judicial learning and doctrinal evolution where sincere judges attempt to hone in on an exogenous optimal threshold between dichotomous outcomes, such as liability and nonliability, which they can only estimate through deciding a series of cases. Prior Supreme Court doctrine establishes high and low bounds, which translate into settled rules: cases above the upper threshold or below the lower threshold will be invalid; cases within the undetermined range are decided at the discretion of the lower court judge. When a new case is decided by the Supreme Court, its ruling sets the new upper or lower bound. Baker and Mezzetti and Niblett use this framework to model doctrinal development. We use it to model choice over cases.

The model is flexible enough to capture not only the standard liberal-conservative division but also variants on the left-right divide, such as individual rights versus state power division, considered here, or a proregulation versus libertarian division, considered later in this article. Consider, for example, Fourth Amendment doctrine concerning when a search warrant is required. A decision that a warrant is presumptively required before police can enter a home initially sets the upper boundary, elucidating a constitutional liberty; a decision that a warrant exemption exists for a public emergency sets the lower boundary, permitting greater state action. A subsequent decision that bringing a drug-sniffing dog onto the curtilage of the home requires a warrant moves the upper bar to the left, moving the remaining discretionary zone leftward, expanding constitutional rights. A decision that a caravan fits within the car exception, and thus does not get the presumption of the home protection, moves the lower bar to the right, expanding state regulatory power. Gradually, the discretionary range decreases. All else being equal, then, a conservative or statist (liberal or libertarian) justice deciding between two cases will want to take the case that will allow the Court to move the lower (upper) boundary farther to the right (left). But we show there is greater complexity to these strategies when the median justice is moderate.

Niblett (2013, 304) argues that this essential framework captures the law and economics view of the common law as a decentralized, sequential evolutionary process of incremental information acquisition, which eventually converges on a legal rule. Expanding Baker and Mezzetti's (2012) and Niblett's model to consider interaction of case types and court ideologies not only further develops that model, but it also contributes more broadly to the certiorari literature in three ways.

First, it allows us to consider the reality of judicial choice between cases. Previously, scholars have examined the factors that go into the up or down vote on a given petition; however, this ignores the trade-offs involved in choosing any given case instead of other alternatives.<sup>3</sup> The Supreme Court receives 7,000 to 8,000 petitions for review each year but chooses approximately 1% for full review. Scholars often disregard unpaid petitions, which traditionally made up half of the Court's cert pool and more recently constitutes three quarters of petitions as frivolous, although this characterization is disputed (Watson 2006). Even ignoring unpaid petitions still leaves approximately 2,000 petitions for the Court to cull down to approximately 80 cases. Even though the size of the Supreme Court's docket has been dropping in recent decades and is predicted to likely remain low (Owens and Simon 2012), the justices report searching for ways to deny each petition, because of the "small amount of available argument time in the face of so many petitions" (Perry 1991, 218–19). This suggests there is still a trade-off between cases, and so in assessing the "certworthiness" of any one petition, the Court must also consider the relative merits and opportunity costs of its other options.<sup>4</sup>

Second, the framework by Baker and Mezzetti (2012) and Niblett (2013) allows us to put the choice over cases and the outcomes that will flow from taking any given case within the existing and ever-changing doctrinal space of which those outcomes will become part. The model maps the doctrinal space as ever decreasing, as more issues are determined over time and to the extent *stare decisis* is respected (see sec. 2.2). This constitutes a fundamental constraint on the impact of any given decision and thus is a major factor over whether any chosen case will have doctrinal significance, yet it is not included in the standard model of cert, in which each case is treated as if decided discretely. The doctrinal landscape defines the potential of, and the limitations for, every case and thus is an important consideration.

Third, utilizing Baker and Mezzetti's (2012) and Niblett's (2013) model allows us to capture other factors within a very simple framework that have been previously shown to affect the choice over cert. This includes both the legal side of the equation with existing doctrinal contours and potential doctrinal impact, as well as the policy

<sup>3</sup> Daughety and Reinganum (2006) and Cameron, Segal, and Songer (2000) consider that there exists an opportunity cost every time the Court chooses any given case but that cost is a constant not related to central issues such as the evolution of the legal doctrine, the decision of the courts, and ultimately the selection among cases.

<sup>4</sup> Perhaps a trade-off always exists simply because different factors affect the opportunity cost of each case, such as work minimization (Posner 1993).

side with the justices' own ideological preferences and the relative ideological positions of the lower court judges. We vary the model by having strategic rather than sincere Supreme Court judges who follow their policy preferences rather than seeking some exogenously defined ideal threshold. We consider the effect of strategic lower court judges as an extension. In addition, we show that the expected distribution of future cases will also have an important effect, a factor that has received far less consideration previously.

In addition to contributing to the cert literature, the results of this model might be of value to the legislative and executive branches in the nomination and confirmation process. The model uncovers non-trivial ways in which the political agents can shape the evolution of Supreme Court doctrine indirectly by influencing the ideological composition of lower courts (see also McNollgast 1995).

## 2.2. Assumptions

The model involves three core assumptions, which we briefly explore here in turn: that the Court will face two sets of cases; that deciding either case will shape the doctrinal discretionary range, which gradually reduces; and that only cases in the discretionary range will be appealed to the Supreme Court.

We characterize each case as the a priori probability that a court with a random, uniformly distributed ideology will decide that case with a liberal decision.<sup>5</sup> Numerous models exist for how courts translate status quos (usually lower court decisions) into majority opinion outcomes (see Jacobi 2009), and we do not replicate that here. For simplicity, we restrict our analysis to the choice between two sets of cases. In one-dimensional preference space, one case on any topic will dominate each set; thus, we treat the choice as between two cases, one at each doctrinal boundary. This is, of course, a simplifying assumption, because minor factual differences between cases could make one case more attractive to a given justice even if it presents a weaker opportunity to shift doctrine in the direction that a justice most prefers. However, the evidence of the Court delaying to address certain cases through its various avoidance doctrines and the justices' own admission of delaying while searching for appropriate vehicles (see Perry

<sup>5</sup> Ultimately the case type relates to its facts. For example, if the question is whether certain evidence should be excluded, the a priori probability that evidence seized in a case where the police had a warrant and clear probable cause will be deemed admissible is much higher than the a priori probability of admissibility where the same evidence was seized without a warrant or clear probable cause.



1991) both support the idea that the justices will seek the one case that offers the best opportunity to address a given issue.<sup>6</sup>

This implies that the revision of a given case can change the discretionary range in only one direction. This is a strong assumption but there are at least three reasons to take this approach. First, allowing for a case revision to modify either end of the discretionary range would permit one of the modifications to introduce a onetime drastic change in the discretionary range. Given the judicial norms of incrementalism, minimalism, percolation, and avoidance, an assumption that favors smaller rather than larger changes is appropriate.<sup>7</sup> Second, by working with these two tethered sets of cases, we are able to capture the Court's choice between whether to alter the upper bar or the lower bar, and so are able to derive interesting and sensitive predictions of how the Court decides between two contending cases for cert. Third, modeling the Court as able to alter either bar is a very complex inquiry, which we have addressed in a stand-alone working paper (Bustos and Jacobi 2019). For now, in section 5.7 we discuss a generalization of our model and show that without this assumption, many of our results hold; some others are particular cases of a more general formulation.

Initially we model the two cases as from one given area of law, but later we consider choice between cases in different areas (see sec. 5.2). Thus we assume that justices do not have complete flexibility in choosing between every possible case outcome on the ideological continuum. This makes sense both because case outcomes need to reflect the position of the majority coalition and also because judges are often restrained in their choice over outcome by the facts of the case, by the procedure of the case particularly whether a particular position has been argued below (Epstein, Segal, and Johnson 1996), as well as by legitimacy constraints; for instance, a justice cannot choose to rule "yes if the party is white, no if the party is black" (Jacobi and Tiller 2007).

In addition, we assume that both lower court judges and the Supreme Court justices are bound by rules of *stare decisis*; that is, the undecided region can only be contracted with each subsequent case and not expanded. Although this constraint is somewhat artificial, it is mostly an accurate description: the justices rejecting their own

<sup>6</sup> To the extent that the cases are not fungible in this way, raising slightly different legal issues because of the differences in the facts, it makes sense to think of those issues as subtopics; then the Court could be choosing to modify the same ideological range more than once, in which case the model applies iteratively to the smaller subset of cases.

<sup>7</sup> This does not mean that large changes in the discretionary range cannot take place within our model, but without the assumption that a case can change only one end, those changes could be very dramatic. For more detail, see sec. 2.3 and n. 9.

reasoning is unusual and costly, and they have established high standards for doing so, including that there has been such significant factual change as to render the fundamental reasoning of the initial rule “intolerable” or “no more than a remnant of abandoned doctrine” (*Planned Parenthood v. Casey*, 505 U.S. 833 [1992]). Baker and Mezzetti (2012) show that reliance on precedent actually arises endogenously, so that judges can conserve resources (528), and that even allowing for revision (i.e., disobedience) of precedent, ordinarily there will be stabilization of precedent anyway (533).<sup>8</sup> Consequently, only cases within the discretionary range are appealed to the higher Court.

Putting these elements together, we treat the Court as choosing between two cases that will change the doctrinal boundaries in different ways. The new boundary will in turn determine the range available to the lower courts in future cases and, thus, the distribution of future Supreme Court options. All other major assumptions are relaxed in section 5.

### 2.3. Setup—Illustration

To illustrate how our model operates, suppose for simplicity that the doctrinal question is what speed constitutes unsafe driving.

As shown in figure 1, the existing discretionary range is 20–80: speeds below 20 miles per hour (mph) are clearly lawful, whereas speeds above 80 mph are unlawful. Our model assumes that the Court will only face petitions with speeds occurring between 20 and 80. The Court faces a set of cases, where the minimum is being tested—we call this set  $\underline{\Theta}$ —and a set of cases where the maximum is being tested—we call this  $\bar{\Theta}$ . Suppose  $\underline{\Theta}$  includes cases with speeds 21, 22, and 28 with  $\theta_B = 28$ , and  $\bar{\Theta}$  includes speeds 75, 76, and 78, with  $\theta_{B+1} = 75$ .<sup>9</sup> We will use the subindex  $B$ , which stands for border case, to denote the case facts that are the most extreme within  $\underline{\Theta}$  that can change the lower boundary of the discretionary range; analogously,  $B + 1$  denotes the case facts that are the most extreme within  $\bar{\Theta}$  that can change the upper boundary of the discretionary range.

<sup>8</sup> They model judges as optimizing between error and decision costs and theorize that errors in precedent may arise if judges do not look closely enough at cases, so as to avoid decision costs (Baker and Mezzetti 2012, 532). They show that as long as decision costs are at least half of error costs, precedent will nonetheless stabilize (Baker and Mezzetti 2012, 533).

<sup>9</sup> Note that if we allowed for any of the points in  $\underline{\Theta}$ , say, 22, to also be part of  $\bar{\Theta}$ , then through a Court decision, the upper boundary of the discretionary range could be shifted from 80 to 22 with one decision. We believe these rather dramatic changes are contrary to judicial norms, as discussed, and rule them out up front. That said, in sec. 5.7 we study the implications of relaxing that assumption.

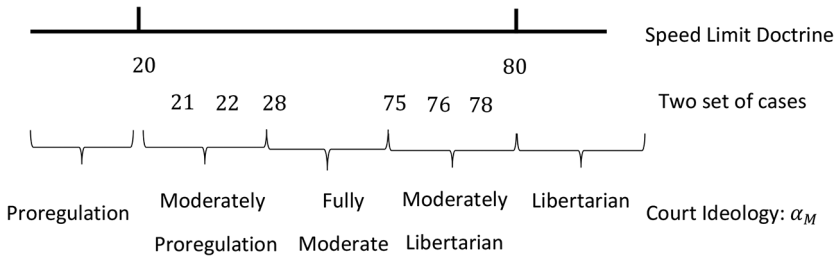


Figure 1. Illustration of the model

The Court has an optimal speed of  $M$ , in which  $M$  stands for the median's ideal. As discussed, the model does not simply need to apply to a liberal-conservative continuum: here, we model a regulatory-libertarian continuum, where libertarians (arguably a branch of conservatives) oppose government restrictions on driving speeds, and proregulators (many liberals) favor government intervention for safety purposes. We call preferences that are lower than 20 or higher than 80 "extreme."  $M$  is "fully moderate" when it is between 28 and 75—between the two closest of the cases in each set. A "moderately proregulation" (or moderately liberal)  $M$  is more than 20 but less than 28. Similarly,  $M$  is "moderately libertarian" (or moderately conservative) when it is under 80 but over 75 (it is under 28 but over 20).

