7200
APPEAL AND SUPREME COURTS

Lewis A. Kornhauser
Professor of Law, New York University School of Law
© Copyright 1999 Lewis A. Kornhauser

Abstract

This chapter surveys the economic literature on judicial appeals and collegiality of courts. More general issues concerning judicial administration and court organization are surveyed in a companion chapter.
JEL classification: K4
Keywords: Appellate Courts, Appeals, Adjudication, Supreme Courts

1. Introduction

This chapter reviews the literature concerning several issues raised in the economic analysis of appeal and of supreme courts. These issues overlap those considered in Chapter 7100, Judicial Organization and Administration. Appellate courts in general and supreme courts in particular exist only in hierarchically organized court systems.

Most of the literature has focused on courts in common law countries. Indeed, most models that extend beyond the simplest features of adjudication do so in the context of the political system of the United States. This review consequently shares the parochial focus of the literature. Analyses of appeal in civil law systems and in the context of different political systems would greatly advance understanding of the subject as they often present different institutional features. At least some civil law systems, for example, allow an appellate court to make an independent assessment of the facts of the case, a judgment denied common law courts. Similarly, the highest courts in some civil law jurisdictions hear substantially more cases than the highest courts in common law countries, a fact that may explain, or be explained by, differences in precedential practice and in the style and content of judicial opinions.

2. Explanations of Hierarchy

Appeal, and supreme courts, only arise in court systems which are organized hierarchically. Why does hierarchy occur? Posner (1985) suggested that the primary function of a supreme court was law creation and the insurance of

uniformity of application of law among the lower courts. In addition, he argued that, in the United States, concerns about unreviewable power implied that trial courts would be subject to some supervision. These ideas have not been much elaborated in the literature. Rather, two distinct research strategies have emerged from two different models of adjudication. The 'team' model assumes that all judges in the system share a common objective function - to maximize the number of 'correct' decisions rendered by the system. Hierarchy emerges because it somehow promotes the goal of error minimization. The 'political' (or 'principal-agent') model assumes that judges differ in their objective functions. Hierarchy arises in this model so that the small set of politically dominant judges can enforce their views on recalcitrant judges lower in the hierarchy.

Kornhauser (1995) provides an informal team model that explicitly addresses the question of the optimal organization of *n* judges into a judicial system. Judges share the goal of minimizing the number of errors; the likelihood of a correct decision depends on the amount of effort the judge invests in deliberation on the case. Moreover, deliberation on a specific case also provides a signal about the correct resolution of 'nearby' cases. Because the court faces a resource constraint, the question of optimal organization of judges arises. Kornhauser argues that, in appropriate circumstances, a hierarchy will emerge in which there is (a) division of labor between trial judges who find facts and appellate judges who determine the law; and (b) strict vertical *stare decisis* so that lower court judges will always adhere to the decisions of higher court judges. Models of hierarchy that emphasize the need for consistency as in Rogers (1995) and Dorf (1995) are team models in which the 'correct decision' requires consistency.

3. Team Models of Error Correction

Shavell (1995) is the earliest formal model of error correction. Shavell assumes that the state must decide first, whether to establish both trial and appellate courts or trial courts only; and second, how many resources to devote to each level of court that it establishes. The probability of correct decision by a court increases with increased allocation of resources to that court. The state seeks to minimize social costs which consist of the costs of the judicial system and the costs created by wrongly decided cases. A trial court is characterized by the probability (as a function of state resources) that it will render the wrong decision. Litigants know for certain whether a court has correctly decided their case. An appellate court is characterized by two probabilities (as functions of state resources devoted to appeal): the probability $q(y)$ that an incorrect trial decision will be reversed on appeal and the probability $r(y)$ that a correct trial decision will be reversed on appeal. Litigants know with certainty whether the

court has rendered a correct decision. Litigants face a cost to appeal. It is straightforward to see that, if $q(y) > r(y)$ and if the court can impose fees or give subsidies for appeal, then the state can insure that only cases wrongly decided at trial will be appealed.

Shavell then characterizes the state's optimal strategy by showing when appellate courts should be created and how resources should be divided between trial and appellate levels. He also shows that litigant selection of cases is superior to the random review of trial court decision. When a court undertakes random review of lower court cases, it unnecessarily uses resources to reconsider some correctly decided cases; under litigant selection (with the appropriate subsidies and fees), by contrast, only cases that should be reconsidered are in fact reviewed.

Cameron and Kornhauser (1996) offer a more strategic model of error correction that formalizes a portion of the argument in Kornhauser (1995). Their paper divides into two distinct parts. First, they identify conditions under which it would be desirable to add an additional level of appeal to a court structure. They define the selectivity of a process as the ratio of the proportion of wrongly decided cases that would be appealed to a new tier to the proportion of correctly decided cases that would be appealed to a new tier. They define the error correction ratio as the ratio of the probability that the new appellate court would reverse a wrongly decided case on appeal to the probability that the new appellate court would uphold a rightly decided case on appeal. They prove that an additional tier of review is desirable if the appeals process is sufficiently selective or sufficiently error correcting.

