2 Appeal and supreme courts

Lewis A. Kornhauser

1. Introduction
This chapter reviews the literature concerning several issues raised in the economic analysis of appeal and of supreme courts. These issues overlap with those considered in Chapter 11: “Judicial Organization and Administration”. The overlap occurs in many dimensions. Most obviously, appeal constitutes an important dimension of judicial organization and administration. Appeal itself can be organized in a variety of different ways. This review thus addresses a variety of questions about the organization of appeal. Does the court system permit appeal? Should it permit appeal? Why do some systems permit appeal, while others do not? Assuming that a judicial system permits appeal, how many appeals is or should a litigant be permitted? How should appeal be organized? Should there be distinct appellate courts? Or should appeal be taken to another court at the same level? How many judges should hear an appeal? To what extent should appellate courts control their own docket? The legal-economic answers to these organizational questions are surveyed here.

Second, this chapter reviews the vast literature on how appellate judges behave. What explains how judges decide cases? Can we explain the precedential practices invoked by common law courts or by civil law courts? Do lower court judges comply with the rulings of higher courts? What explains the content of the opinions written by judges? When courts control their own jurisdiction, can we explain the set of cases chosen for review? This behavior, of course, will depend in part on the organization and administration of the courts. Some behavioral issues will arise in the review of Chapter 11 on “Judicial Organization and Administration”. The discussion of judicial motivation in Section 2 of that review, particularly the discussion of policy preferences in Section 2.2, bears directly on the models of appeal.

Two further general comments about the literature are in order. First, 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.

Second, most of the literature, particularly the literature from political science, has been heavily influenced by the positive political theory models developed for the study of legislation in general and of the United States Congress in particular. This influence has fostered significant advances in our understanding of judicial behavior and appellate organization, but it also has two distinct biases. Political scientists study politics and politics is often understood as conflicts of interests among actors. As a consequence, most models are political models in the sense that judicial behavior is analyzed and understood as a consequence of the conflicting interests of judges or of judges and other political actors. An alternative perspective, less represented in the literature, treats the judicial system as a team in the sense of Marschak and Radner (1972), a set of individuals with common interests. Teams must coordinate their efforts and the economic theory of teams studies these coordination problems. The theory of teams provides a distinct set of insights into judicial administration and behavior that helps clarify the role that conflict of interest plays in judicial behavior.

Use of the positive political theory model of legislation to study courts has had a second bias. Positive political theorists developed the model of legislation to illuminate legislative institutions. These institutions, of course, differ dramatically from judicial institutions. The use of the legislative model to study courts has sometimes diverted attention from the peculiar features of judicial institutions. Most importantly, legislatures enact statutes which are easily and appropriately understood as policies. Courts, by contrast, primarily decide cases. In the course of rendering judgment on the case, courts may also announce policy. The use of legislative models, however, has obscured questions of how case dispositions and policy announcements interact. Further differences are equally important. Legislatures generally control their own agendas; litigants set the judicial agenda. In addition, as the discussion of collegial courts underscores, the decision rules in legislatures are different from the decision rules in courts. These different procedures should, as positive political theory instructs, lead to different outcomes.

The discussion is organized around some simple “models” of judicial organization. First, I consider the literature on precedential practices of a single court. This literature generally assumes that each court consists
of a single judge and considers the conflicts of interests (or coordination problems) that arise from a sequence of single-judge courts. Next, I consider collegial courts. On a collegial court, a panel of judges decides a case. The simplest model assumes a single court that consists of a fixed panel of immortal judges that decide all appeals in the jurisdiction. Most appellate courts in the world are collegial; cases are heard and decided by a panel of judges rather than by a single judge. Next, I survey the literature on hierarchy. Again, the cleanest model posits single-judge courts arranged hierarchically in one or more tiers. The literature then considers the conflicts of interest or coordination problems that arise in this hierarchical structure. Finally, I turn to models of the interaction of court and legislature. Again, the court is generally modeled as a unitary actor.