Intuition suggests that the median justice of the Court, weighing two potential cases for cert, would prefer the case that eliminates the maximum extent of the discretionary range that is far from his or her ideological preference, thus binding future lower court judges most stringently to the justice's preferences. We show that this is the optimal decision when the Court is extreme, relative to prior doctrinal determinations. However, we show that when the Court is moderate, then the choice between cases will depend on both the expected heterogeneity of future cases and the position of the Court's ideology relative to the distribution of lower court judges' ideologies. When  $M$  is moderately libertarian/conservative, the Court will want to move the lower threshold to the right as long as the distribution of the ideologies of the lower courts is sufficiently clustered to the left or when the probability of future cases occurring to the left is high. The reverse applies to moderately proregulation/liberal courts.

Our model predicts that, from most likely to least likely, the likelihood of changing the lower bound conditional on the ideology of the Supreme Court is (1) moderately conservative Court, (2) fully moderate Court, and (3) moderately liberal Court.

### 3. THE MODEL

#### 3.1. Players and Legal Standard

The Supreme Court has ideology represented by its median  $\alpha_M \in [0,1]$  in which 0 means most liberal and 1 means most conservative.<sup>10</sup> In addition, there exists a continuum of lower courts with ideologies  $\alpha_L \in [0,1]$  distributed according to density  $F(\alpha_L) = R^+$ ,  $F(\alpha_L) = \int_0^{\alpha_L} f(x)dx$  and  $F(1) = 1$ ,  $F(0) = 0$ . Ideologies are common knowledge.<sup>11</sup>

Initially, the legal standard is defined by parameters  $\{\underline{\theta}, \bar{\theta}\}$  with  $0 \leq \underline{\theta} \leq \bar{\theta} \leq 1$  such that all cases  $\theta \in [0,1]$  in which  $\theta < \underline{\theta}$  must be decided by the lower courts with a conservative decision, and all cases in which  $\theta > \bar{\theta}$  must be decided by the lower courts with a liberal decision; the lower courts have freedom to decide the case with a liberal or conservative decision in all the cases in which  $\theta \in [\underline{\theta}, \bar{\theta}]$ . We call  $[\underline{\theta}, \bar{\theta}]$  the discretion interval (see Bustos and Jacobi 2015).<sup>12</sup>

#### 3.2. Cases and Decisions

In the first period, the Supreme Court faces a set of potential cases  $\Theta = \{\theta_1, \dots, \theta_N\}$  such that  $\theta_i > \theta_j$  if  $i > j$  and  $\theta_i, \theta_j \in [\underline{\theta}, \bar{\theta}]$  for all  $i, j$ . From this set of cases the Court chooses one that we call  $\theta^*$ , to which it grants cert. Because at this point we consider that all the cases relate to the same legal issue/topic, they all share the same legal standard  $\{\underline{\theta}, \bar{\theta}\}$ . We relax this in the extensions in section 5.2. The decision of the Court modifies the standard in the following way: if  $\theta^* \leq \theta_B$ , then  $\underline{\theta} = \theta^*$  and if  $\theta^* > \theta_B$ , then  $\bar{\theta} = \theta^*$  in which  $\theta_B \in \Theta$ . The intuition behind this adjustment of the standard is simple. The subset of cases  $\underline{\Theta} = \{\theta_1, \dots, \theta_B\}$  includes cases that give the Court the opportunity to revise the lower bound of the legal standard (cases that have been decided conservative by lower courts) whereas the subset of cases  $\bar{\Theta} = \{\theta_{B+1}, \dots, \theta_N\}$  includes cases that give the Court the opportunity to revise the upper bound of the legal standard (cases that have been decided liberal by lower courts). Evidently,  $\underline{\Theta} \cup \bar{\Theta} = \Theta$  and  $\underline{\Theta} \cap \bar{\Theta} = \emptyset$ . Later we relax this last assumption in section 5.3.

In the second period, each lower court faces a case  $\mu \in [0,1]$  that is distributed according to density  $g(\mu) \in R^+$ ,  $G(\mu) = \int_0^\mu g(x)dx$  and  $G(1) = 1$ ,

<sup>10</sup> Because our model is symmetric, we can exchange the meaning of the notation to 0 as most conservative and 1 to most liberal.

<sup>11</sup> This is not a universal assumption in the literature. For example, Carrubba and Clark (2012) and McNollgast (1995) assume that the lower courts' preferences are not known.

<sup>12</sup> We are ruling out the possibility that the decisions of lower courts will directly shape the discretion interval (be a source of legal rules).

$G(0) = 0$ . We assume that the lower courts are obedient and follow the legal standard. That is, if  $\mu < \underline{\theta}$ , the lower court votes conservative regardless of its own ideological preferences. If  $\mu > \bar{\theta}$ , the lower court votes liberal regardless of its own ideological preferences. But if  $\mu \in [\underline{\theta}, \bar{\theta}]$ , the court votes according to its preferences. That is, if  $\alpha_L < \mu$ , it makes a liberal decision, but it makes a conservative decision if  $\alpha_L > \mu$ . Notice that the probability that the lower court type  $\alpha_L$  votes conservative is  $G(\underline{\theta})$  if  $\alpha_L < \underline{\theta}$ , it is  $G(\alpha_L)$  if  $\alpha_L \in [\underline{\theta}, \bar{\theta}]$ , and it is  $G(\bar{\theta})$  if  $\alpha_L > \bar{\theta}$ .

### 3.3. Payoffs

The Supreme Court gets payoff 1 when a lower court decides a case in the way in which it would like and 0 otherwise. The Court would like a case to be decided liberal when  $\alpha_M < \mu$  and conservative when  $\mu < \alpha_M$ . Table 1 summarizes the expected utility of the Court, which we denote  $U(\alpha_M)$ , before it makes any adjustment to the standard.

We only explain the calculation when  $\alpha_M < \underline{\theta}$ . The details for the other cases can be found in the appendix. When  $\alpha_M < \underline{\theta}$ , the Court expects to get utility

$$\int_0^{\alpha_M} 1 \cdot g(\mu) d\mu + \int_{\alpha_M}^{\underline{\theta}} 0 \cdot g(\mu) d\mu + \int_{\underline{\theta}}^{\bar{\theta}} \left( \int_0^{\mu} 1 \cdot f(x) dx + \int_{\mu}^1 0 \cdot f(x) dx \right) g(\mu) d\mu + \int_{\bar{\theta}}^1 1 \cdot g(\mu) d\mu,$$

which is

$$G(\alpha_M) + 1 - G(\bar{\theta}) + \int_{\underline{\theta}}^{\bar{\theta}} F(\mu)g(\mu)d\mu.$$

The first expression  $G(\alpha_M)$  refers to the cases ( $\mu < \underline{\theta}$ ) that, as the Supreme Court wants, will be decided conservative by the lower courts; the second expression  $1 - G(\bar{\theta})$  refers to the cases ( $\mu > \bar{\theta}$ ) that, as the Supreme Court wants, will be decided liberal by the lower courts. The

**Table 1. Supreme Court Expected Payoff  $U(\alpha_M)$**

When	Then
$\alpha_M < \underline{\theta}$	$G(\alpha_M) + 1 - G(\bar{\theta}) + \int_{\underline{\theta}}^{\bar{\theta}} F(\mu)g(\mu)d\mu$
$\alpha_M \in [\underline{\theta}, \bar{\theta}]$	$G(\underline{\theta}) + 1 - G(\bar{\theta}) + \int_{\underline{\theta}}^{\alpha_M} (1 - F(\mu))g(\mu)d\mu + \int_{\alpha_M}^{\bar{\theta}} F(\mu)g(\mu)d\mu$
$\alpha_M > \bar{\theta}$	$G(\underline{\theta}) + 1 - G(\alpha_M) + \int_{\underline{\theta}}^{\bar{\theta}} (1 - F(\mu))g(\mu)d\mu$

third expression,  $\int_{\underline{\theta}}^{\bar{\theta}} F(\mu)g(\mu)d\mu$ , refers to the cases that within the discretion interval will be decided by the lower courts as the Court wants, that is, those where the lower courts' ideologies are to the left of the case. Mathematically, the expression is the expected cumulative distribution of the judges' ideology when cases belong to the interval  $[\underline{\theta}, \bar{\theta}]$ .<sup>13</sup>

#### 4. SOLUTION OF THE MODEL

##### 4.1. Main Results

We need to characterize different scenarios for the ideology of the Supreme Court. We consider the situation in which the Court is liberal:  $\alpha_M < \underline{\theta}$ ; that is, the preference of the median of the Court is to the left of the lower doctrinal bound. In that scenario it is easy to show that the case the Court chooses for cert is  $\theta^* = \theta_{B+1}$ . To see this, notice that it is in the best interest of the Court to move the discretion interval as far left as possible. The reason is that the lower court gets 0 for all the cases in the interval  $[\alpha_M, \underline{\theta}]$  because all those cases are decided by the lower courts with a conservative decision, but the Court would like a liberal decision. In the interval  $[\bar{\theta}, 1]$  all the lower courts always decide cases as the Court would like, whereas in the interval  $[\underline{\theta}, \bar{\theta}]$  only some of the lower courts (the most liberal) will decide the cases as the Court wants. The best outcome for the Court is to move both the lower and the upper bounds of the discretion interval as far left as possible. That said, the Court cannot move the lower bound farther left because  $\theta_1 > \underline{\theta}$ . Hence, the best the Court can do regarding the lower bound is to leave it as it is. But the Court can move the upper bound to the left, and the maximum effect takes place when  $\bar{\theta} = \theta_{B+1}$ .

Using analogous logic, if the Court is conservative  $\alpha_M > \bar{\theta}$ , then it prefers to move the lower bound as far right as possible, which is equivalent to  $\underline{\theta} = \theta_B$ . Notice that this result for a Court of either extreme ideology (liberal or conservative) does not depend on the distribution of future cases or the distribution of lower courts' ideologies.

Now we discuss the more interesting scenario when the ideology of the Court falls within the discretion interval. We consider three scenarios where  $\alpha_M \in [\underline{\theta}, \bar{\theta}]$ : the Court is moderately liberal, fully moderate, or moderately conservative, within the discretion interval, in contrast to the extreme variants described earlier. In the first scenario, the ideology of the Court is moderately left ( $\underline{\theta} \leq \theta_i < \alpha_M < \theta_{i+1} \leq \dots$

<sup>13</sup> More accurately, it is  $(G(\bar{\theta}) - G(\underline{\theta}))E(F(\mu)|\mu \in [\underline{\theta}, \bar{\theta}])$ . Notice that table 1 tells us that the utility of Court  $-\alpha_M$  increases the closer  $[\underline{\theta}, \bar{\theta}]$  is to  $\alpha_M$ . For example, when  $\alpha_M \in [\underline{\theta}, \bar{\theta}]$ , then  $\{\partial U(\alpha_M)/\partial \underline{\theta}\} = F(\underline{\theta})g(\underline{\theta}) > 0$  and  $\{\partial U(\alpha_M)/\partial \bar{\theta}\} = -(1 - F(\bar{\theta}))g(\bar{\theta}) < 0$ .

$\leq \theta_B \leq \theta_{B+1}$ ), which means that the Court is more liberal than the most extreme (farther right) case within  $\underline{\Theta}$ . In the second scenario, which mirrors the first, the ideology of the Court is moderately right  $\theta_B \leq \theta_{B+1} \leq \dots \leq \theta_j < \alpha_M < \theta_{j+1} \leq \bar{\theta}$ , which means that the ideology of the Court is more conservative than the most extreme (farther left) case within  $\bar{\Theta}$ .<sup>14</sup> The third scenario is that the Court is ideologically fully moderate (i.e., moderate within the range of possibilities where the Court's ideology lies in the discretion interval) with its ideology located between the two sets of cases such that  $\theta_B \leq \alpha_M \leq \theta_{B+1}$ . We show that in all of these scenarios, the selection of the case that the Court wants to review centrally depends on both the heterogeneity of case types and the heterogeneity of lower court judges' ideologies. Contrary to intuition, it is neither the ideological proximity between the Court and the optimal case (see corollary 1) nor the desire to reduce the size of the discretion interval (see corollary 2) that drives the Court's decision.