The second part of Cameron and Kornhauser's argument considers a particular technology of review. The correct decision of a case depends on the defendant's type which, initially, is known to the defendant but not to the plaintiff. At trial, the plaintiff, but not the court, becomes fully informed about the defendant's type. A court's ability to discriminate among defendant types is a function of the effort it invests in the case. Litigants incur a cost each time they appeal. Judges seek first to maximize the number of correct decisions; in addition a judge prefers not to be reversed. Cameron and Kornhauser show that, when litigants select cases for appeal, the hierarchy will have three tiers. They also study the process when the appellate courts select cases for review.

4. Political Models of Review

4.1 Models of Pure Adjudication
Political models generally justify appellate review in terms of law making. They do this in large part because the structure of the model requires that interpretation. Each court usually has preferences over policy space. Thus, to

decide a case is to announce a policy, or, put differently, to announce a new legal rule.

Cameron (1993) presents the political model of review in its starkest form. There is one supreme court and *n* lower courts. Each court has spatial preferences over a one-dimensional policy space. There is complete information so that each lower court knows the supreme court's ideal point and the supreme court knows the location in policy space of the decision of each lower court. Each lower court seeks to maximize its utility which depends only on the final decision in the case it decides; the supreme court wants to maximize its utility which is a function of the decisions in all cases. The game has two stages: in stage 1, each lower court issues a decision; in stage 2, the supreme court selects at most only one case for review. There is a unique equilibrium to this game in which each lower court decides its case by announcing the ideal policy point of the supreme court as its decision and the supreme court reviews no case because it has already achieved its optimum utility. No other pattern of lower court decisions is an equilibrium because, in any other pattern, the lower court that will be reversed on appeal has an incentive to alter its strategy.

McNollgast (1995) offers a more elaborate political model, which focuses on conflicts in the policy views of the supreme court, the legislature and the lower courts. To enforce its views the supreme court must both induce lower courts to adhere to its 'doctrine' and avoid reversal through legislation. McNollgast extends the model of Cohen and Spitzer (1994). They consider a three stage game in which the supreme court first identifies the range of acceptable decisions in policy space. In stage 2, the lower courts decide whether to adhere to supreme court 'doctrine'. In stage 3, the supreme court reviews some subset of the lower court decisions; the number of cases reviewed is determined by the supreme court's budget. Each case presents a single issue in a K-dimensional policy space. Each judge has separable, spatial preferences over this policy space, an assumption that reduces a decision in any given case to the framework outlined in Cameron. That is, each judge's preferences can be represented by an ideal point in each dimension such that she prefers any decision closer to that ideal point to one further away. The supreme court has preferences defined over the outcomes of all cases decided within the system but each lower court has preferences defined over its case load only. Moreover, the supreme court does not know either the ideal point of any specific court nor the actual decision rendered by a lower court. The supreme court does know the distribution of ideal points of lower courts and it does know whether a lower court has complied with supreme court doctrine. It will thus choose to review some random sample of non-complying lower courts; upon review it will learn their actual decisions. Several results flow from this model. First, in general, some but not all lower courts will comply with supreme court doctrine; compliance, however, results from the threat of enforcement. Second, the game

has a unique Bayesian equilibrium. Third, as the costs of enforcement rise, the supreme court may expand the range of acceptable lower court decisions.

4.2 Models of Adjudication Embedded in a Constitutional System

Many if not most cases on the appellate docket do not present common law issues; rather they raise issues of statutory or constitutional interpretation. The decisions of the courts thus rely on, and affect, the decisions of other political actors including administrative agencies, legislatures and the executive. Most applications of the political model to adjudication have concerned these institutional relations.

The two earliest applications to adjudication appear to be Ferejohn and Shipan (1990) and Gely and Spiller (1990). They adopt similar but not identical frameworks. Specifically, Ferejohn and Shipan assumed that all political actors had preferences over a one-dimensional policy space while Gely and Spiller assumed that institutional actors had preferences over a multi-dimensional policy space. I set out the Ferejohn and Shipan model here because of its simplicity and because most subsequent models exploit their formulation. Gely and Spiller (1990) is discussed in Section 5 in the context of its interesting model of doctrine.

Ferejohn and Shipan analyze the effects of judicial review on the activities of administrative agencies. In addition to the assumption of a one-dimensional policy space, their results depend critically on the sequence in which the institutions act. In their model, the agency acts first. It is then subject to judicial review. The court, in turn, is subject to potential legislative overrides. (They study both the case of overrides that require a presidential veto and those that do not.) They show that judicial review may shift the equilibrium policy towards the policy preferred by the legislature.

Eskridge and Ferejohn (1992a, 1992b) use the model in Ferejohn and Shipan to analyze the balance of powers in the US Constitution in general and the effect of *INS vs. Chadha*, on that balance of power. *Chadha* ruled that legislative vetoes of administrative action were unconstitutional. According to Eskridge and Ferejohn this ruling shifted power to the agencies; put differently, the decision made Congressional delegations of power to administrative agencies less desirable.

The literature employing variants of this political model have proliferated. For instance, Gely and Spiller (1992) present a three-stage game in which, in the first stage, an administrative agency announces an interpretation of a statute; in the second stage the court reviews the agency interpretation; and in the third stage the legislature decides whether to overrule the Supreme court and announce its own policy outcome. Note that in each stage the interpretation is an announcement of a policy. Each actor has spatial preferences over a one dimensional policy space. The model predicts that the court will always pick

that policy that is best for it and just avoids legislative overruling. Gely and Spiller investigate several variants of this structure in which the legislature is modeled somewhat differently. They then test their model on data from the United States National Labor Relations Board and subsequent review.