2. Precedential Practices
For purposes of this chapter, “precedent” refers to the body of previously decided case law in a particular judicial system. Different legal systems treat precedent differently. Economists and political scientists have studied the precedential practices of common law adjudication much more extensively than they have studied civil law practices. This survey reflects this bias in attention.

Common law precedential practices are quite complex. Stare decisis (“keep to what has been decided previously”), the most studied practice, requires that a court adhere to the decision in an “identical” prior case even when the court believes that the prior case was wrongly decided. Stare decisis in fact refers to a number of related practices. In this section, I shall focus on horizontal stare decisis which refers to how a court treats its own precedent, i.e. the body of cases previously decided by itself. I leave a discussion of vertical stare decisis, the common law practice that an inferior court must follow the decisions of a superior court, to the discussion of hierarchy below. Moreover, I treat horizontal stare decisis as a unitary practice, though, arguably, its parameters differ with respect to cases arising under the common law, under statutes, and under a constitution. Finally I discuss the literature on the related common law practices of overruling and distinguishing.

2.1 Theoretical Models of Stare Decisis and other Common Law Precedential Practices
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 (2005, 2006). 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 (2005a, 2006) investigate the error-correction justification in detail.

Early models of horizontal *stare decisis* suggest a number of different justifications for, or explanations of, the practice. 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.

Later models are more technically sophisticated and fall roughly into two classes: those that rely on imperfect information and those that do not. Rasmusen (1994) presents a political model for horizontal *stare decisis*.
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 one equilibrium to this game.

In Rasmusen’s model, the judge adheres to precedent in order to insure that his own decisions are followed; stare decisis thus rests on the structure of the judge’s preferences over policies. Miceli and Cosgel (1994) identify conditions under which stare decisis emerges in equilibrium for a different structure of preferences. In their model, judges have preferences over policies and a concern for their reputation. If the concern for reputation is sufficiently strong, a judge adheres to the prior decision even when it deviates from his own ideal decision.

Daughety and Reinganum (1999) is an early information-based explanation of horizontal stare decisis. They consider a set of appellate courts, all inferior to the same supreme court. Each has private information about the Supreme Court’s interpretation of the law. When an appellate court observes a prior decision of another appellate court, it updates its prior about the view of the Supreme Court. In this setting, an informational cascade is possible in which all courts follow the lead of a prior court and, possibly, endorse the wrong view. In their interpretation, the model is one of persuasive precedent, as one appellate court is not bound to follow a ruling by a different appellate court. A different interpretation would yield a model closer in spirit to the practice of stare decisis. Suppose the best legal rule depends on the state of world, about which the courts are uncertain. Consider a sequence of judges on a single court. Each judge gets a signal of the true state of the world. Here there are a multiplicity of equilibria, in some of which judges adhere to stare decisis.

Gennaioli and Shleifer (2007a) also consider the role of bias in a
model of the related practice of distinguishing. Their model lies in a two-dimensional “case space” – the idea of case space was introduced in Kornhauser (1992b). A policy, in this formulation, is simply a partition of case space. Judges want to maximize social welfare, but they are constrained in the set of rules they can announce. Given the constraint, some judges prefer rules biased towards plaintiffs, other judges prefer rules biased towards defendants, and a third group are neutral. When the first case arises, the court can announce only a simple partition that is conditional on only one of the two facts. When a second case arises, the next judge may “distinguish” the first case by conditioning liability on the second factual dimension. They show that the ability to distinguish improves the efficiency of the law.

Gennaioli and Shleifer (2007b) consider the practice of overruling precedent in the same model. Overruling, unlike distinguishing, has negative effects because only ideologically extreme judges have an interest in overruling; but that interest leads to oscillation in the law.