As the logic behind the results is very similar in all three scenarios, here we explain the intuition when the ideology of the Court is fully moderate ( $\theta_B \leq \alpha_M \leq \theta_{B+1}$ ). Proposition 1 formally characterizes the cases chosen by the Court in all scenarios.

Using the logic of the cases already explained in which  $\alpha_M \leq \underline{\theta}$  and  $\bar{\theta} \leq \alpha_M$ , it is easy to understand that a fully moderate Court chooses between cases  $\theta_B$  and  $\theta_{B+1}$  because all cases in  $\underline{\Theta}$  and to the left of  $\theta_B$  are dominated by  $\theta_B$  and all the cases in  $\bar{\Theta}$  and to the right of  $\theta_{B+1}$  are dominated by  $\theta_{B+1}$ . Table 2 presents a detailed comparison of the expected utility that the Supreme Court obtains if it chooses  $\theta_B$  or  $\theta_{B+1}$ . In the comparison of utilities, we need to distinguish cases that fall within four intervals of the set  $[\underline{\theta}, \bar{\theta}]$ .

Looking first only at the interval  $[\underline{\theta}, \theta_B]$ , the Court prefers to review  $\theta_B$  instead of  $\theta_{B+1}$  because in the first alternative the discretion interval becomes  $[\theta_B, \bar{\theta}]$  rather than  $[\underline{\theta}, \theta_{B+1}]$ . In the first alternative, lower courts decide all the cases within  $[\underline{\theta}, \theta_B]$  as the Court would like with a conservative decision. Instead, in the second alternative (if  $\theta_{B+1}$  is reviewed) the lower courts decide the cases in  $[\underline{\theta}, \theta_B]$  according to their own preferences; that is, only the courts with ideologies  $\alpha_L \geq \theta$  decide as the Supreme Court would like. Following the same logic but because the incentives are reversed, now looking at the interval  $[\theta_{B+1}, \bar{\theta}]$  the Court prefers to review  $\theta_{B+1}$  instead of  $\theta_B$ . That is because by choosing  $\theta_{B+1}$  the Court has certainty that the lower courts will decide as it wants, with a liberal decision, whereas by choosing  $\theta_B$ , the lower courts will decide as the Court would want only with a certain probability. In the other two regions ( $[\theta_B, \alpha_M]$  and  $[\alpha_M, \theta_{B+1}]$ ), the Court is

<sup>14</sup> Note that the cases in which  $\underline{\theta} < \alpha_M < \theta_1 \leq \dots \leq \theta_B \leq \theta_{B+1}$  and  $\theta_B \leq \theta_{B+1} \leq \dots \leq \theta_j < \alpha_M < \bar{\theta}$  are also included here.

**Table 2. Supreme Court Expected Payoffs**

Case Interval	Expected Utility ( $\theta_B$ )	Expected Utility ( $\theta_{B+1}$ )
$[\underline{\theta}, \theta_B]$	$G(\theta_B) - G(\underline{\theta})$	$\int_{\underline{\theta}}^{\theta_B} (\int_{\mu}^1 f(x) dx) g(\mu) d\mu$
$[\theta_B, \alpha_M]$	$\int_{\theta_B}^{\alpha_M} (\int_{\mu}^1 f(x) dx) g(\mu) d\mu$	$\int_{\theta_B}^{\alpha_M} (\int_{\mu}^1 f(x) dx) g(\mu) d\mu$
$[\alpha_M, \theta_{B+1}]$	$\int_{\alpha_M}^{\theta_{B+1}} (\int_{\mu}^{\mu} f(x) dx) g(\mu) d\mu$	$\int_{\alpha_M}^{\theta_{B+1}} (\int_{\mu}^{\mu} f(x) dx) g(\mu) d\mu$
$[\theta_{B+1}, \bar{\theta}]$	$\int_{\theta_{B+1}}^{\bar{\theta}} (\int_{\mu}^{\mu} f(x) dx) g(\mu) d\mu$	$G(\bar{\theta}) - G(\theta_{B+1})$

indifferent between  $\theta_B$  and  $\theta_{B+1}$  because in both alternatives the discretionary range still includes the two subranges ( $[\theta_B, \alpha_M]$  and  $[\alpha_M, \theta_{B+1}]$ ).

It follows that the Court prefers to review  $\theta_B$  rather than  $\theta_{B+1}$  if and only if

$$\underbrace{G(\theta_B) - G(\underline{\theta}) + \int_{\theta_{B+1}}^{\bar{\theta}} F(\mu)g(\mu)d\mu}_{\text{SC chooses } \theta_B} > \underbrace{G(\bar{\theta}) - G(\theta_{B+1}) + \int_{\underline{\theta}}^{\theta_B} (1 - F(\mu))g(\mu)d\mu}_{\text{SC chooses } \theta_{B+1}} \tag{1}$$

which can be rewritten as

$$\int_{\underline{\theta}}^{\theta_B} F(\mu)g(\mu)d\mu > \int_{\theta_{B+1}}^{\bar{\theta}} (1 - F(\mu))g(\mu)d\mu \tag{2}$$

or

$$\underbrace{\frac{\int_{\underline{\theta}}^{\theta_B} F(\mu)g(\mu)d\mu}{G(\theta_B) - G(\underline{\theta})}}_{\substack{\text{Expected Pbb with which} \\ \theta \in [\underline{\theta}, \theta_B] \text{ is decided Liberal}}} \underbrace{[G(\theta_B) - G(\underline{\theta})]}_{\text{Pbb that } \theta \in [\underline{\theta}, \theta_B]} > \underbrace{\frac{\int_{\theta_{B+1}}^{\bar{\theta}} (1 - F(\mu))g(\mu)d\mu}{G(\bar{\theta}) - G(\theta_{B+1})}}_{\substack{\text{Expected Pbb with which} \\ \theta \in [\theta_{B+1}, \bar{\theta}] \text{ is decided Conservative}}} \underbrace{[G(\bar{\theta}) - G(\theta_{B+1})]}_{\text{Pbb that } \theta \in [\theta_{B+1}, \bar{\theta}]}$$

In words, expression (2) tell us that the Court prefers to review a case that will move the lower bound to the right of the discretion



interval (force the lower courts to decide conservatively in a larger set of cases) when the distribution of the judges' ideologies is adequately skewed to the right or when the probability of future cases taking place in the interval  $[\underline{\theta}, \theta_B]$  is large enough. If the opposite occurs, then the Court prefers to review a case that will move the upper bound to the left of the discretion interval.

If the probability that  $\theta \in [\underline{\theta}, \theta_B]$  is 0, then expression (2) never holds. In contrast, if the probability that  $\theta \in [\theta_{B+1}, \bar{\theta}]$  is 0, then expression (2) always holds. If these two probabilities are not 0, then expression (2) never holds if the judges' ideological types cluster too much to the right.<sup>15</sup> It would then be irrelevant whether the lower bound is  $\underline{\theta}$  or  $\theta_B$ , as a case that falls in that interval will be decided conservative by the lower courts anyway.<sup>16</sup> In contrast, for expression (2) to hold, enough future cases have to take place in the interval  $[\underline{\theta}, \theta_B]$  because if that is not the case, then again it would be irrelevant whether the lower bound is  $\underline{\theta}$  or  $\theta_B$  and then any change of  $\underline{\theta}$  will have minimum impact on the Court's payoff.

To see that it is the skewedness of the judge-type probability distribution and not the skewedness of the case-type probability distribution that determines whether (2) holds, take the case in which  $f(\cdot)$  and  $g(\cdot)$  are the exponential densities in the interval  $[0, 1]$  in which

$$f(x) = \frac{\lambda e^{-\lambda x}}{1 - e^{-\lambda}}; g(x) = \frac{\kappa e^{-\kappa x}}{1 - e^{-\kappa}}.$$

The parameter  $\lambda$  captures the probability by which a lower court ideology is liberal and the parameter  $\kappa$  captures the probability by which a case will be decided conservative by a random lower court. The parameters can take any real value (positive or negative). As is shown in figure 2, the sign of the parameters determines the skewness of the case and ideology types.<sup>17</sup> If the parameter is negative, then it is skewed to the left; the opposite occurs if the parameter is positive. In the particular case in which it takes value 0, the density becomes the uniform distribution.

Plugging the distributions in (2) implies that the Court will choose  $\theta_B$  for revision if

<sup>15</sup> For example, the first term in the left-hand side of (2) is 0 when  $F(\theta) = 0$  for all  $\theta \leq \theta_B$ .

<sup>16</sup> In more general terms, if the ideologies of the judges lean to the right, then  $\int_{\underline{\theta}}^{\theta_B} F(\mu)g(\mu)d\mu$  becomes small and  $\int_{\theta_{B+1}}^{\bar{\theta}} (1 - F(\mu))g(\mu)d\mu$  becomes large. Hence, (2) is less likely to hold.

<sup>17</sup> The skewness of the distribution  $f(x)$  is  $\gamma = \{[\lambda^2 e^{-\lambda}(\lambda + 3e^{-\lambda})(1 + e^{-\lambda}) + 2e^{-3\lambda}(3\lambda + 1) - 2]/[1 - \lambda^2 e^{-\lambda} - e^{-2\lambda}(1 + 2\lambda)]\} \in (-\infty, +\infty)$ , which is strictly decreasing in  $\lambda$ .

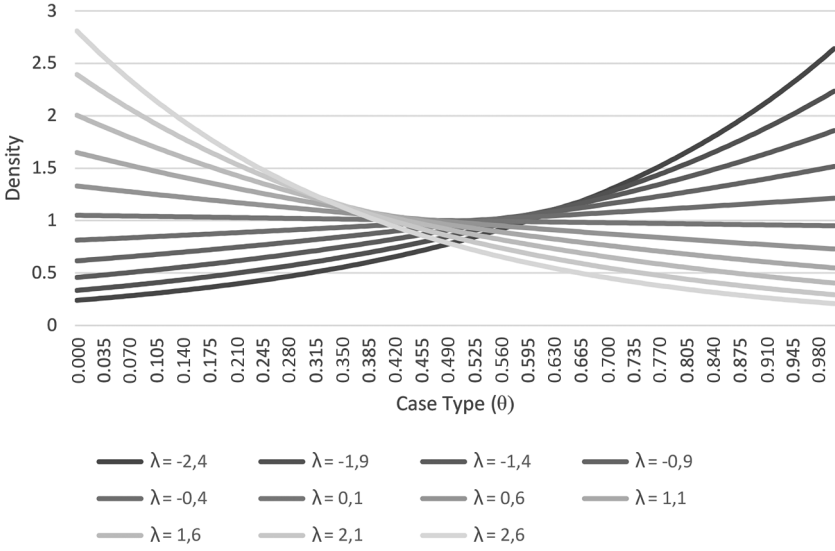


Figure 2. Illustration of the skewedness of  $f(x)$

$$\frac{\kappa}{(1 - e^{-\kappa})(1 - e^{-\lambda})} \left\{ \frac{(e^{-\kappa\theta_{B+1}} - e^{-\kappa\bar{\theta}}) + (e^{-\kappa\bar{\theta}} - e^{-\kappa\theta_M})}{\kappa} - \frac{(e^{-(\lambda+\kappa)\bar{\theta}} - e^{-(\lambda+\kappa)\theta_B}) + (e^{-(\lambda+\kappa)\theta_{B+1}} - e^{-(\lambda+\kappa)\bar{\theta}})}{(\lambda + \kappa)} \right\} \geq \frac{(e^{-\kappa\theta_{B+1}} - e^{-\kappa\bar{\theta}})}{1 - e^{-\kappa}}, \tag{3}$$

which is true for all  $\lambda > \lambda^*(\kappa)$  in which  $\lambda^*(\kappa) > 0$ .<sup>18</sup> This shows that the higher the probability that the distribution of lower court ideologies leans to the left, the more likely that the Court will want to move the discretionary range to the right. The same analysis cannot be applied for  $\kappa$ , which means that even if the distribution of case types leans left, that does not guarantee that the Court will want to move the discretionary range to the right. As such, although the distribution of lower court ideologies determines the preferences of the Court over a case monotonically, the distribution of the cases does so nonmonotonically.