Cohen and Spitzer (1994) apply this political model to the analysis of the effects of another Supreme Court decision, *Chevron U.S. A. Inc. v. Natural Resources Defense Council Inc*, which required courts to grant more deference to an administrative agency's own interpretation of statutes it implemented. They assume political actors have preferences over policy-deference pairs. They then show that the Supreme Court's rulings on deference respond to the relative pattern of policy preferences among the other institutional actors: president, congress, and the appellate court.

Toma (1991, 1996) has argued that the congressional budgetary process serves as a means to control the decisions of the Supreme Court by signaling approval or disapproval of the Court's behavior. Again, both justices and Congress have spatial preferences over policy space. She examines two times series of decisions of the Supreme Court of the United States: one consists of civil liberties cases decided from 1946 through 1988 and the other of economic liberties cases decided over the same time period. She determines the 'average degree of liberality' of each of these two yearly portfolios of decision and similarly takes the average ADA rating of the members of the judiciary subcommittee of the Senate and House appropriations committees. For each group of cases, she then regresses the size of the yearly Supreme Court budget on the divergence between the judicial and congressional liberality ratings; she finds a statistically significant pattern with the budget rising when Supreme Court opinions conform more closely to the views of Congress. She then regresses the liberality of the judicial portfolio against the Supreme Court budget, the parameter of which is also statistically significant.

4.3 Some Other Empirical Studies
There is a vast American political science literature that seeks to determine the effects of the 'ideological' views of the judges on judicial decisions. This literature in general implicitly accepts the political model of adjudication and it generally finds at least some influence of 'ideology' on outcome, where the judge's ideology is measured either by her political affiliation or the affiliation of the appointing president. In this section, I consider three recent studies within the legal-economic framework.

The first study, Eisenberg and Johnson (1991), examined 118 federal district court opinions and 66 federal circuit court opinions in racial discrimination cases decided under the fourteenth amendment to the US Constitution. These opinions constituted all opinions on this issue published between 7 June 1976 and 6 February 1988. Eisenberg and Johnson found no

effect of ideology, measured either by party of judge or of appointing president, on outcomes at either the district or appellate level. They attempted to evaluate the effects of the selection of cases for trial on their results by comparing trial success rates and success rates on appeal in the class of cases that they studied to these success rates in other classes of cases.

Ashenfelter, Eisenberg and Schwab (1995) ('AES') also found no effects of ideology. In a clever research design, they studied 2258 federal civil rights and prisoner cases *filed* in three federal districts courts in fiscal 1981. Unlike most prior studies, AES examined the effects of ideology not only on cases with published opinions but on all case dispositions. AES determined whether a case settled and, if it did not settle, which party prevailed. They also collected data, including party and party of appointing president, on each of the 47 different judges who sat on some case in the sample. AES then analyzed this data by district. This district analysis permitted them to exploit the federal practice of random assignment of cases to judges. Any observed differences in behavior across judges could be attributed to differences in judges rather than differences in cases. They found that judges had relatively little effect on case disposition. Moreover, 'ideological' variables did not explain the small effects observed.

Revesz (1997) studied the industry and environmental challenges to EPA rulemaking in the 1970s and the late 1980s through early 1990s. This sample of cases has two features that make it a nearly ideal sample for analysis. First, all such challenges were heard in the Court of the Appeals for the District of Columbia. Second, virtually all challenges to EPA rulemaking are appealed. Given the legal context, there is no opportunity for the agency to settle with dissatisfied litigants. Following AES, Revesz focused on time periods in which a large number of judges had continuous tenure on the Circuit; he restricted his analysis to these judges. He measured the judge's policy preferences by the party of the appointing president, assuming that Republicans would favor industry challenges and disfavor environmental challenges relative to Democrats. For the late 1980s through early 1990s, he observed that ideology had a clear effect on industry challenges and a more ambiguous effect on environmental challenges. (A different statistical test, however, would likely reveal a stronger ideological effect in environmental challenges.)

5. Modeling Doctrine

Courts in common law systems do more than announce an outcome 'upheld' or 'reverse' to an appeal. An opinions offers a rationale for the decision and it is this rationale which guides the decisions of lower courts. To study appeal, then, the analyst must model this 'doctrinal' structure. The literature reveals two distinct approaches to modeling doctrine, approaches that have already

been alluded to in the prior discussion. The importance of the issue, however, merits a brief exposition of the two approaches.

One approach, first set forth in Kornhauser (1992b), describes a case as a vector of fact characteristics. Kornhauser then defines a cause of action as a pair (**S**,**f**) where **S** is a class of subsets S of the fact space and **f** is a collection of functions f_S from each subset S into a two-element set that might be interpreted as (proven, unproven) or (for plaintiff, for defendant). Each S in **S** is an issue. A case is then a collection of causes of action. For plaintiff to prevail on a case, she must prevail on at least one cause of action; to prevail on a cause of action, the plaintiff must prevail on every issue. The approach models doctrine essentially in terms of a partition on the fact space and sees the development of the law in terms of changes in this partition. The approach has been followed in Kornhauser (1995), Cameron and Kornhauser (1996) and Cameron, Siegel, and Songer (1996).