Fernandez and Ponzetto (2008) also work in the Gennaioli and Shleifer framework. They, however, do not restrict the class of rules that the judge may announce. They study the evolution of the law and show that, if the judiciary is sufficiently polarized ideologically, the efficient rule will be announced. The intuition is straightforward. Polarization is necessary because there is a cost to changing the law. On the other hand, efficiency is achieved because all judges rank the welfare-maximizing rule highest; their ideological disagreements are only second-order disagreements.

Whitman (2000) further studies the model of Miceli and Cosgel (1994). A sequence of judges must decide an infinite sequence of cases. The case is governed by one of two rules and the decision in a case identifies the applicable rule. Each judge takes the decision of the prior judge as “precedent”; he must decide whether to follow precedent or to replace the prior rule with the second. Judges have policy preferences and preferences for reputation, i.e., that their decision be followed. In this model, the system converges to a single rule when a sufficiently high proportion of judges agrees on a particular rule as best. If a third compromise rule is added to the model, convergence to the compromise rule is most likely when ideological division over the other two rules is sufficiently high.

2.2 Empirical Studies of Stare Decisis
Several studies have attempted to determine the extent to which justices of the US Supreme Court in fact adhere to stare decisis. Segal and Spaeth (1996, Spaeth and Segal 1999) trace the sequelae of prominent decisions of the Supreme Court of the United States. On their view, a justice of the Supreme Court adheres to stare decisis if (a) he voted against the result in
Prior Case and (b) accepts the rule or standards of the majority in Prior Case in his decision in Subsequent Case. They examined 346 votes in 146 progeny of 54 landmark cases. Their definition of *stare decisis* requires that they consider the votes only of justices who dissented in the initial case. They found that justices voted according to their revealed preferences in the landmark cases roughly 91% of the time; hence they conclude that Supreme Court justices do not adhere to a practice of *stare decisis*.

This study has several flaws. Brenner and Steir (1996) followed a similar procedure to study the behavior of four moderate justices on the Warren Court. They included memorandum and per curiam opinions that Segal and Spaeth had excluded. They find that these justices adhered to precedent 47% of the time. Moreover, this percentage increased if progeny decided in the same term were excluded; on progeny decided later, the justices adhered to precedent 64% of the time. The methodology of Brenner and Steir thus paints a very different picture.

Songer and Lindquist (1996) argue that the coding of data in Segal and Spaeth leads to an underestimate of the effect of *stare decisis*. A vote in a subsequent case to limit the precedent is coded as a violation of *stare decisis* even though it acknowledges the authority of the case. In fact, this argument points out a difficulty in assessing the role of *stare decisis* in judicial decision, particularly at the Supreme Court level. The subsequent case before the Supreme Court is rarely identical and clearly governed by Prior Case; subsequent case generally raises a new issue. Hence, it is the practice of distinguishing rather than of *stare decisis* that is most relevant. The norms governing legal reasoning, however, are too imprecise and poorly understood for us to determine whether a court has inappropriately distinguished, rather than followed, a prior case.

Lim (2000) follows a procedure similar to Segal and Spaeth, but he embeds his analysis in a more structured random utility model; in addition, he restricts his analysis to four natural courts between 1986 and 1994. He analyses 600 progeny cases and finds that precedent has a significant effect on the decision-making of each judge.

### 2.3 Precedent in Civil Law Legal Systems

In civil law systems, no single judicial decision has authority; it does not bind other courts or the rendering court in the future. These systems, however, have developed a precedential practice called, in France, *jurisprudence constante*, that gives a sufficiently uniform mass of decisions authority to bind. The legislature sets some parameter $T$ in the interval $[0,1]$ that indicates the threshold degree of uniformity that must exist in decisions governing a particular issue for that body of law to bind other courts. This precedential practice differs greatly from that in common law systems.
systems. Unfortunately, it has been little studied by economists and political scientists.