What is different when the Court is moderately liberal ( $\bar{\theta} \leq \theta_i < \alpha_M < \theta_{i+1} \leq \dots \leq \theta_B \leq \theta_{B+1}$ )? The analysis is a little more involved because it is not the case anymore that the Court chooses between  $\{\theta_B, \theta_{B+1}\}$ . It is clear that the Court prefers  $\theta_{B+1}$  among all  $\theta \in \bar{\Theta}$  but it is no

<sup>18</sup> To see this, notice that the right-hand side in (3) does not depend on  $\lambda$  and the left-hand side is strictly increasing in  $\lambda$  such that it takes value  $-\infty$  when  $\lambda = -\infty$  and it takes value  $\{[(e^{-\kappa\theta_{B+1}} - e^{-\kappa\bar{\theta}}) + (e^{-\kappa\bar{\theta}} - e^{-\kappa\theta_M})]/(1 - e^{-\kappa})\} > [(e^{-\kappa\theta_{B+1}} - e^{-\kappa\bar{\theta}})/(1 - e^{-\kappa})]$  when  $\lambda = \infty$ .

longer true that  $\theta_B$  is preferred among all  $\theta \in \underline{\Theta}$ . Because it is clear that  $\theta_{i+1}$  is preferred to all  $\theta \in \underline{\Theta}$ , such that  $\theta_{i+1} < \theta$ , and  $\theta_i$  is preferred to all  $\theta \in \underline{\Theta}$ , such that  $\theta_i > \theta$ , the Court first has to choose between  $\{\theta_i, \theta_{i+1}\}$  and then compare it with  $\theta_{B+1}$ .<sup>19</sup>

It is straightforward to see that the Court prefers to grant certiorari to  $\theta_i$  instead to  $\theta_{i+1}$  when expression (4) holds:

$$\int_{\alpha_M}^{\theta_{i+1}} F(\mu)g(\mu)d\mu > \int_{\theta_i}^{\alpha_M} F(\mu)g(\mu)d\mu. \quad (4)$$

Expression (4) makes reference to the only cases that will be decided differently by the lower courts if the Court sets the new lower bound of the discretionary range as  $\theta_i$  instead of  $\theta_{i+1}$ . First, in the interval  $[\theta_i, \alpha_M]$ , the Court prefers to have lower bound  $\theta_{i+1}$  because then lower courts always resolve cases with a conservative decision, as the Court would like. Instead, if the lower bound is  $\theta_i$ , then only the lower courts with ideology to the right of the case would decide the cases as the Court would like. Hence, the payoff difference in favor of bound  $\theta_{i+1}$  is  $\int_{\theta_i}^{\alpha_M} F(\mu)g(\mu)d\mu$ . Second, in the interval  $[\alpha_M, \theta_{i+1}]$ , the Court prefers to have lower bound  $\theta_i$  because then lower courts sometimes decide with a liberal decision, as the Court would like. Instead if the lower bound is  $\theta_{i+1}$ , lower courts always decide conservative, contrary to the Court preferences. This time the payoff difference in favor of bound  $\theta_i$  is  $\int_{\alpha_M}^{\theta_{i+1}} F(\mu)g(\mu)d\mu$ .

On one hand, if  $\theta_i$  is preferred to  $\theta_{i+1}$  (i.e., expression [4] holds), then next the Court has to compare the utility of revising  $\theta_i$  instead of  $\theta_{B+1}$ . Expression (2) is retrieved but instead of writing  $\theta_B$  we have to write  $\theta_i$ . That is, the Court prefers to adjust the lower bound of the discretion interval (select  $\theta_i$ ) instead of the upper bound (select  $\theta_{B+1}$ ) when

$$\int_{\underline{\theta}}^{\theta_i} F(\mu)g(\mu)d\mu > \int_{\theta_{B+1}}^{\bar{\theta}} (1 - F(\mu))g(\mu)d\mu. \quad (5)$$

On the other hand, if  $\theta_{i+1}$  is preferred to  $\theta_i$  (i.e., expression [4] does not hold), then the Court compares the utility of revising  $\theta_{i+1}$  instead of  $\theta_{B+1}$ . In that case, as we derive in the appendix (table A1), the Court chooses  $\theta_{i+1}$  if

$$\int_{\underline{\theta}}^{\theta_{i+1}} F(\mu)g(\mu)d\mu - 2 \int_{\alpha_M}^{\theta_{i+1}} F(\mu)g(\mu)d\mu > \int_{\theta_{B+1}}^{\bar{\theta}} (1 - F(\mu))g(\mu)d\mu. \quad (6)$$

<sup>19</sup> Recall our example on the speed limit. In fig. 1, possible values for  $\{\theta_i, \theta_{i+1}\}$  are  $\{21, 22\}$ ,  $\{21, 28\}$ ,  $\{22, 28\}$ . Also evidently  $\theta_{B+1} = 75$ . Evidently if  $\underline{\theta} < \alpha_M < \theta_i \leq \dots \leq \theta_B \leq \theta_{B+1}$ , then the Court chooses  $\theta_i$  and has to compare that one with  $\theta_{B+1}$  according to (6).

The regularity of (5) and (6) is that both are less likely to hold than (2). That allows us to conclude that a fully moderate Court is more (less) likely to revise the lower (upper) bound of the discretionary range than a moderately liberal Court. Similarly, we conclude that a moderately conservative Court is more (less) likely to revise the lower (upper) bound of the discretionary range than a fully moderate Court. This conclusion confirms the intuition that the more liberal the Court, the more attractive it is to move the upper bound to the left. However, in the corollary to come, we show that the intuition that a Court will *always* want to reduce the size of the discretionary zone as much as possible is not true.

Even more importantly, the conclusion that the Court prefers to move the lower bound (which becomes  $\theta^*$ ) instead of the upper bound of the discretion interval when the distribution of judges' ideologies is adequately skewed to the right or when the probability of future cases taking place in the interval  $[\underline{\theta}, \theta^*]$  is large enough still holds when the Court is moderately conservative or moderately liberal.<sup>20</sup>

The previous discussion is summarized and formally proved in the next proposition.

**Proposition 1.** (i) If the Supreme Court is very liberal ( $\alpha_M < \underline{\theta}$ ), then the Court moves the discretion interval as far left as possible by choosing to review case  $\theta^* = \theta_{B+1}$ . (ii) If the Supreme Court is very conservative ( $\alpha_M > \bar{\theta}$ ), then the Court moves the discretion interval as far right as possible by choosing to review case  $\theta^* = \theta_B$ . (iii) If the Supreme Court is moderate ( $\underline{\theta} \leq \alpha_M \leq \bar{\theta}$ ), then the Court restricts the discretion interval in its lower bound to  $\theta^*$  if the judges' ideological distribution is adequately skewed to the right or the probability that the case type belongs to the interval  $[\underline{\theta}, \theta^*]$  is large enough. Otherwise, the Court restricts the discretion interval in its upper bound.

The exact value of  $\theta^*$  and the conditions that determine it are provided in the appendix, as is the proof.

Two direct corollaries follow from proposition 1.

**Corollary 1 (Court does not always try to move the discretionary range closer to its own ideology).** If  $\alpha_M \in [\underline{\theta}, \bar{\theta}]$  and  $|\alpha_M - \theta_i| < |\alpha_M - \theta_j|$  with  $\theta_i, \theta_j \in \Theta$ , then the Supreme Court does not necessarily prefer to grant cert to  $\theta_i$  instead of to  $\theta_j$ .

<sup>20</sup> To see that, it is enough to notice that in the left-hand side of (5) appears  $\int_{\underline{\theta}}^{\theta^*} F(\mu)g(\mu)d\mu$  alone, and in (6)  $\int_{\underline{\theta}}^{\theta^*} F(\mu)g(\mu)d\mu$  can be left alone in the left-hand side after  $2 \int_M^{\theta^*} F(\mu)g(\mu)d\mu$  is moved to the right-hand side.

**Proof.** Take the case in which both the cases and the ideologies are uniformly distributed (i.e.,  $f(x) = g(y) = 1$ ). Then (1) becomes

$$\int_{\theta_{B+1}}^{\bar{\theta}} \mu d\mu > \bar{\theta} - \theta_{B+1} - \int_{\underline{\theta}}^{\theta_B} \mu d\mu$$

or

$$(\theta_B - \underline{\theta}) > (\bar{\theta} - \theta_{B+1}) \frac{\left(1 - \frac{\bar{\theta} + \theta_{B+1}}{2}\right)}{\left(\frac{\theta_B + \underline{\theta}}{2}\right)}.$$

Then suppose that  $\underline{\theta} = 0.1$ ;  $\theta_B = 0.2$ ;  $\alpha_M = 0.25$ ;  $\theta_{B+1} = 0.4$ ;  $\bar{\theta} = 0.6$ . Notice that  $\alpha_M - \theta_B = 0.05 < \theta_{B+1} - \alpha_M = 0.15$ . However, (1) is not satisfied because the left-hand side becomes 0.1 and the right-hand side becomes 0.67. Hence, the Court prefers to review  $\theta_{B+1}$ . QED

**Corollary 2 (Court does not always try to reduce the size of the discretionary range).** If  $\alpha_M \in [\underline{\theta}, \bar{\theta}]$  and  $\theta_i - \underline{\theta} < \bar{\theta} - \theta_i$  with  $\theta_i, \theta_j \in \theta$ , then the Court does not necessarily prefer to grant cert to  $\theta_j$  instead to  $\theta_i$ .

**Proof.** If both the cases and the ideologies are exponentially distributed (i.e.,  $f(x) = [\lambda e^{-\lambda x} / (1 - e^{-\lambda})]$ ;  $g(x) = [\kappa e^{-\kappa x} / (1 - e^{-\kappa})]$ ), then (1) becomes

$$\begin{aligned} & \frac{\kappa}{(1 - e^{-\kappa})(1 - e^{-\lambda})} \left\{ \frac{(e^{-\kappa\theta_{B+1}} - e^{-\kappa\bar{\theta}}) + (e^{-\kappa\underline{\theta}} - e^{-\kappa\theta_B})}{\kappa} \right. \\ & \quad \left. - \frac{(e^{-(\lambda+\kappa)\underline{\theta}} - e^{-(\lambda+\kappa)\theta_B}) + (e^{-(\lambda+\kappa)\theta_{B+1}} - e^{-(\lambda+\kappa)\bar{\theta}})}{(\lambda + \kappa)} \right\} \\ & \geq \frac{(e^{-\kappa\theta_{B+1}} - e^{-\kappa\bar{\theta}})}{1 - e^{-\kappa}}. \end{aligned}$$

Then suppose that  $\underline{\theta} = 0.4$ ;  $\theta_B = 0.5$ ;  $\theta_{B+1} = 0.6$ ;  $\bar{\theta} = 0.8$ , and  $\lambda = \kappa = 5$  (both distributions are skewed to the right). Notice that  $\theta_B - \underline{\theta} = 0.1 < \bar{\theta} - \theta_{B+1} = 0.2$ . Then (1) is satisfied because the left-hand side becomes 0.08 and the right-hand side becomes 0.03. Hence, the Court prefers to review  $\theta_B$  even when choosing  $\theta_{B+1}$  would imply reducing the discretionary range more than choosing  $\theta_B$ . QED

The corollaries imply that the common intuition that the Court should always prefer to set a discretion interval that is closer to the

Court's preferences is not true. The salience of the case—that is, its relevance for shaping future expected cases given the prevalence of the lower court ideologies—defies this intuition. Even when the resulting discretion interval is not reduced by as much as it could be, the fact that many more cases will take place in one area of the doctrine implies that the Court could be more interested in making small adjustments to that area instead of making big adjustments in other areas. Alternatively, the fact that a large number of judges could make decisions that are not as the Court would like could also induce the Court to make adjustments in the doctrine in dimensions that appear to be refinements and not major shifts.