The second approach, which adapts the framework of Ferejohn and Shipan and has been employed by Schwartz (1992), Cohen and Spitzer (1994) and McNollgast (1995), assumes that the Supreme Court has preferences over a two-dimensional space. One dimension remains the policy space in the original political model. The second dimension, variously called 'deference' or 'precedent', explicitly measures the judge's level of tolerance for deviation from her optimal policy choice. In one sense, this modeling strategy parallels that of the first approach; it also yields a partition of the policy space. More fundamentally, however, this second approach remains inherently 'political' and non-legal; it makes no reference to the facts of a case or features of legal discourse that appear in an opinion.

Gely and Spiller (1990) offer a variant of this political model of doctrine that acknowledges some of the structure captured in the legal model. In their model, justices (and other political actors) have preferences over a multidimensional policy space. They seek to explain the Court's choice of grounds - constitutional or non-constitutional - for the Court's review of agency action. They argue that a constitutional decision restricts the discretion of the agency (or of other political actors) by lowering the dimensionality of the policy space from which the agency may choose a policy. This ingenious idea captures the effect of doctrine without requiring that one model the legal attention to facts and explicit doctrinal structure.

In political models, 'doctrine' generally serves to explain the extent of discretion granted to lower courts (or administrative agencies). Thus, Cohen and Spitzer (1994) argue that the amount of discretion is a function of the ideological alignment of the Supreme Court relative to other political actors. McNollgast (1995) prove that, as the number of cases in a particular area increases, the amount of discretion granted lower courts never decreases and it may increase.

6. Collegiality

Generally, an appeal is decided by a panel of judges rather than a single judge. In the United States, the three judge panels that sit on federal intermediate appeals courts are drawn from a larger bank of judges while the nine justices of the Supreme Court sit en banc. The inverted pyramidal structure of the federal hierarchy in the United States in which the size of the panel deciding a case increases as the case rises through the system is a nearly universal feature of court systems. The highest courts in some civil law countries (for example, the Cour de Cassation in France), however, function similarly to the federal intermediate courts, with each case decided by a panel drawn from a larger bench.

Collegiality presents several puzzles. First, why are appellate courts collegial and why does the number of judges increase as one proceeds up the hierarchy? Second, what consequences for adjudication does collegiality have? The economic literature began with Easterbrook (1982) which addressed the second question.

6.1 Why Are Appellate Courts Collegial?

Posner (1985, p. 12) offered several reasons for the existence of collegiality on the Supreme Court: (a) multiple judges reduce the costs of poor appointments; (b) a multiplicity of judges reduces the power of any single judge on a court which has vast power; (c) a multiplicity of judges allows the court to benefit from deliberation; and (d) a multiplicity of judges permits the division of the labor of opinion drafting and hence increases the productivity of the court.

Kornhauser and Sager (1986) provided a more systematic analysis of the reasons for collegiality. First, they distinguished two conceptions of adjudication: the rendering of judgment and the expression of preferences. They then suggested three different models of collegial adjudication, each of which identified a distinct standard against which to measure judicial performance. (1) One might view collegial courts as engaged in the aggregation of the preferences of the judges on the court and one would measure the quality of the court by its *authenticity*, the extent to which the court's judgment correctly reflects the preferences of the judges. (2) One might view collegial courts as engaged in the aggregation of judgments and one would evaluate the court's procedures in terms of their *accuracy*, that is, their ability to 'get the right answer' however one defines the right outcome. (3) One might view collegial courts as representative institutions that seek to reach the outcome that the represented body would have reached had they deliberated and voted. This representative model suggests two different evaluative measures: *fit*, which is simply the tendency to arrive at results that the represented group would have reached and *reliability*, which is the absence of bad surprises.

Kornhauser and Sager reject preference aggregation as an appropriate understanding of adjudication. This eliminates authenticity as an evaluative measure. They then argue that increasing the numbers of judges improves accuracy, fit and reliability. They focus specifically on accuracy and rely on the Condorcet Jury Theorem.

Good and Tullock (1984) offers a representation model of Supreme court collegiality. The Justices of the Supreme Court are treated as a representative sample of the population of competent lawyers. Good and Tullock calculate the probability $p(r,s)$ that a case decided by a vote of r to s will fit the decision of the represented group. They determine that $p(5,4) = 0.62304$ and $p(9,0) = 0.99902$.

6.2 Consistency and Coherence

In the first model of collegiality, Easterbrook (1982) relied on simple social choice arguments to argue that one could not expect the Supreme Court of the United States to generate a consistent body of case law. Easterbrook assumed that each case presented the Court with a choice between two legal rules to govern a particular doctrinal realm. When more than two legal rules were possible and no rule was a Condorcet winner, the Court's case law would cycle as successive cases challenged the prevailing rule with an alternative that a majority of the Court preferred.

Kornhauser and Sager (1986) distinguished between *consistent* and *coherent* patterns of decisions. A court that decides cases consistently will decide identical cases identically. The definition of coherence was less clear; a court that decides coherently creates a body of law that exhibits the quality of conceptual unity. They then argued that a panel of judges, each of whom had a consistent view of the law would produce a consistent body of law; but a panel of judges, each of whom had a coherent conception of the law, need not yield a coherent body of decisions.