Fon and Parisi (2006) provide the only formal model of this process. They consider a set of disputes in which decisions for defendant imply that plaintiffs have no cause of action, while decisions for plaintiff establish her legal right. On this account, the body of precedent lies in one of three regions: either the percentage $P$ of cases decided for plaintiff exceeds the threshold $T$ and subsequent courts should decide in favor of plaintiff, or $P$ decided against plaintiff is greater than $T$ and subsequent courts should decide in favor of defendant, or $P$ lies between $T$ and $1 - T$ and the case law is unsettled.

Fon and Parisi assume that a court has some probability $p$ of deciding for plaintiff. This probability depends on the recent history of decisions for plaintiff, with the weighted difference between the rate of decision for plaintiff and against plaintiff called $F(t)$ and on the entire history of decisions with the weighted difference between the rate of decision for and against plaintiff called $H(t)$. They then specify the motion of the system as a function of these variables. They show, not surprisingly, that as $T$ increases, the region of legal uncertainty increases.

3. 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 (e.g., 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 (1983), which addressed the second question. Prior to addressing these questions, I set out a baseline model that underlies much of the political science literature.

3.1 A Baseline Model: One-Dimensional Spatial Preferences in Policy Space

Much of the political science literature on courts simply adapted the positive political theory models developed to study legislation generally and
Congress in particular. For collegial courts, only minimal changes to this model were made. Thus, the literature to a large extent treats a collegial court as a legislature operating under an open rule. (This contrasts with the adaptation made to study the separation of powers, discussed below, which assumed that the court operated on a closed rule.) Again, if one continues to import ideas from the literature on legislation, one assumes that a collegial court, in choosing a policy, uses a Condorcet-consistent procedure on a one-dimensional policy space. Then, one concludes that the court will adopt the policy of the median justice on the court.

We know, from the literature on electoral competition, that this result is reasonably robust, particularly if one assumes, as much of the literature on collegial courts does, that the justices have perfect information about the ideal points of the other justices. The literature has been rather imprecise in specifying the games that the justices play to arrive at the median justice conclusion (see e.g., Hammond et al. (2005) in which two of three “models” support the median justice hypothesis), but the oral tradition generally acknowledges that result.

This strategy of adaptation, though initially fruitful, leaves much judicial behavior on collegial courts unexplained and ignores the institutional structures that distinguish courts from legislatures. For the moment, maintain the assumption that justices have preferences over policies only and that they announce only policies. The median voter model implies that the policy announced by the court is independent of the judge who writes the opinion. Moreover, the role for dissents and concurrences is unclear. The implicit model of voting presumably precludes such practices because allowing them suggests, again from the electoral competition literature, that the court might announce a non-median policy.

Most obviously, courts decide cases, as well as announce policy. The legislative model ignores this and the models do not admit the possibility that a judge might vote strategically with respect to the disposition of a case in order to induce the court to announce a policy closer to his ideal point.

Moreover, evidence in Cameron and Clark (2006) suggests that the location of opinions depends not only on the location of the median justice but also on the ideological location of the chief justice. Theoretical approaches to the location of opinions is discussed below.

3.2 Why are Appellate Courts Collegial?
Posner (1985 at 12) offered several reasons for the existence of collegiality on the Supreme Court: (a) multiple judges reduces the costs of poor appointments; (b) 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 rendition 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 \textit{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 \textit{accuracy}, i.e., 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: \textit{fit}, which is simply the tendency to arrive at results that the represented group would have reached and \textit{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) offer 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 $p(9,0) = 0.99902$.

3.3 \textit{Policy Choice on Collegial Courts}

Collegial courts present many questions for scholars of courts. First, do they yield a stable policy outcome? If so, what outcome do they yield? Does the outcome vary with the opinion writer?

I start first with the question of stability. We have already seen the answer when judges have spatial preferences in a one-dimensional policy space and they vote over policies in a “legislative” way: the policy of the median judge prevails.