#### 4.2. Application

This conclusion can be seen in a number of different areas of the law, and it helps explain Supreme Court behavior that may otherwise appear puzzling. We observe the Court taking multiple cases on some topics that seemingly involve minor shifts in doctrine, which has an opportunity cost in terms of taking cases in other areas that would seem to offer much more significant shifts in doctrine toward the median's ideal point.<sup>21</sup> Different strategies by the same Court appear in different areas of the law, and we believe the value of ideological distance minimization in the case at hand can be overwhelmed by the importance of choosing salient cases that will shape doctrine in future cases.

For instance, until recently, there was a dearth of Supreme Court cases in patent law, despite its obvious importance in affecting diverse economically significant fields from computing to pharmaceuticals. This was so extreme that scholars described the Supreme Court as “invisible,” as having permanently retreated to the “peripheries of patent law” (Janis 2001, 387–88). The Supreme Court had largely delegated authority to the Federal Circuit, the specialized patent court. However, for 20 years, the Federal Circuit had taken advantage of its discretion to choose outcomes far from the Supreme Court's ideal preferences, in what scholars described as a “quiet revolution” by the lower court (Lunney 2004). Eventually, in 2005, the Supreme Court responded, increasing its review of patent cases by 2.5 times (Mandel 2016), and major shifts in doctrine followed, reversing much of that revolution.

<sup>21</sup> Although our main results were derived under the assumption that the Court faces cases that relate to only one legal issue, in sec. 5.2 we show how our analysis and results can be generalized to the reality in which the Court chooses among cases that relate to several legal issues.

In contrast, throughout the 20 years that the Supreme Court was largely ignoring patent law, it was taking a very high number of cases in constitutional criminal procedure every term. In just the second decade of that period, it took 8 cases on the confrontation clause, 12 on the death penalty, and 17 on ineffective assistance of counsel. A few of these cases constituted major changes in doctrine, but most involved very minor shifts. For instance, within confrontation clause doctrine, *Crawford v. Washington*, 541 U.S. 36 (2004), instituted an important change, but the following seven cases dealt with minor variations on the theme. And in its 2010 term, the Supreme Court used one of its 85 cases (*Davis v. United States*, 564 U.S. 229 [2011]) simply to dictate how to treat remnant pending cases affected by its ruling the previous year changing the search incident to arrest exception (*Arizona v. Gant*, 556 U.S. 332 [2009]).

This contrast between patent and constitutional criminal procedure may seem strange, particularly given the economic impact of patent law. However, considered in terms of doctrinal impact, the Court's choice may make more sense. With 2.8% of the adult population under some sort of correctional supervision (Glaze et al. 2015), minor slicing and dicing of very fine differences in criminal procedure could nonetheless have a significant effect on a large supply of cases. Thus sometimes the Court focuses on reducing the discretion interval as much as possible, particularly when lower courts are not trusted agents of the Supreme Court, as eventually occurred in response to the Federal Circuit. At other times, the Court appears more interested in making small adjustments of doctrine that will nonetheless have significant impact. This application compares different areas of law; in the model, we have considered the potential impact of two different cases within one given area of law. The next section considers more formally the effect of looking at cases in different areas among other extensions.

## 5. EXTENSIONS

### 5.1. If Lower Courts Are Strategic

So far we have assumed that lower courts always vote truthfully. That is, if a lower court with ideology  $\alpha_L$  faces a case  $\mu \in [\underline{\theta}, \bar{\theta}]$ , then it votes liberal if  $\alpha_L < \mu$  and votes conservative if  $\alpha_L > \mu$ . In both cases the lower court gets utility 1. If the lower court voted otherwise, then it would get utility 0. Because of this truthful behavior, we took the sets of cases  $\underline{\theta}$  and  $\bar{\theta}$  as exogenously given. However, arguably rational lower courts have incentives to decide cases strategically: because they know that later these cases could be revised by the Court and used to adjust the discretionary range, lower courts could decide cases to set  $\underline{\theta}$  and  $\bar{\theta}$  in

a favorable way. Here we show that unless the expected benefits are very large (low discount rate, reduced uncertainty, or very singular shape in the distribution of cases), the incentives to vote strategically are not present and our assumption that  $\underline{\theta}$  and  $\bar{\theta}$  are exogenously given is harmless.

To see this, we adjust the basic game in a way in which there are three periods instead of two. In the first period, sequentially, each lower court  $i$  faces case  $\mu_i$  and decides it with a liberal or a conservative decision. All the cases decided conservative by the lower courts still belong to  $\underline{\theta}$  (adjusting the lower bar) and all the cases decided liberal by the lower courts still belong to  $\bar{\theta}$  (adjusting the upper bar). In the second period, the Court chooses the case and in the third period the lower courts vote again. That is, the second and third periods define our original basic game where the results from proposition 1 hold. Do courts have incentives to vote untruthfully during the first period? We show that the answer is no.

Suppose that the ideology of the Court is given by  $\alpha_M < \underline{\theta}$  and suppose that so far (because of the decisions made by a subset of lower courts) the sets  $\underline{\theta}$  and  $\bar{\theta}$  are given by  $\underline{\theta} = \{\theta_1, \dots, \theta_B\}$  and  $\bar{\theta} = \{\theta_{B+1}, \dots, \theta_N\}$  such that we know from proposition 1 that if the Court had to choose a case considering only those intervals, it will choose to revise case  $\theta_{B+1}$ . If court  $i$  faces case  $\mu_i \in [\underline{\theta}, \bar{\theta}]$  such that  $\mu_i > \alpha_{i_j}$ , then when the court truthfully votes liberal, it immediately gets utility 1 and in addition the Court grants cert to the case:  $\min\{\theta_{B+1}, \mu_i\}$ . Instead when the court untruthfully votes conservative, it immediately gets 0 and the Court grants cert to the case:  $\theta_{B+1}$ . Then the court always votes truthfully because the utility difference between these two alternatives is  $1 - \int_{\alpha_i}^{\mu_i} g(\mu) d\mu > 0$ .

It is true that we are only considering two periods, but it is also true that we are not considering a discount rate, which if high would further buttress the conclusion that lower courts always vote truthfully during period 1.<sup>22</sup> As such we consider that there is little loss of generality in assuming that  $\underline{\theta}$  and  $\bar{\theta}$  are exogenously given.

## 5.2. When Cases Relate to Several Legal Issues

Our model is flexible enough to make predictions in the more realistic scenario in which the Court faces petitions for revision associated with several legal issues. Suppose that the Court faces a set of case

<sup>22</sup> With multiple periods, this result becomes weaker but very likely will still hold. For the result to reverse, however, the discount factor and the discretionary range would have to be very large and the case type would have to be significantly different from the lower court ideology.



$\Theta^p = \{\theta_1^p, \dots, \theta_N^p\}$  related to patents and a set of cases  $\Theta^c = \{\theta_1^c, \dots, \theta_N^c\}$  related to criminal procedure. The ideologies of the Court in each issue are  $\alpha_M^p$  and  $\alpha_M^c$ , respectively. Once more, we assume that in each of these issues the Court faces a set of cases challenging the lower and the upper boundaries of the discretionary range, which is  $\{\underline{\theta}^p, \bar{\theta}^p\}$  for patents and  $\{\underline{\theta}^c, \bar{\theta}^c\}$  for criminal procedure. That is,  $\underline{\Theta}^p = \{\theta_1^p, \dots, \theta_B^p\}$  and  $\bar{\Theta}^p = \{\theta_{B+1}^p, \dots, \theta_N^p\}$  such that  $\underline{\Theta}^p \cup \bar{\Theta}^p = \Theta^p$  and also  $\underline{\Theta}^c = \{\theta_1^c, \dots, \theta_B^c\}$  and  $\bar{\Theta}^c = \{\theta_{B+1}^c, \dots, \theta_N^c\}$  such that  $\underline{\Theta}^c \cup \bar{\Theta}^c = \Theta^c$ . In addition we denote by  $f^p(\alpha_L) \in R^+$  and  $f^c(\alpha_L) \in R^+$  the distribution of lower court ideologies regarding patents and criminal procedure, respectively, and we denote by  $g^p(\mu) \in R^+$  and  $g^c(\mu) \in R^+$  the distribution of patent and criminal procedure cases respectively.

Then consider the case in which  $\alpha_M^p < \underline{\theta}^p$  and  $\alpha_M^c < \underline{\theta}^c$ : we know from proposition 1 that the Court will chose between  $\theta_{B+1}^p$  and  $\theta_{B+1}^c$ . Although the expected benefit for the Court of changing the discretionary range for patents is  $\int_{\underline{\theta}^p}^{\bar{\theta}^p} (1 - F^p(\mu))g^p(\mu)d\mu$ , the expected benefit of changing the discretionary range for criminal procedure is  $\int_{\underline{\theta}^c}^{\bar{\theta}^c} (1 - F^c(\mu))g^c(\mu)d\mu$ . (Both expressions relate to cases  $\theta \in [\theta_{B+1}, \bar{\theta}]$  that the Court would like to be decided liberal. Although with the old upper bound  $\bar{\theta}$  only lower court judges with ideologies  $\alpha_L < \theta$  will decide the case with a liberal decision, with the new upper bound  $\theta_{B+1}$  all lower courts will decide the case with a liberal decision.)

It follows that the Court will grant cert to the case that revises the discretionary range associated with patent law instead of criminal procedure if

$$\int_{\underline{\theta}^p}^{\bar{\theta}^p} (1 - F^p(\mu))g^p(\mu)d\mu > \int_{\underline{\theta}^c}^{\bar{\theta}^c} (1 - F^c(\mu))g^c(\mu)d\mu.$$

A key assumption of this analysis is that we have assumed that the Court gets the same utility 1 when a lower court decides a case in the way it would like, regardless what legal issue is being discussed.

### 5.3. The Set of Cases Might Overlap

It is feasible that the set of cases that would potentially revise the lower bound of the discretionary range and the set of cases that would potentially revise the upper bound might overlap.<sup>23</sup> That is,  $\underline{\Theta} \cap \bar{\Theta} \neq$

<sup>23</sup> This could arise in two quite different circumstances: first, when the law has been so developed that the discretionary range becomes negligible—Baker and Mezzetti (2012) model this as the goal of the common law; second, when the Court has developed such extensive and flexible precedent that law becomes highly indeterminate—for example, Llewellyn (1950) lists numerous and contradictory canons and counter-canons that he says allow for any decision in any circumstance.

$\emptyset$ , which is equivalent to  $\theta_{B+1} < \theta_B$ . For simplicity, we still assume that  $\theta_1 < \theta_{B+1}$  and  $\theta_B < \theta_N$ . Then it is easy to verify that the results from proposition 1 still hold when the Court is liberal, conservative, or  $\alpha_M < \theta_{B+1}$  or  $\alpha_M > \theta_B$ . However, the conditions that determine the Court's choice will be different when  $\alpha_M \in [\theta_{B+1}, \theta_B]$ . In this last case, the Court will prefer to grant cert to  $\theta_B$  instead of  $\theta_{B+1}$  when

$$\int_{\theta_B}^{\bar{\theta}} F(\mu)g(\mu)d\mu + G(\alpha_M) - G(\underline{\theta}) > \int_{\underline{\theta}}^{\theta_{B+1}} (1 - F(\mu))g(\mu)d\mu + G(\bar{\theta}) - G(\alpha_M). \tag{7}$$

If  $G(\alpha_M) - G(\underline{\theta})$  is equal to  $G(\bar{\theta}) - G(\alpha_M)$ , then we would recover (2) with the roles of  $\theta_B$  and  $\theta_{B+1}$  interchanged. What expressions  $G(\alpha_M) - G(\underline{\theta})$  and  $G(\bar{\theta}) - G(\alpha_M)$  are capturing is that, unlike under the basic formulation, now  $\alpha_M$  will lie outside the discretionary range; if  $\theta_B$  is selected, the Court will be to the left of the range and if  $\theta_{B+1}$  is selected, the Court will be to the right of the range. Hence, expressions  $G(\alpha_M) - G(\underline{\theta})$  and  $G(\bar{\theta}) - G(\alpha_M)$  are telling us that if  $\theta_B$  is selected by the Court, then lower courts will tend to resolve more cases to the right of the Court, in the way the Court would like. The opposite happens if  $\theta_{B+1}$  is selected by the Court.