Kornhauser (1992a) extended this analysis. Kornhauser identified three different bases of judicial decision: result-bound, rule-bound, and reason-bound decision. In a result-bound decision process, the court is obligated to respect the results of the prior decisions of the court; in a rule-bound process the court is obligated to respect the rule announced in prior cases while a reason bound court respects the reasons provided in prior decisions. He then argued that, with a rule of strict stare decisis, law in a result-bound judicial system will generally be path dependent and consistent.

Stearns (1995) offered an analysis of the development of the law in a collegial court that contained elements of both Easterbrook's and Kornhauser and Sager's analysis. Stearns, like Easterbrook, viewed adjudication as rule-bound though he abandoned Easterbrook's assumption that a case presented only two rules. Stearns, however, emphasized the role of both *stare decisis* and standing doctrine in ameliorating any cycling problems.

6.3 Voting on Collegial Courts

The doctrinal paradox Kornhauser and Sager (1986) noted a paradoxical feature of collegial adjudication which later attracted extensive comment. Specifically, they considered a case that presented two distinct issues for decision. Legal doctrine determines the relation between the decisions on each issue and the decision on the case. In some circumstances, the procedure the court adopts for aggregating votes will determine the outcome of the case. They discussed two procedures: *case-by-case* adjudication in which each judge registers her view of how the *case* should be decided and the court aggregates these votes to reach a majority judgment. Alternatively, each judge may register her view on each *issue* in the case should be decided; the court then aggregates the votes on each issue and applies the legal doctrine to the issue-by-issue results to reach a judgment in the case.

Kornhauser (1992b) named this conflict 'the doctrinal paradox' and extended this analysis in several ways. Recall the formalization of doctrine in this article that was summarized in Section 5. A single judge decides a case by deciding each legal issue in each cause of action. To prevail on a cause of action, the plaintiff must prevail on each issue; to prevail in the case, she must prevail on at least one cause of action. On a multi-member court, the two different aggregation methods may lead to different results. Kornhauser showed that the doctrinal paradox was distinct from the Condorcet cycle. When the judges' orderings of outcomes (described as the vector of outcomes on each issue) yield a Condorcet cycle issue-by-issue and case-by-case voting might not conflict. Conversely, when the judges' orderings produced a Condorcet winner over outcomes, the issue-by-issue result might differ from the case-by-case result. Finally, he analyzed several actual instances in which the doctrinal paradox arose.

Rogers (1991) examined and classified all plurality opinions of the United States Supreme Court. He counted approximately 150 such cases. Of these he identified only eight cases in which the vote of one or two justices effectively resulted in a court aggregation of votes on an issue-by-issue, rather than a case-by-case, basis. He argued further that the limited doctirnal incoherence of case-by-case aggregation was normatively preferable to the inconsistency and indeterminacy that may result from issue-by-issue adjudication. Leonard (1984) found a similar paucity of instances of issue-by-issue aggregation in a study of decisions in criminal cases by the highest courts of Alabama, California, Indiana, and New York. Rogers based his argument for case-by-case voting on the grounds that issue-by-issue adjudication may lead to unfair results.

Post and Salop (1992) argued that collegial courts should always aggregate votes issue-by-issue. They did so on several grounds. First, they disputed the unfairness of case-by-case aggregation. Second, they argued that case-by-case aggregation led to path-dependent decision making; framed more positively,

they argued that an aggregation procedure should yield the same results regardless of the order in which cases arrive before the court. Third, issue-by-issue aggregation promotes collegial deliberation by inducing the judges to join issue. Post and Salop (1996) expand and clarify their argument in favor of issue-by-issue voting. They note that issue-by-issue voting clarifies the law more quickly than case-by-case voting. Kornhauser and Sager (1993) then extended their earlier analysis of the doctrinal paradox. They emphasized the peculiar nature of actual Supreme Court practice which permitted each judge to count votes as he wished and which suppressed discussion of the aggregation procedure. they argued that the Court should justify its decision on whether to resolve case issue-by-issue or case-by-case because the appropriate decision procedure was context-dependent.

Rogers (1996), Stearns (1996) and Post and Salop (1996) then recapitulated the debate over the appropriate aggregation method. Rogers noted importantly that issue-by-issue voting required the Court to identify a set of issues on which each judge should vote and illustrated the complexity of this task. Stearns (1996) argues that in fact agreement on issues is not as difficult as Rogers suggests. Post and Salop (1996) also argue that the identification of issues is less problematic than Rogers asserts.

Sincere vs. sophisticated voting Analysis of the doctrinal paradox assumed that each judge voted 'sincerely' on each issue regardless of the method of aggregation of the votes on the court. (Defining 'sincerity' in the context of multiple issue cases presents difficulties that are addressed in a different voting context in Benoit and Kornhauser (1995).) An assumption of sincerity comports well with a team model; it does not easily fit into a political model. In a political model, a self-interested, rational judge should foresee the results of sincere votes that might be detrimental to the realization of her interests.

Spiller and Spitzer (1995) ask whether judges are voting sincerely or with sophistication. They assume a court with one sincere judge and show how that judge can be manipulated by sophisticated judges. In their model, the judges and the legislature play a two-stage game. In stage 1, the Court interprets a statute and in stage 2, the legislature decides whether to overrule the court's interpretation. All judges and legislators have preferences over a one-dimensional policy space. The model predicts that (1) the legislature will frequently overrule the court and (2) coalitions of extremes will often form. They then contend that, as these phenomena are not observed, one should assume that all judges vote with sophistication.