What happens in a multi-dimensional space? We might address this
question in two different ways: we might either remain in policy space or we might shift to “case” or “fact” space, introduced in Kornhauser (1992a). Fact space reflects an important institutional feature of adjudication: judges decide cases, either prior to or in tandem with the announcement of policies. A case is simply a vector of all “relevant” facts in disputes. From this perspective, a policy is simply a partition of the fact space; it divides the fact space into two sets: the set of those cases in which plaintiff prevails and the set of those cases in which defendant prevails. Fact space has very high dimensionality. Lax (2007) shows that, as long as each judge has preferences over policies that are separable in cases – or, equivalently, preferences over case dispositions that are separable – then, a stable majority policy exists. This policy assigns the majority disposition to each case. Moreover, the policy (or rule) of the court may not coincide with the ideal policy of any judge on the court. Anderson and Tahk (2007) prove a similar result in a multi-dimensional policy space in which judicial preferences are separable over policy dimensions and where judges vote dimension by dimension. These results are not surprising as separability is a very strong assumption. Kornhauser (1992a) had shown that, in a sequence of single-judge courts, a stable, unique policy existed if preferences were separable over cases. He also showed that, under a practice of strong *stare decisis*, the resulting policy was stable but path dependent.

Most models concerning policy choice on collegial courts model the Supreme Court of the United States. As noted earlier, the simple transfer of the legislative model to the context of collegial courts yields the median justice result. That result rests on several assumptions. First, it assumes competition among opinions. Second, it assumes that the court adopts a Condorcet-consistent procedure when it determines which policy to enact. Schwartz (1992) was an early model that rejected the second premise by assuming that the court essentially operated under a “closed rule” that limited its choices to a status quo and an arbitrarily identified alternative.

Lax and Cameron (2007) reject the second premise. They offer a model that identifies an opinion writer who may face an entering, competing opinion for another justice. This potential competition prevents the opinion writer from announcing her own ideal point because that might not garner enough votes. In addition, without the expenditure of effort, the actual policy implemented under the opinion is random. More precisely, an opinion written at policy $p$ is understood as a random variable with mean $p$ and variance $q$ which is a function of the (costly) effort expended by the opinion writer. Judges have *ex post* preferences that are separable in the realized opinion location and effort; *ex ante* each judge faces a quadratic loss from policies not at her ideal point. In the sequential game, the court has a straw vote to determine the initial majority, the “chief
justice” then assigns the opinion, the assignee then writes an opinion, then any other judge may write a competing opinion. They identify conditions under which the opinion writer chooses a location and quality of opinion that blocks entry from other opinions. They also investigate the incentives facing the chief justice who chooses the opinion writer. In general, the chief justice has an incentive to assign to “experts” who have low costs of writing or to extremists.

Lax and Rader (2007) try to distinguish empirically between various models of opinion assignment, including the median justice rule, the Lax and Cameron theory discussed above and a “median of the majority” theory. They argue that the evidence rejects the median justice theory and supports the Lax and Cameron model.

Cameron and Kornhauser (2010) investigate a general model that questions both the first and second premises of the median voter rule. Their model is firmly located in case space so that each judge has complex preferences with several parameters. First, the judge values an opinion that disposes of the case as she would under her ideal rule. Second, she has spatial preferences so that she values opinions closer to her ideal policy. Third, she cares about the “clarity” of the opinion; the more votes garnered by an opinion, the more value it has in fixing the law; for some parameters, however, the value of an opinion with more support declines when the opinion is sufficiently far from the judge’s ideal point. Finally, the judge has an additional expressive value for joining an opinion at her ideal point. In this context, they first consider “monopoly” models in which a randomly assigned opinion writer offers the only opinion. They then consider models with entry in which the plurality opinion serves as the “winning” opinion for purposes of determining judicial utility.