Because now  $\theta_{B+1} < \theta_B$ , we cannot simply compare (2) and (7) but (7) can be re-expressed as

$$\int_{\underline{\theta}}^{\theta_{B+1}} F(\mu)g(\mu)d\mu > \int_{\theta_B}^{\bar{\theta}} (1 - F(\mu))g(\mu)d\mu + G(\theta_B) - G(\alpha_M) - [G(\alpha_M) - G(\theta_{B+1})],$$

and if we assume that  $\theta_B$  and  $\theta_{B+1}$  from the basic model are equal to  $\theta_{B+1}$  and  $\theta_B$  from this new formulation, we conclude that (7) is more likely to hold than (2) if and only if cases tend to fall more frequently in the interval  $[\theta_{B+1}, \alpha_M]$  than in the interval  $[\alpha_M, \theta_B]$ .

### 5.4. A Three-Justice Court

We show here that it is harmless to assume that the ideology of the Court is exclusively represented by the ideology of its median justice  $\alpha_m$  when the median justice is liberal or conservative, but results will depend on more than the ideology for a median who is moderate. To see that, suppose now that the Court is constituted by a liberal, a moderate, and a conservative justice with ideologies  $\{\alpha_L, \alpha_M, \alpha_C\}$ . The

Court uses simple majority rule to determine which case to grant cert.<sup>24</sup>

It is still true that if  $\alpha_M < \underline{\theta}$ , then the Court chooses  $\theta_{B+1}$ , and if  $\alpha_M > \bar{\theta}$ , then the Court chooses  $\theta_B$ . In order to see this is true, notice that when  $\alpha_M < \underline{\theta}$ , both the liberal and the moderate justices have the same preferences, and when  $\alpha_M > \bar{\theta}$ , both the conservative and the moderate justices have the same preferences. Because of simple majority rule, two votes are enough to determine the Court's decision.

But results as summarized in proposition 1 might not hold when  $\alpha_M \in [\underline{\theta}, \bar{\theta}]$ . To illustrate, we assume that the Court is fully moderate:  $\theta_B < \alpha_M < \theta_{B+1}$ . Then, when  $\theta_B < \alpha_L < \alpha_M < \alpha_C < \theta_{B+1}$  or when  $\alpha_L < \underline{\theta} < \theta_B < \alpha_M < \theta_{B+1} < \bar{\theta} < \alpha_C$ , we still have that the Court chooses between  $\{\theta_B, \theta_{B+1}\}$  conditional on

$$\int_{\underline{\theta}}^{\theta_B} F(\mu)g(\mu)d\mu > \int_{\theta_{B+1}}^{\bar{\theta}} (1 - F(\mu))g(\mu)d\mu$$

But in all the other order relations for  $\{\alpha_L, \alpha_M, \alpha_C\}$ , the conditions for proposition 1 might not hold. In particular, it might be that each justice prefers a different case. To see this, suppose that the ideologies of the justices are such that  $\alpha_L < \underline{\theta} < \theta_i < \alpha_M < \theta_{i+1} < \theta_B < \theta_{B+1} < \bar{\theta} < \alpha_C$  and if it is true that  $\int_{\alpha_M}^{\theta_{i+1}} F(\mu)d\mu > \int_{\theta_i}^{\alpha_M} F(\mu)g(\mu)d\mu$  and  $\int_{\underline{\theta}}^{\theta_i} F(\mu)g(\mu)d\mu > \int_{\theta_{B+1}}^{\bar{\theta}} (1 - F(\mu))g(\mu)d\mu$ , then we know that the liberal justice's optimal case is  $\theta_{B+1}$ , the conservative justice's optimal case is  $\theta_B$ , and because of proposition 1, the moderate justice's optimal case is  $\theta_i$ .

In the last scenario, because cycling may occur, coalitions may become relevant.<sup>25</sup> The decision will depend on the details of the case selection process (order of the proposals, discussions, and votes) and in particular on the relative bargaining power of the justices.

## 5.5. Imperfect Prediction of Future Case Distribution

Very likely, the Court will not know the distribution of future cases perfectly.<sup>26</sup> However, if we relax this assumption, the bias in Court beliefs would have to be significantly large to induce the Court to make

<sup>24</sup> We do not include various institutional practices of the Court, such as the rule of four and the conference process, as these elements have been modeled elsewhere (e.g., Lax 2003) and a majority is ultimately the test for the outcome of the case, even if not for whether to take a case.

<sup>25</sup> See Kornhauser and Sager (1993) on the differences between issue votes and case decision votes.

<sup>26</sup> We can expect that the Court will know the current distribution of judges' ideologies and that case distributions will be similar from one term to another, an assumption built into standard tools used by the literature (e.g., Martin and Quinn 2002).

an erroneous decision (e.g., choose to revise case  $\theta_B$  instead of case  $\theta_{B+1}$  when, according to the true distribution of future cases, the Court should revise  $\theta_{B+1}$ ). The reason is that the bias has to rebalance the Court payoffs in a way in which an inequality such as (2) is reversed from the outcome obtained when the true distribution of cases is in place. If, for example, the distribution of cases leans toward the left enough to make (2) hold, then very likely a distribution less left-leaning will still make (2) hold and it will ordinarily require a drastic change to reverse (2). Next we check this more formally.

Without loss of generality, we assume that the Court believes that the distribution of cases is given by  $h(u) = (1 - \varepsilon)g(u) + \varepsilon g'(u)$  in which  $\varepsilon$  is the error,  $g(u)$  is the true distribution, and  $g'(u)$  is a different unknown distribution.<sup>27</sup> We can replicate the analysis that leads us to derive (2) and rewrite it with  $h(u)$  instead of  $g(u)$ . Rearranging terms,

$$\int_{\underline{\theta}}^{\theta_B} F(\mu)g(\mu)d\mu > \left[ \int_{\theta_{B+1}}^{\bar{\theta}} (1 - F(\mu))g(\mu)d\mu + \frac{\varepsilon}{1 - \varepsilon} \left( \int_{\theta_{B+1}}^{\bar{\theta}} (1 - F(\mu))g'(\mu)d\mu - \int_{\underline{\theta}}^{\theta_B} F(\mu)g'(\mu)d\mu \right) \right]. \quad (8)$$

It follows that if (2) holds, then for (8) not to hold,  $\varepsilon$  must be large enough or else  $g'(u)$  must be skewed very differently to  $g(u)$ . To show that, next we evaluate (8) assuming that judges' ideologies are uniformly distributed, case types are exponentially distributed,  $g(u) = (\lambda e^{-\lambda u})/(1 - e^{-\lambda})$ ;  $g'(u) = (\lambda' e^{-\lambda' u})/(1 - e^{-\lambda'})$ , and  $\underline{\theta} = 0,2$ ;  $\theta_B = 0,3$ ;  $\theta_{B+1} = 0,7$ ;  $\bar{\theta} = 0,8$ . For each pair of  $(\lambda, \lambda')$ , table 3 shows the value of  $\varepsilon$  beyond which (8) does not hold given that (2) holds or (8) does hold given that (2) does not hold. Predictions are clear: the more  $g(u)$  leans to one side, the larger is the set of  $g'(u)$  for which (2) and (8) always (for all values of  $\varepsilon$  which in the tables is the case  $\varepsilon = 1$ ) hold and the larger is the error required for only (2) or (8) to hold.

The common law is primarily a system of incremental change; this claim is inherent in the model of Baker and Mezzetti (2012) and Niblett (2013) and evolutionary theories of the common law. As such, ordinarily (2) and (8) will not contradict each other because the distribution of case types at  $t + 1$  should not be that different from those at  $t$ . That inertia in the type of cases will be reflected in a small  $\varepsilon$  and a similar skewedness for  $g(u)$  and  $g'(u)$ . This is only likely not to be true when the Court makes a large enough change in the law in any one case as to present a shock to the distribution of future cases.

<sup>27</sup> The Court only knows  $h(\mu)$ .

Table 3. Values of  $\varepsilon$  beyond Which Only (2) or (8) Holds

$(\lambda, \lambda')^a$	3,1	2,6	2,1	1,6	1,1	0,6	0,1	(0,4)	(0,9)	(1,4)	(1,9)	(2,4)
3,1	1	1	1	1	1	1	1	0,86	0,73	0,64	0,58	0,54
2,1	1	1	1	1	1	1	1	0,82	0,68	0,58	0,52	0,48
1,1	1	1	1	1	1	1	1	0,73	0,55	0,45	0,38	0,34
(0,9)	0,27	0,29	0,32	0,37	0,45	0,60	0,90	1	1	1	1	1
(1,4)	0,36	0,38	0,42	0,47	0,55	0,69	0,93	1	1	1	1	1
(1,9)	0,42	0,44	0,48	0,53	0,62	0,74	0,94	1	1	1	1	1
(2,4)	0,46	0,49	0,52	0,58	0,66	0,77	0,95	1	1	1	1	1

<sup>a</sup>Each row corresponds to a value for parameter and each column corresponds to a value for parameter. The numbers inside the table are values of associated with the two variables.

### 5.6. Number of Petitions for Revisions

It is easy to verify that our results in proposition 1 do not change when we increase or reduce the number of petitions for revisions (parameter  $N$  as a subindex of the set of cases). It is still the case that an extreme Court wants to move the opposite boundary of the discretionary range as close as possible to the ideology of the Court; that is,  $\theta^* = \theta_{B+1}$  when the Court is liberal and  $\theta^* = \theta_B$  when the Court is conservative. Also, equations (2) and (4)–(6) still determine the selections of cases made by a moderate Court.

That said, an interesting effect associated with a change in the value of parameter  $N$  is that it will affect the classification of the Court as moderately liberal, moderately conservative, or fully moderate; therefore, it will affect the probability that the Court chooses to move the upper or lower bound. To see this, suppose that  $\underline{\Theta} = \{\theta_1, \theta_2\}$  and  $\bar{\Theta} = \{\theta_3, \theta_4\}$  such that  $\theta_2 < \alpha_M < \theta_3$ . We compare that scenario to a new scenario (it could be a different year) in which the Court faces cases  $\underline{\Theta} = \{\theta_1, \theta_2, \tilde{\theta}\}$ ;  $\bar{\Theta} = \{\theta_3, \theta_4\}$  such that  $\theta_2 < \alpha_M < \tilde{\theta}$  and  $N = 5$ . Then, whereas in the first scenario ( $N = 4$ ) the decision of the Court is determined by equation (2), in the second scenario ( $N = 5$ ) the decision of the Court is determined by equations (4)–(6). Evidently, it is not the increment in the number of revisions per se that changes the decision of the Court but rather it is its position vis-à-vis the discretionary range.

### 5.7. Confirmations and Reversals

In our basic formulation, we do not distinguish whether the Court decision is a confirmation or a reversal. Here we discuss some elements of an extension to our model, where we relax the central assumption that the Court can only alter the lower boundary, if the case it chooses

is closer to that boundary, and vice versa for the upper boundary. We show that the main result still holds: the decision to confirm or reverse is determined by the ideology of the Court, with a decision that is different for extreme, moderately extreme, and moderate Courts. To more comprehensively model the confirm-reverse decision is complex, because in deciding whether to grant cert, the Court has to consider not only the future payoff associated with the adjustment in the legal doctrine (altering the discretionary range) but also the present payoff for correcting what the Court may consider an erroneous decision. This result warrants its own analysis, and in a working paper (Bustos and Jacobi 2019), we find that, contrary to intuition, the Court does not grant cert to cases with the primary objective of reversing lower court decisions. Rather, extreme Courts reverse more often than confirm decisions, moderately extreme Courts reverse and confirm decisions with equal *ex ante* probabilities, and moderate Courts can go both ways. We generate predictions of which cases are confirmed or reversed as a function of the Court's ideology, the set of cases petitioning for cert, and the probability distributions for future lower court cases and lower court judges' ideologies.