Revesz (1997), in his study of environmental decisions by the DC circuit, tested for effects of panel composition on the voting behavior of individual judges. In particular, he asked whether the reversal rate of a judge depended on whether she was in the minority or a majority on the panel. He identified

judicial policy preferences with the party of the appointing president and found substantial differences between the voting behavior of judges in an ideological minority on a panel from those in an ideological majority.

Schwartz (1992) does not explicitly address the question of sincere vs. sophisticated voting. He does, however, present a political model of 'doctrine' in which each justice acts in a strategic manner. As discussed in Section 4, 'doctrine' here refers to a feature of vertical precedent: the probability that a lower court will respect the Supreme Court's policy announcement in the case. Thus, in this model, justices have preferences over a two-dimensional space. Each justice has an ideal policy; the second dimension measures the degree of precedent that the justice attaches to the policy. The justice's preferences are for less strict precedent the more distant the announced policy is from his ideal policy.

Each case presents the Court with a choice between two policy alternatives. The sequence of the game is as follows. First, the justices vote in reverse order of seniority for one of the two policy alternatives. Second, the senior member of the majority designates an opinion writer who voted for that alternative; the senior member of the minority also designates an opinion writer. Third, each opinion writer drafts an opinion that specifies a level of precedent for the proposed policy. In the fourth stage, the Justices vote between the two policy/precedent pairs represented by the two opinions. The majority vote determines the outcome.

Schwartz restricts his analysis to the case in which the Court initially divides five to four between the two policy alternatives. He calculates the range of precedent that is invulnerable to invasion by the minority. The senior member of the majority can then pick an opinion writer that will draft an opinion with the optimal level of precedent from the senior members point of view. Schwartz then illustrates his analysis through a discussion of some reapportionment cases.

7. Discretionary Review

The United States Supreme Court has a largely discretionary jurisdiction. This discretion cannot be explained in a team model of error correction when litigants select which cases to appeal, for, as Cameron and Kornhauser (1996) show, the optimal hierarchy will have only three tiers and the highest tier will hear no cases. Discretionary review, however, might be explained in a team model in which the Supreme Court has lawmaking powers.

Cameron, Siegal and Songer ('CSS') (1996) use a political model to study the Supreme court's certiorari procedure. They assume that the Supreme Court serves only to correct error. As is typical in political models, both higher and lower courts have preferences over a one-dimensional policy space. As in

Cameron and Kornhauser (1996), each case is characterized by a single parameter and each court is characterized by an ideal point so that defendant should prevail if the value of the case parameter is less than the court's ideal point. For ease of exposition, CSS assume that the ideal point of the Supreme court lies to the right of the lower court's ideal point. Consequently, the two courts disagree about the appropriate resolution of the case if its parameter lies in the interval between the two ideal points. The Supreme court has discretionary authority to review but it decides to review the lower court decision on the basis of an index of the parameter rather than the true value which is both known to the lower court and would be revealed to the Supreme Court in the course of a review on the merits. Each court wants to maximize the number of correct decisions (from its point of view); lower courts get disutility from reversal and the Supreme court incurs cost in the event it decides to review a case on the merits. CSS characterize the equilibrium strategies of both lower court and Supreme court. They then present an exploratory analysis of Supreme Court certiorari practice in search and seizure cases between 1972 and 1986.

Discretionary review in the US Supreme Court employs a submajority rule of four of the nine justices to trigger review. This submajority review raises interesting legal and strategic questions concerning the behavior of the Justices themselves. Revesz and Karlan (1988) presented a largely legal analysis of this rule (and a 'Rule of Three' governing the granting of stays) but their analysis raises a number of issues for economic analysis. They argue that the rule of four creates a legal process with less stable precedent than a process in which discretionary review required a majority.

8. Stare Decisis

Stare decisis refers to a set of practices peculiar to Anglo-American courts in which one court adheres to its own prior decisions or to the decisions of a higher court. For a fuller discussion of the legal aspect of these practices, references to the legal literature and the modeling questions they present, see Kornhauser (1998).

Several models of horizontal and vertical stare decisis have appeared in the literature. In this section, I shall focus primarily on models of horizontal stare decisis in which a court follows its own prior decisions. Discussions of vertical stare decisis are implicit or explicit in most political models of hierarchy because these models pose as one of the key questions the extent to which lower courts comply with the rulings of higher courts. Vertical stare decisis in a team model is discussed in both Kornhauser (1995) and Cameron and Kornhauser (1996). Kornhauser (1995) argues that vertical stare decisis arises because of the benefits presented by specialization of labor between fact finding and law

making and for error-correction reasons. Cameron and Kornhauser (1996) investigates the error-correction justification in detail.

Heiner (1986) argues that stare decisis arises because courts only observe the 'correct' answer to specific cases with error. A judge might then do better to announce a decision that is best 'on average' (for some class of cases) and adhere to that decision rather than to make a series of errors on a case-by-case basis.