As the general model is too complex to solve, they consider special cases in which various of the parameters are set to zero. In all, the location of the case is important because it determines which judges get the dispositional value of the case. This feature also implies the existence of another form of strategic behavior by judges: a judge may vote against her preferred disposition in order to give a “good” opinion more “clarity”. In their analysis of the cases with entry, they exploit models of electoral politics among candidates with policy preferences to derive a mean voter result and to show that the policy of the median judge is not always the equilibrium.

3.4 Panel Effects

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. Numerous subsequent studies – see, for example, Sunstein et al. (2004), Hettinger et al. (2006), Fischman (2008) – confirm this result. Fischman (2008) provides a particularly illuminating study as he estimates a structural model to determine the costs of dissent.

Cross and Tiller (1998) studied how the grounds on which the lower court rested its decision affected the behavior of panels. They found that ideology governed on homogeneous panels but that, on ideologically heterogeneous panels, the minority position would prevail when supported by doctrine.

3.5 Consistency and Coherence
In the first model of collegiality, Easterbrook (1983) 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.

Landa and Lax (2007) provide a more formal and compelling analysis. They characterize a class of “coherent” rules from which the rules of the sitting judges are drawn. They identify conditions under which the rule resulting from case-by-case majority decision will be among the set of coherent rules.

3.6 Actual Voting protocols on Collegial Courts

3.6.1 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 how 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. A single judge decides a case by deciding each legal issue in each cause of action. To prevail on a cause of action, 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 produce 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
doctrinal 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 cases 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.

Bonnefon (2007) designed an experiment to test how individuals resolved this experiment. Using roughly 1000 subjects, he found that subjects thought case-by-case decision-making was simpler and hence, ceteris paribus, preferable; that subjects prefer issue-by-issue voting when they believe that all issues are rarely resolved favorably, and finally, that subjects preferred the protocol that produced the more “lenient” outcome.

Chapman (1998, 2003) has argued that the problems presented by different results are in fact resolved by a sequential decision procedure used by courts. This procedure reflects the structure of legal reasoning.

Discussions of the doctrinal paradox have led to an extensive formal literature on judgment aggregation, a generalization of social choice theory.
that shows that there are no procedures that do not lead to paradoxical outcomes. An introduction to the theory and the literature appears on Christian List’s website at http://personal.lse.ac.uk/list/doctrinalparadox.htm.

3.6.2 Sincere versus 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.

4. Hierarchy

4.1 Why Does Hierarchy Occur? 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 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.

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.

4.2 Lower Court Compliance with Higher Courts

Hierarchy serves a variety of functions. It permits a division of labor among tiers: usually trial courts find the facts, intermediate appellate courts correct errors, and high courts make law. Several questions about the relation of courts across tiers arise. How do higher courts in fact monitor lower courts, given the costs of such monitoring? What explains the number of tiers? The following subsections address these issues.

4.2.1 Doctrine

Doctrine constitutes the central focus of much traditional legal scholarship, but it has, until recently, played little role in the social scientific study of adjudication. Doctrine may be understood as a managerial tool that higher courts use to guide and control lower courts. It is thus distinct from a number of precedential practices such as horizontal stare decisis. This subsection reviews some attempts to address doctrine formally.

Courts in common law systems do more than announce an outcome “upheld” or “reverse” to an appeal. An opinion 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 in at least one cause of action; to prevail in 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 (2005a, 2006) and Cameron, Segal, and Songer (2000).

The second approach, which adapts the framework of Ferejohn and Shipan (1990) 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 multi-dimensional 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.

Schwartz (1992) presents a political model of “doctrine” in which each justice acts in a strategic manner. “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 member’s point of view. Schwartz then illustrates his analysis through a discussion of some reapportionment cases.

Other early models of doctrine treat doctrine in a similarly schematic way. In McNollgast (1995), courts determine around an “ideal point”. This discretionary range provides a safe harbor for lower courts. If they locate their decisions within this area, they escape review. Tiller and Spiller (1999) analyze a model in which a court may choose among different grounds on which to rest a decision. Some instruments provide greater protection from reversal and the lower court chooses strategically.