It also still holds that a moderate Court might choose to move the upper or the lower boundary of the discretionary range, which will centrally depend on the distributions of the lower court ideologies and case types. As a novelty, we are able to derive the exact conditions under which the Court will choose a case in order to reverse it or to confirm it. The variation stems from whether the short-term utility is not present (or negligible when compared with the expected utility in the second period): then the Court, both moderate and extreme, would only care about the ideological position of the chosen case.

Suppose that our basic two-period game is changed in the following ways. During the first period, the Court receives a set of petitions  $\Theta^C = \{\theta_1^C, \dots, \theta_B^C\}$ , which are cases that were decided conservatively by lower courts, and a set of petitions  $\Theta^L = \{\theta_1^L, \dots, \theta_B^L\}$ , which are cases that were decided liberal by lower courts. We only know that  $\min\{\theta_1^C, \theta_1^L\} \geq \underline{\theta}$  and  $\max\{\theta_B^C, \theta_B^L\} \leq \bar{\theta}$ . In the first period, the Court gets utility 1 if the revised case is decided as the Court wants.<sup>28</sup> In the second period,  $N$  cases distributed according to  $g(u)$  as before are decided by lower courts with ideologies distributed according to  $f(x)$  as before. As usual,  $\delta$  is the discount factor.<sup>29</sup>

Although we distinguish four scenarios—namely,  $\alpha_M < \underline{\theta}$ ;  $\alpha_M \in [\underline{\theta}, \min\{\theta_1^C, \theta_1^L\}]$ ;  $\alpha_M \in [\min\{\theta_1^C, \theta_1^L\}, \max\{\theta_1^C, \theta_1^L\}]$ ;  $\alpha_M \in [\max\{\theta_1^C, \theta_1^L\}, \bar{\theta}]$ ;

<sup>28</sup> That payoff only applies to the revised case. For example, if the Court reverses  $\theta_j^C$ , that does not imply that all  $\theta_i^C$  with  $j < i$  are also reversed.

<sup>29</sup> We retrieve the results of our basic model if we impose that  $\delta N \gg 1$ .

$\min\{\theta_B^C, \theta_B^L\}$  (we are not considering the symmetric scenarios in which the Court is conservative)—here we only discuss the scenarios in which the Court is liberal ( $\alpha_M < \underline{\theta}$ ) and fully moderate ( $\alpha_M \in [\max\{\theta_1^C, \theta_1^L\}, \min\{\theta_B^C, \theta_B^L\}]$ ).

When the Court is liberal and it is clear that if  $\theta_1^C < \theta_1^L$ , then the Court chooses to reset the upper boundary as  $\theta^* = \theta_1^C$  regardless of the distribution of future cases and ideologies. Not only does the Court maximize the range of cases that the lower courts will decide liberal in the second period (no other case allows the Court to move the upper bound farther left), but also the Court gets utility 1 in the first period because it reverses a decision that was initially decided conservative. Instead if  $\theta_1^L < \theta_1^C$ , the Court chooses to revise and then reset the upper bound,  $\theta_1^L$  instead of  $\theta_1^C$ . if and only if

$$\underbrace{\delta N \int_{\theta_1^L}^{\theta_1^C} g(\mu) d\mu}_{\substack{\text{Future cases in} \\ \theta \in [\theta_1^L, \theta_1^C] \text{ are decided Liberal}}} > \underbrace{1}_{\text{Case is reversed}} + \underbrace{\delta N \int_{\theta_1^L}^{\theta_1^C} \left( \int_0^\mu f(x) dx \right) g(\mu) d\mu}_{\substack{\text{Some future cases in} \\ \theta \in [\theta_1^L, \theta_1^C] \text{ are decided Liberal}}} \tag{9}$$

$$\leftrightarrow \delta N \int_{\theta_1^L}^{\theta_1^C} (1 - F(\mu)) g(\mu) d\mu > 1.$$

Inequality (9) implies that the Court chooses to revise (and confirm)  $\theta_1^L$  instead of  $\theta_1^C$  if there are a large number of lower courts with ideologies clustered to the right of  $\theta_1^C$  and if those lower courts will, in the future, face a large number of cases that belong to the interval  $[\theta_1^L, \theta_1^C]$ .

When the Court is fully moderate, we have to distinguish the four scenarios given by the values of  $\max\{\theta_1^C, \theta_1^L\}$  and  $\min\{\theta_B^C, \theta_B^L\}$ . The characterization will require sequential comparisons in which we would determine whether the Court prefers to revise  $\theta_1^C$  or  $\theta_1^L$ , then  $\theta_B^C$  or  $\theta_B^L$ , and then the winners of the two previous comparisons.<sup>30</sup> In all the scenarios, the distributions of the case types and the ideologies of the lower courts are central. In particular, we retrieve condition (2) as determining the final decision of the Court if the Court prefers to replace the lower bound and the upper bound with two confirmations ( $\theta_1^L$  and  $\theta_B^C$ , respectively) or two reversals ( $\theta_1^C$  and  $\theta_B^L$ , respectively). In that case, the Court would compare operating with intervals  $[\theta_1^L, \bar{\theta}]$  and  $[\underline{\theta}, \theta_B^C]$  (with two confirmations) or intervals  $[\theta_1^C, \bar{\theta}]$  and  $[\underline{\theta}, \theta_B^L]$  (with

<sup>30</sup> For example, if  $\theta_1^C > \theta_1^L$ , then the Court has to compare whether it prefers to set a new discretionary range  $[\underline{\theta}, \theta_1^L]$  or  $[\theta_1^C, \bar{\theta}]$  because clearly  $[\underline{\theta}, \theta_1^L]$  dominates  $[\underline{\theta}, \theta_1^C]$  and  $[\theta_1^C, \bar{\theta}]$  dominates  $[\theta_1^L, \bar{\theta}]$ . The comparison of confirmations  $\theta_1^C$  and  $\theta_1^L$  will have to consider that even when lower courts decide all cases  $\mu < \theta_1^C$  as the Court wants when  $[\theta_1^C, \bar{\theta}]$ , lower courts decide all cases  $\mu > \alpha_m$  as the Court wants when  $[\underline{\theta}, \theta_1^L]$ .

two reversals) in which the results derived in proposition 1 for the case of a fully moderate Court hold.<sup>31</sup>

## 6. CONCLUSIONS

Most models of strategic judicial behavior assume that each justice wants to minimize the distance between his or her own ideology and the determination to be made—be it of the case outcome or of the choice of vehicle—but that approach does not account for varying salience of some cases over others. Judges report that the importance of a case is an important factor in the decision over cert (e.g., Perry 1991) and there is some supporting empirical evidence: for instance, more amicus petitions increase the likelihood of cert being granted (Black and Owens 2009). Our model suggests how importance could be assessed in terms of case salience—that is, the potential impact of the current case on future cases, which is a product of the expected distribution of future cases and the ideologies of lower court judges. The more future cases that can be anticipated to be decided in a given direction by the ruling of a potential case, the greater the significance of the current potential case.

Prior literature recognized that judges are sophisticated manipulators of their agendas, who look ahead to the merit stage when deciding whether to take a given case (e.g., Caldeira, Wright, and Zorn 1999, 550), and that the path-dependent nature of the common law renders the flow of future cases subject to prior determinations (e.g., Hathaway 2001, 129). We have brought these two elements together by considering that justices do not simply consider each case in a vacuum but weigh the relative merits of the choice among cases and by showing how a sophisticated justice will factor in the expected flow and direction of future cases when choosing among cases for certiorari.

Once case salience is considered, the choice over certiorari becomes more complicated than a simple up-down vote in each case, yet we show that nonetheless reliable patterns emerge. Choice among cases hinges on the contours of the existing doctrinal space, the ideology of the Supreme Court, the distribution of ideologies of lower court judges, the frequency of cases expected in a given area, and the interaction of these factors. Our results explain some otherwise puzzling Supreme Court behavior, such as intense focus on one area of the law at the seeming cost of other important areas.

<sup>31</sup> Whether we are dealing with confirmations or reversals, the Court payoff in the first period becomes irrelevant because it is the same under both choices. The same is true in the case that  $\delta N \gg 1$ .



This provides a concept of expected doctrinal impact that can be used by scholars going forward, in both theoretical and formal models, useful not only for models of cert but also for models of judicial decision-making over case outcomes. This has the advantage of providing a bridge between social science models of judicial utility typically focused overwhelmingly on judicial ideology and other understandings of judicial preferences that factor in amplification of the doctrinal impact of a decision.

## APPENDIX

### Derivation of the Values in Table 1

When  $\alpha_m > \bar{\theta}$ :

$$\int_0^{\underline{\theta}} 1 \cdot g(\mu) d\mu + \int_{\underline{\theta}}^{\bar{\theta}} \left( \int_0^{\mu} 0 \cdot f(x) dx + \int_{\mu}^1 1 \cdot f(x) dx \right) g(\mu) d\mu \\ + \int_{\bar{\theta}}^{\alpha_m} 0 \cdot g(\mu) d\mu + \int_{\alpha_m}^1 1 \cdot g(\mu) d\mu,$$

which is

$$G(\underline{\theta}) + 1 - G(\alpha_m) + \int_{\underline{\theta}}^{\bar{\theta}} (1 - F(\mu)) g(\mu) d\mu.$$

When  $\alpha_m \in [\underline{\theta}, \bar{\theta}]$ :

$$\int_0^{\underline{\theta}} 1 \cdot g(\mu) d\mu + \int_{\underline{\theta}}^{\alpha_m} \left( \int_0^{\mu} 0 \cdot f(x) dx + \int_{\mu}^1 1 \cdot f(x) dx \right) g(\mu) d\mu \\ + \int_{\alpha_m}^{\bar{\theta}} \left( \int_0^{\mu} 1 \cdot f(x) dx + \int_{\mu}^1 0 \cdot f(x) dx \right) g(\mu) d\mu + \int_{\bar{\theta}}^1 1 \cdot g(\mu) d\mu,$$

which is

$$G(\underline{\theta}) + 1 - G(\bar{\theta}) + \int_{\underline{\theta}}^{\alpha_m} (1 - F(\mu)) g(\mu) d\mu + \int_{\alpha_m}^{\bar{\theta}} F(\mu) g(\mu) d\mu.$$

**Proof of Proposition 1.** If  $\alpha_m < \underline{\theta}$ , then the Court faces two possibilities. The first one is that the Court restricts the upper bound of the discretion interval, which then becomes  $[\underline{\theta}, \theta^*]$ . Hence, the Court solves

$$\max_{\theta^*} \left\{ G(\alpha_M) + 1 - G(\theta^*) + \int_{\underline{\theta}}^{\theta^*} F(\mu)g(\mu)d\mu \right\}$$

subject to :  $\underline{\theta} < \theta^* < \bar{\theta}$ ,

from where the first-order condition (FOC) becomes  $-(1 - F(\theta^*))g(\theta^*) < 0$  when  $\underline{\theta} < \theta^* < \bar{\theta}$ . This implies that the objective function is decreasing when  $\underline{\theta} < \theta^* < \bar{\theta}$ , which implies that its maximum value in the interval takes place when  $\theta^* = \underline{\theta}$ . As the set of cases from which the Court chooses is discrete, the optimal solution is to choose the smallest case type from  $\bar{\Theta}$ , which is  $\theta_{B+1}$ . The second possibility is that the Court restricts the lower bound of the discretion interval, which then becomes  $[\theta^*, \bar{\theta}]$ . Hence, the Court solves

$$\max_{\theta^*} \left\{ G(\alpha_M) + 1 - G(\bar{\theta}) + \int_{\theta^*}^{\bar{\theta}} F(\mu)g(\mu)d\mu \right\}$$

s.t. :  $\underline{\theta} < \theta^* < \bar{\theta}$ ,

from where the FOC becomes  $-G(\theta^*)f(\theta^*) < 0$  when  $\underline{\theta} < \theta^* < \bar{\theta}$ . As before, this implies that the objective function is decreasing when  $\underline{\theta} < \theta^* < \bar{\theta}$ , which implies once more that its maximum value in the interval takes place when  $\theta^* = \underline{\theta}$ . But this is equivalent to preferring no modifications in the current discretion interval (regardless of whether that is not possible because the best the Court can do is choose the smallest case type from  $\underline{\Theta}$ , which is  $\theta_1$ ). Then the Court prefers the option in which the upper bound is moved to the left. That is,  $\theta^* = \theta_{B+1}$ .