Kornhauser (1989) characterized horizontal stare decisis as a practice in which a court adheres to a decision it believes to be wrong. He offers two informal models based on two distinct justifications for the practice. The first model applies to a 'panel court' in which each case is decided by one or more judges drawn from a larger bench. If judges have different views of the law then stare decisis serves to reduce legal uncertainty faced by actors governed by the legal rule. The second model assumes a unitary court with an unchanging social objective; the court however faces a world in which the optimal behavior (as viewed from its perspective) changes because some underlying parameters change. Kornhauser's model modifies that in Blume and Rubinfeld (1982) in which the court, through its announcement of standards of care, seeks to minimize the costs of accidents and the costs of adjustment to new standards. In the Blume and Rubinfeld model, the court does not adopt a practice of stare decisis; rather, as the technology of care shifts, the court adjusts gradually towards the standards that would be optimal in an unchanging world with the new technology. In Kornhauser's version, a court must announce standards of care in a world in which the technology of accident care is improving at a known rate. The court adheres to stare decisis as long as the standards of care optimal under the new technology are not too far from the old standards. Otherwise it announces new standards that overshoot those currently optimal.

Rasmusen (1994) presents a political model for horizontal stare decisis. Rasmusen's model provides a formal justification for an argument implicit in O'Hara (1993). The court consists of a single judge who decides $n + 1$ cases and is then replaced by another judge who also decides $n + 1$ cases. Each judge has preferences over the outcomes of all cases and these preferences differ. Assume that only one of these $n + 1$ cases is a case of first impression. Under a practice of stare decisis each judge would adhere to the n prior decisions governing n of his cases and n subsequent judges would adhere to the decision he announces in his case of first impression. Rasmusen shows that a practice of stare decisis is an equilibrium to this game.

9. Concluding Remarks

The study of judicial organization in general and the nature and function of appeal in particular is in its infancy. Though analysts have begun to investigate the reasons for hierarchy, the nature of the interaction among courts and other political branches, and the internal workings of the courts themselves, most questions remain open or even unaddressed.

Bibliography on Appeal and Supreme Courts (7200)

Ashenfelter, Orley, Eisenberg, Theodore and Schwab, Stewart J. (1995), 'Politics and the Judiciary: The Influence of Judicial Background on Case Outcomes', **24** *Journal of Legal Studies*, 257-282.

Blume, Larry and Rubinfeld, Daniel (1982), 'The Dynamics of the Legal Process', **11** *Journal of Legal Studies,* 405 ff.

Cameron, Charles M. (1993), *New Avenues for Modeling Judicial Politics*, University of Rochester Wallis Institute of Political Economy Working Paper.

Cameron, Charles and Kornhauser, Lewis A. (1996), 'Litigant Selection and the Structure of Judicial Hierarch', mimeo, August.

Cameron, Charles M., Siegal, Jeffrey A. and Songer, Donald R. (1996), 'Signals and Indices in the Supreme Court's Certiorari Decisions', mimeo.

Cohen, Linda and Spitzer, Matthew (1994), 'Solving the *Chevron* Puzzle', **57** *Law and Contemporary Problems,* 65 ff.

Dorf, Michael C. (1995), 'Prediction and the Rule of Law', **42** *U.C.L.A. Law Review*, 651 ff.

Easterbrook, Frank (1982), 'Ways of Criticizing the Court', **95** *Harvard Law Review*, 802-832.

Eisenberg, Theodore and Johnson, Sheila Lynn (1991), 'The effects of Intent: Do We Know How Legal Standards Work?', **76** *Cornell Law Review*, 1151 ff.

Epstein, Richard A. (1987), 'Judicial Review: Reckoning on Two Kinds of Error', in Dorn, James A. and Manne, Henry G. (eds), *Economic Liberties and the Judiciary*, Fairfax, George Mason University Press, 39-46.

Eskridge, William N. and Ferejohn, John (1992a), 'The Article I, Section 7 Game', **80** *Georgetown Law Journal,* 523-564.

Eskridge, William N. and Ferejohn, John (1992b), 'Making the Deal Stick: Enforcing the Original Constitutional Structure of Lawmaking in the Modern Regulatory State', **8** *Journal of Law Economics and Organization*, 165-189.

Ferejohn, John and Shipan, Charles (1990), 'Congressional Influence on Bureaucracy', **6** *Journal of Law Economics and Organization*, 1-20 (Special Issue).

Gely, Rafael and Spiller, Pablo T. (1990), 'A Rational Choice Theory of Supreme Court Statutory Decisions with Applications to the *State Farm* and *Grove City* Cases', **6** *Journal of Law, Economics and Organization*, 263-300.

Gely, Rafael and Spiller, Pablo T. (1992), 'The Political Economy of Supreme Court Constitutional Decisions: The Case of Roosevelt's Court Packing Plan', **12** *International Review of Law and*

Economics, 45-67.

Good, I.J. and Tullock, Gordon (1984), 'Judicial Errors and a Proposal for Reform', **13** *Journal of Legal Studies,* 289-298.

Heiner, Ronald (1986), 'Imperfect Decisions and the Law: On the Evolution of Legal Precedent and Rules', **15** *Journal of Legal Studies*, 227 ff.

Koppen, P.J. van (1990), 'Cassatieadvocaten en de Selectiekamer (Cassation Lawyers and the Chamber of Selection)', *Nederlands Juristen Blad*, 14-26.

Kornhauser, Lewis A. (1989), 'An Economic Perspective on Stare Decisis', **65** *Chicago-Kent Law Review,* 63 ff.