Richards and Kritzer (2002) consider “jurisprudential regimes” as a set of case-relevant facts that structure judicial inquiry and affect the outcome. Using logistic regression, they argue that these jurisprudential regimes have substantial effects on judicial decision.

A number of papers have studied the extent to which a lower court complies with the doctrinal dictates of higher courts. These studies generally focus on a particular doctrinal area. Gruhl (1980) studied libel law; Songer
and Haire (1992) studied obscenity cases, and Songer, Segal, and Cameron (1994) studied search and seizure cases. These cases generally find a substantial degree of compliance, though it is difficult to distinguish compliance induced by fear of reversal from compliance induced by respect for the law.

The quantitative study of courts has relied primarily on standard regression tools, either ordinary least squares or logit or probit analyses. These are not obviously well designed to study doctrine as it is difficult to capture doctrinal structure within this framework. One might, for example, consider fact pattern analysis – see Kort (1957) for an early example – as an investigation into doctrinal structure. This procedure will generate a set of “weights” for the decision-relevant facts. It adopts, in some sense, a realist view of adjudication as it ignores the logical structure of doctrine.

Kastellec (2007b), in order to remedy this failing, introduced an estimation technique known as classification and regression trees or CART that sought the logical structure that best approximated the sorting actually done by the facts. Cameron and Kornhauser (2005) also argued in favor of this estimation technique, at least for doctrines that, unlike balancing tests, relied on explicit rules to determine liability. CART, however, has some liabilities. The estimation technique finds the tree that provides the best fit, not the tree that the courts actually use. This distinction is important because the use of CART on Supreme Court cases applies the technique to a set of cases that reflect the shifting boundaries of doctrine rather than the settled core of analysis. This selection bias is apt to distort the estimated tree away from the doctrine that the lower courts must apply.

4.2.2 Political agency models 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) offer a more elaborate political model. They focus 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 extend 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.

4.2.3 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 (2006) 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. In Cameron and Kornhauser (2005a), they extend the toy model to an environment
in which the plaintiff has incomplete information about the liability of the defendant. Trial now produces both a public signal, as before, and a private signal to the plaintiff. They prove a similar result that one never needs more than three tiers to minimize error. In this environment, however, equilibria require that judges on at least one lower tier adhere to a rule that, in the presence of an uninformative public signal, places liability on the defendant in order to exploit her superior information.

4.3 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 (2006) 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, Segal, and Songer (“CSS”) (2000) 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 (2006), 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.

Lax (2003) extends the model in Cameron, Segal and Songer to provide significant insight into the rule of four. The model replaces uncertainty with spatial preferences over the “facts”, as facts diverge from the cutpoint in CSS, the value of the correct disposition increases for the Laxian judge. With this preference structure, one can deduce the zone of compliance that is assumed in such doctrinal articles as McNollgast (1995), discussed above.

Lax shows how the zone of compliance alters with the rule of four. Indeed, he proves that lower court compliance with the doctrine favored by the median justice increases when the median justice will not vote for certiorari. In addition, all nine justices prefer a rule of four to a majoritarian rule. Finally, Lax shows that the justices on each side of the median justice act strategically; they signal more extreme preferences to the lower courts in order to induce more compliance.

5. Separation of Powers Models

5.1 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.

Marks (1989), in a Ph.D. dissertation, first applied positive political theory to the study of the interaction of court and congress. The paper, though it has spawned a large literature, is not easily accessible. The two earliest, published applications to adjudication appear to be Ferejohn and Shipan (1990) and Gely and Spiller (1990). 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 4.2.1 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 Shippan to analyze the balance of powers in the US Constitution in general and the effect of *INS v Chadha*, 462 US 919 (1983) 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 has 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 USA Inc. v Natural Resources Defense Council Inc*, 467 US 837 (1984), 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) have 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 time 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 decisions 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 liberalality of the judicial portfolio against the Supreme Court budget, the parameter of which is also statistically significant.