The solution for when  $\alpha_M > \bar{\theta}$  is analogous to the solution when  $\alpha_M < \underline{\theta}$ . This time the solution of the maximization problem is  $\theta^* = \bar{\theta}$ , which implies that the Court chooses the largest case type from  $\underline{\Theta}$ , which is  $\theta_B$ .

The solution is more cumbersome when  $\alpha_M \in [\underline{\theta}, \bar{\theta}]$ . Now the exact value of  $\theta^*$  will depend on the following conditions:

1. If the Court is moderately liberal such that  $\underline{\theta} \leq \theta_i < \alpha_M < \theta_{i+1} \leq \theta_B$ , then  $\theta^* = \theta_i$  if  $\int_{\alpha_M}^{\theta_{i+1}} F(\mu)d\mu > \int_{\theta_i}^{\alpha_M} F(\mu)g(\mu)d\mu$  and  $\int_{\underline{\theta}}^{\theta_i} F(\mu)g(\mu)d\mu > \int_{\theta_{i+1}}^{\bar{\theta}} (1 - F(\mu))g(\mu)d\mu$ . But it is  $\theta^* = \theta_{i+1}$  if  $\int_{\alpha_M}^{\theta_{i+1}} F(\mu)d\mu < \int_{\theta_i}^{\alpha_M} F(\mu)g(\mu)d\mu$  and  $\int_{\underline{\theta}}^{\theta_{i+1}} F(\mu)g(\mu)d\mu - 2 \int_{\alpha_M}^{\theta_{i+1}} F(\mu)g(\mu)d\mu > \int_{\theta_{i+1}}^{\bar{\theta}} (1 - F(\mu))g(\mu)d\mu$ . Otherwise  $\theta^* = \theta_{B+1}$ .
2. If the Court is fully moderate such that  $\theta_B < \alpha_M < \theta_{B+1}$ , then  $\theta^* = \theta_B$  if and only if

$$\int_{\underline{\theta}}^{\theta_B} F(\mu)g(\mu)d\mu > \int_{\theta_{B+1}}^{\bar{\theta}} (1 - F(\mu))g(\mu)d\mu.$$

3. If the Court is moderately conservative such that  $\theta_{B+1} \leq \theta_i < \alpha_M < \theta_{i+1} \leq \bar{\theta}$ , then  $\theta^* = \theta_{i+1}$  if  $\int_{\theta_i}^{\alpha_M} F(\mu) d\mu > \int_{\alpha_M}^{\theta_{i+1}} F(\mu)g(\mu) d\mu$  and  $\int_{\theta}^{\theta_B} F(\mu)g(\mu) d\mu < \int_{\theta_{i+1}}^{\bar{\theta}} (1 - F(\mu))g(\mu) d\mu$ . But it is  $\theta^* = \theta_i$  if  $\int_{\theta}^{\alpha_M} F(\mu) d\mu < \int_{\alpha_M}^{\theta_{i+1}} F(\mu)g(\mu) d\mu$  and  $\int_{\theta}^{\theta_B} F(\mu)g(\mu) d\mu < \int_{\alpha_M}^{\bar{\theta}} (1 - F(\mu))g(\mu) d\mu - \int_{\theta_i}^{\alpha_M} (1 - F(\mu))$ . Otherwise  $\theta^* = \theta_B$ .

Next we explain each subcase separately. When  $\alpha_M \in [\underline{\theta}, \theta_B]$  and the Court chooses to revise  $\theta_{i+1}$ , such that  $\underline{\theta} < \alpha_M < \theta_{i+1} < \theta_B$ , then table 2 becomes table A1.

**Table A1. Supreme Court Expected Payoffs**

Case Interval	Expected Utility ( $\theta_{i+1}$ )	Expected Utility ( $\theta_{B+1}$ )
$[\underline{\theta}, \alpha_M]$	$G(\alpha_M) - G(\underline{\theta})$	$\int_{\underline{\theta}}^{\alpha_M} (\int_{\mu}^1 f(x) dx) g(\mu) d\mu$
$[\alpha_M, \theta_{i+1}]$	0	$\int_{\alpha_M}^{\theta_{i+1}} (\int_{\mu}^{\mu} f(x) dx) g(\mu) d\mu$
$[\theta_{i+1}, \theta_{B+1}]$	$\int_{\theta_{i+1}}^{\theta_{B+1}} (\int_{\mu}^{\mu} f(x) dx) g(\mu) d\mu$	$\int_{\theta_{i+1}}^{\theta_{B+1}} (\int_{\mu}^{\mu} f(x) dx) g(\mu) d\mu$
$[\theta_{B+1}, \bar{\theta}]$	$\int_{\theta_{B+1}}^{\bar{\theta}} (\int_{\mu}^{\mu} f(x) dx) g(\mu) d\mu$	$G(\bar{\theta}) - G(\theta_{B+1})$

It follows that the Court prefers to review  $\theta_i$  rather than  $\theta_{B+1}$  if and only if

$$\underbrace{G(\alpha_M) - G(\underline{\theta}) + \int_{\theta_{B+1}}^{\bar{\theta}} F(\mu)g(\mu) d\mu}_{\text{SC chooses } \theta_i} > \tag{1'}$$

$$\underbrace{G(\bar{\theta}) - G(\theta_{B+1}) + \int_{\underline{\theta}}^{\alpha_M} (1 - F(\mu))g(\mu) d\mu + \int_{\alpha_M}^{\theta_{i+1}} F(\mu)g(\mu) d\mu}_{\text{SC chooses } \theta_{B+1}},$$

which can also be rewritten as

$$\int_{\underline{\theta}}^{\alpha_M} F(\mu)g(\mu) d\mu - \int_{\alpha_M}^{\theta_{i+1}} F(\mu)g(\mu) d\mu > \int_{\theta_{B+1}}^{\bar{\theta}} (1 - F(\mu))g(\mu) d\mu. \tag{2'}$$

The only difference from (2) is that  $\int_{\theta}^{\theta_B} F(\mu)g(\mu) d\mu$  is now replaced by  $\int_{\underline{\theta}}^{\alpha_M} F(\mu)g(\mu) d\mu - \int_{\alpha_M}^{\theta_{i+1}} F(\mu)g(\mu) d\mu < \int_{\underline{\theta}}^{\theta_B} F(\mu)g(\mu) d\mu$ , which implies that (2) is more likely to be satisfied than (2').

When  $\alpha_M \in [\theta_B, \theta_{B+1}]$ , then the Court chooses to revise  $\theta_B$  instead of  $\theta_{B+1}$  when this inequality holds (see main text):

$$\int_{\theta_{B+1}}^{\bar{\theta}} F(\mu)g(\mu) d\mu + \int_{\underline{\theta}}^{\theta_B} F(\mu)g(\mu) d\mu > G(\bar{\theta}) - G(\theta_{B+1}).$$

When  $\alpha_M \in [\theta_{B+1}, \bar{\theta}]$  and the Court chooses to revise  $\theta_i$ , such that  $\theta_{B+1} < \theta_i < \alpha_M < \bar{\theta}$ , then table 2 becomes table A2.

**Table A2. Supreme Court Expected Payoffs**

Case Interval	Expected Utility ( $\theta_M$ )	Expected Utility ( $\theta_i$ )
$[\underline{\theta}, \theta_B]$	$G(\theta_B) - G(\underline{\theta})$	$\int_{\underline{\theta}}^{\theta_B} (\int_{\mu}^1 f(x) dx) g(\mu) d\mu$
$[\theta_B, \theta_i]$	$\int_{\theta_B}^{\theta_i} (\int_{\mu}^1 f(x) dx) g(\mu) d\mu$	$\int_{\theta_B}^{\theta_i} (\int_{\mu}^1 f(x) dx) g(\mu) d\mu$
$[\theta_i, \alpha_M]$	$\int_{\theta_i}^{\alpha_M} (\int_{\mu}^1 f(x) dx) g(\mu) d\mu$	0
$[\alpha_M, \bar{\theta}]$	$\int_{\alpha_M}^{\bar{\theta}} (\int_{\mu}^1 f(x) dx) g(\mu) d\mu$	$G(\bar{\theta}) - G(\alpha_M)$

It follows that the Court prefers to review  $\theta_B$  rather than  $\theta_i$  if and only if

$$\underbrace{G(\theta_B) - G(\underline{\theta}) + \int_{\theta_i}^{\alpha_M} (1 - F(\mu))g(\mu)d\mu + \int_{\alpha_M}^{\bar{\theta}} F(\mu)g(\mu)d\mu}_{\text{SC chooses } \theta_B} > \quad (1)''$$

$$\underbrace{G(\bar{\theta}) - G(\alpha_M) + \int_{\underline{\theta}}^{\theta_B} (1 - F(\mu))g(\mu)d\mu}_{\text{SC chooses } \theta_i},$$

which can also be rewritten as

$$\int_{\underline{\theta}}^{\theta_B} F(\mu)g(\mu)d\mu > \int_{\alpha_M}^{\bar{\theta}} (1 - F(\mu))g(\mu)d\mu - \int_{\theta_i}^{\alpha_M} (1 - F(\mu))g(\mu)d\mu. \quad (2)''$$

The only difference with (2) is that  $\int_{\theta_{B+1}}^{\bar{\theta}} (1 - F(\mu))g(\mu)d\mu$  is now replaced by  $\int_{\alpha_M}^{\bar{\theta}} (1 - F(\mu))g(\mu)d\mu - \int_{\theta_i}^{\alpha_M} (1 - F(\mu))g(\mu)d\mu < \int_{\theta_{B+1}}^{\bar{\theta}} (1 - F(\mu))g(\mu)d\mu$ , implying that (2)'' is more likely to be satisfied than (2).

Next we verify that the Court restricts the discretion interval in its lower bound to  $\theta^*$  if the judges' ideological distribution is adequately skewed to the right or the probability that the case type belongs to the interval  $[\underline{\theta}, \theta^*]$  is large enough. Without loss of generality, assume that the distribution of the judges' ideologies can be written as

$$F(\mu) = \begin{cases} 0 & \text{if } \mu \leq \underline{\mu} \\ \in (0, 1) & \text{if } \mu \in (\underline{\mu}, \bar{\mu}) \\ 1 & \text{if } \mu \geq \bar{\mu} \end{cases}.$$

Then inequality (2) always hold when  $\underline{\mu} = 0$  and  $\bar{\mu} = \theta_{B+1}$  (all the ideologies are to the left of  $\theta_{B+1}$ ) because (2) becomes

$$G(\bar{\theta}) - G(\theta_{B+1}) + \int_{\underline{\theta}}^{\theta_B} F(\mu)g(\mu)d\mu > G(\bar{\theta}) - G(\theta_{B+1}),$$

which is evidently true. On the other hand, if  $\underline{\mu} = \hat{\theta}$  with  $\hat{\theta} \in [\theta_{B+1}, \bar{\theta}]$  and  $\bar{\mu} > \theta_{B+1}$ , then the left side of the inequality becomes  $\int_{\theta_{B+1}}^{\bar{\theta}} F(\mu)g(\mu)d\mu$ , which is smaller than  $G(\bar{\theta}) - G(\theta_{B+1})$ . By continuity, for all values of  $\underline{\mu} < \theta_B$  there always exists a value of  $\bar{\mu}$  such that (2) holds and for all  $\bar{\mu} > \theta_{B+1}$  there exists  $\underline{\mu}$  such that (2) does not hold. That is, (2) always holds when the distribution of lower court ideologies is skewed enough to the right. On the other hand, (2) also holds if  $[G(\theta_B) - G(\underline{\theta})] > \{E[1 - F(\mu) \mid \mu \in (\theta_{B+1}, \bar{\theta})] / \{E[F(\mu) \mid \mu \in (\underline{\theta}, \theta_B)]\}\}[G(\bar{\theta}) - G(\theta_{B+1})]$ , that is, if  $[G(\theta_B) - G(\underline{\theta})]$  is large enough. Using a similar set of steps we can prove the same when  $\alpha_M \in [\underline{\theta}, \theta_B]$  and  $\alpha_M \in [\theta_{B+1}, \bar{\theta}]$ . QED

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