Kornhauser, Lewis A. (1992a), 'Modeling Collegial Courts I: Path Dependence', **12** *International Review of Law and Economics*; 169-85.

Kornhauser, Lewis A. (1992b), 'Modeling Collegial Courts. II. Legal Doctrine', **8** *Journal of Law, Economics and Organization*, 441-70.

Kornhauser, Lewis A. (1995), 'Adjudication by a Resource-Constrained Team: Hierarchy and Precedent in a Judicial System', **68** *Southern California Law Review*, 1605 ff.

Kornhauser, Lewis A. (1998), 'Stare Decisis', in Newman, Peter (ed.), *New Palgrave Dictionary of Economics and the Law*, London, MacMillan.

Kornhauser, Lewis A. and Sager, Lawrence G. (1986), 'Unpacking the Court', **96** *Yale Law Journal*, 82-117.

Kornhauser, Lewis A. and Sager, Lawrence (1993), 'The One and the Many: Adjudication in Collegial Courts', **81** *California Law Review,* 1 ff.

Leonard, David P. (1984), 'The Correctness Function of Appelate Decision-making: Judicial Obligation in an Era of Fragmentation', **17** *Loyola of Los Angeles Law Review*, 299-352.

McNollgast (1995), 'Politics and the Courts: A Positive Theory of Judicial Doctrine and the Rule of Law', **68** *Southern California Law Review*, 1631-1683.

O'Hara, Erin (1993), 'Social Constraint on Implicit Collision?: Towards a Gane Recretic Analysis of Stern Decisis', **24** *Seton Hall Law Review*, 734 ff.

Posner, Richard A. (1982), 'Toward an Economic Theory of Federal Jurisdiction', **6** *Harvard Journal of Law & Public Policy*, 41-50.

Posner, Richard A. (1985), *The Federal Courts: Crisis and Reform*, Cambridge, Harvard University Press, 365 ff.

Post, David and Salop, Steven (1992), 'Rowing Against the Tidewater: A Theory of Voting by Multi Judge Panels', **80** *Georgetown Law Journal,* 743 ff.

Post, David and Salop, Steven (1996), 'Issues and Outcomes, Guidance, and Indeterminacy: A Reply to Professor John Rogers and Others', **49** *Vanderbilt Law Review*, 1049-1085.

Rasmusen, Eric (1994), 'Judicial Legitimacy as a Repeated Game', **10** *Journal of Law Economics and Organization*, 63-83.

Revesz, Richard L. (1997), 'Environmental Regulation, Ideology, and the D.C. Circuit', **83** *Virginia Law Review.*

Revesz, Richard L. and Karlan, Pamela (1988), 'Non Majority Rules and the Supreme Court', **136** *University of Pennsylvania Law Review*, 1067 ff.

Rogers, John M. (1991), '"I Vote This Way Because I'm Wrong": The Supreme Court Justice as Epimenides', **79** *Kentucky Law Journal*, 439-475.

Rogers, John M. (1995), 'Lower Court Application of the "Overruling Law" of Higher Courts', **1** *Legal Theory*, 179 ff.

Rogers, John (1996), '"Issue Voting" by Multi Member Appellate Courts: A Response to Some Radical Proposals', **49** *Vanderbilt Law Review,* 997-1039.

Schwartz, Edward P. (1992), 'Policy, Precedent, and Power: A Positive Theory of Supreme Court Decision Making', **8(2)** *Journal of Law, Economics and Organization*, 219-52.

Shavell, Steven (1995), 'The Appeals Process as a Means of Error Correction', **24(2)** *Journal of Legal Studies*', 379-426.

Spiller, Pablo and Spitzer, Matthew (1992), 'Judicial Choice of Legal Doctrines', **8** *Journal of Law, Economics and Organization*, 846 ff.

Spiller, Pablo and Spitzer, Matthew (1995), 'Where is the Sine in Sincere? Sophisticated Manipulation of Sincere Judicial Voters (With Applications to Other Voting Environments)', **11** *Journal of Law, Economics, and Organization,* 32-63.

Stearns, Maxwell (1995), 'Standing Back from the Forest: Justiciability and Social Choice', **83** *California Law Review*, 1309-1413.

Stearns, Maxwell (1996), 'How Outcome Voting Promotes Principled Issue Identification: A Reply to Professor John Rogers and Others', **49** *Vanderbilt Law Review*, 1045-1067.

Stith, Kate (1990), 'The Risk of Legal Error in Criminal Cases: Some Consequences of the Asymmetry in the Right to Appeal', **57** *University of Chicago Law Review*, 1-61.

Toma, Eugenia (1991), 'Congressional Influence and the Supreme Court: The Budget as a Signaling Device', **20** *Journal of Legal Studies*, 131-146.

Toma, Eugenia (1996), 'A Contractual Model of the Voting Behavior of the Supreme Court: The Role of the Chief Justice', **16** *International Review of Law and Economics,* 433-447.

Other References

Benoit, Jean-Pierre and Kornhauser, Lewis A. (1995), 'Assembly-Based Preferences, Candidate-Based Procedures, and the Voting Rights Act', **68** *Southern California Law Review,* 1503 ff.

Cases

INS vs. Chadha, 462 U.S. 919 (1983)
Chevron U.S.A. Inc. v. Natural Resources Defense Council Inc, 467 U.S. 837 (1984)