Spiller and Tiller (1997), Tiller (1998) and Tiller and Spiller (1999) study the extent of review adopted by the court. The court has preferences over policies and costs of review. Less costly review is less intensive but leaves the agency with greater discretion so that the court does not achieve as good a policy outcome as it would under more intensive review. In these models, the agency may alter its choice of regulatory instrument in order to avoid more intensive review.

Shipan (2000) introduced a prior stage to the separation of powers game. Judicial power over agency action is only in part constitutional. It is, to a large extent, controlled by the legislature, which may determine the extent of the court’s jurisdiction or the nature of review in which it engages. Shipan considers a six-stage game. In stage 1, a legislative committee decides whether to recommend a bill that authorizes agency action subject to judicial review or not subject to review. If judicial review is recommended, the legislature decides whether to accept judicial review or not. The agency then chooses a policy. When subject to review, the court reviews the agency choice of policy. The legislative committee may decide whether to introduce legislation to reverse the judicial decision. The legislature then acts under an open rule on the committee recommendation, if any. Shipan concludes that legislative discretion to include judicial review is weakly superior to the absence of discretion.

Huber and Gordon (2007) study an interesting variant of the separation of powers game. They consider sentencing decisions of state judges and study how the legislature may act to constrain or control judicial exercise of that power. In an interesting twist, they also consider the electoral incentives faced by many judges. In their model, they find that legislators who value proportionality in sentencing increase the level of judicial discretion as punishment increases. They note also that voter ignorance about the extent of statutory discretion in sentencing granted to judges and of judicial preferences for re-election limit electoral control of judges.
Stephenson (2004) introduces an electorate into the separation of powers game. There are three players: the legislature, the courts and the voters. The legislature enacts a policy and the courts may then declare the policy illegal or legal. The legislature then may acquiesce in this decision or not. The voters may then punish the legislature or not. The voter has incomplete information about the preferences of the legislature and the judiciary. Stephenson shows that legislative acquiescence in judicial review will arise when the judicial ruling of illegality is more informative about the quality of the policy than the fact that the legislature enacted it.

5.2 Empirical Studies of Separations of Powers
This separation of powers model provoked controversy among the community of political scientists who study "judicial politics". The attitudinal model that had dominated the literature assumed that high court judges simply voted their preferences unconstrained by the other branches. Segal (1997, 1998), a leading attitudinalist, tested the degree to which the US Supreme Court is in fact constrained by Congress. He examines statutory decisions between 1947 and 1992 and concludes that the Supreme Court was rarely constrained.

Bergara et al. (2003) re-estimated Segal’s dataset using a maximum likelihood method from Gely and Spiller (1992). Contrary to Segal’s finding, they concluded that the US Supreme Court was constrained in roughly one-third of its decisions in the 46 years under study.

Smith (2007) studies empirically the model in Cohen and Spitzer (1994). Smith analyzed cases decided by the United States Supreme Court between 1969 and 1999. He considers two hypotheses: (1) following the strategic analysis of Cohen and Spitzer, the first hypothesis states that justices will be more likely to vote in favor of deference to administrative agencies when they are ideologically closer to the sitting president; and (2) following the attitudinal model, the second hypothesis states that justices will be more likely to vote in favor of deference when the judges are ideologically closer to the President at the time the agency acted. Smith finds support for the attitudinal hypothesis, but not for the strategic hypothesis.

A number of other studies, perhaps spurred by Eskridge (1991), have sought to understand Congressional responses to Supreme Court review.

6. 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


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Spaeth, Harold and Segal, Jeffrey (1999), *Majority Rule or Minority Will: Adherence to Precedent on the U.S. Supreme Court*, Cambridge: Cambridge University Press.


