The Development of a Legal Rule: The Federal Common Law of Public Nuisance

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Scholars from across disciplinary lines are interested in understanding legal development. One impediment to the quest for a systematic explanation has been measures of legal change. Indicators like whether a court overturns an earlier ruling capture one facet of legal change but fail to capture the full range of courts' actions to develop legal doctrine. I introduce an alternative measure of legal change here—one based on Levi's (1949) focus on whether factual circumstances are or are not encompassed by the law. I use the U.S. Courts of Appeals decisions on the federal common law of public nuisance to illustrate this measure. Utilizing a multinomial logit model to explore the appellate judiciary's decisions to develop this legal doctrine, I find that the judges' decisions to develop the federal common law are explained by the judges' policy preferences; the litigation environment consisting of party resources, attorney experience, and amicus support; as well as the broader political context of public opinion and Supreme Court rulings.

Judicial scholars have not often systematically examined changes in the courts' policy product—legal rules (Epstein & Kobylka 1992; Wahlbeck 1997). While Spaeth (1965) and others (Peltason 1955; Schubert 1965) state their preference for moving away from doctrinal analysis, imbued as it often is in normative issues, the policy significance of legal rules adopted by courts has not been ignored. Indeed, Segal and Spaeth (1993:261) recognize that the Supreme Court's opinion "constitutes the core of the Court's policy-making process." This is because court opinions affect more than the parties to the current litigation. The rules articulated by courts, like other institutions, guide behavior by providing information about mutual expectations and providing sanctions for noncompliance (Knight 1992). Hurst (1956), in discussing the development of law governing the institution of

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private property, maintained that "legal procedures and tools and legal compulsions . . . create a framework of reasonable expectations within which rational decisions could be taken for the future" (pp. 10–11). As Justice Holmes put it, a person's compliance with his or her legal duty is based on "a prophecy that if [that person] does certain things he will be subjected to disagreeable consequences by way of imprisonment or compulsory payment of money" (1897:461). In this respect, court decisions derive significance from the impact of their rules on expected patterns of behavior and their sanctions for violations of those patterns.

If the policy significance of court decisions lies in the legal rules they contain, it is important to understand what influences the law's development. Although there are numerous accounts of events surrounding important court decisions (see, e.g., Faux 1988; Friendly 1981; Kluger 1975; Lewis 1964), few systematic attempts have been made to examine legal development. Some scholars have studied the Supreme Court's decision to overturn past decisions (Brenner & Spaeth 1992; Kemper 1997; Spriggs & Hansford 1998). These studies examine explanations for whether the Court overturns a particular decision. Epstein and Kobylka (1992) examine doctrinal change in the Supreme Court's abortion and capital punishment decisions, exploring the influence of the Court's composition, the political environment, and the arguments presented to the Court by the litigants and amici. I have developed a measure of legal change and applied it to the Supreme Court's search and seizure decisions to test the influence of judicial preferences, the litigation environment, and the political environment (Wahlbeck 1997).

These studies all investigate legal development in the Supreme Court but overlook the substantial role played by lower federal courts in the formation of legal doctrines. As reflected in the judicial impact literature, much of legal development occurs in the lower courts. The judicial impact literature reveals that lower courts often have substantial authority to modify the law (Mather 1995; Murphy 1959). This is particularly true when the Supreme Court decision being implemented lacks specificity (Baum 1976; Johnson & Canon 1984; see also Spriggs 1997). After all, it is under this circumstance that lower courts have greater discretion in determining the path of legal development (Songer 1991). Moreover, Perry (1991) notes, the Supreme Court often permits issues to percolate in the lower courts before granting certiorari.

I examine whether legal development in the U.S. Courts of Appeals is affected by judicial preferences, the litigation environment, and external political factors. To do so, I study the development of the federal common law of public nuisance, a legal rule that allows federal courts to stop harmful pollution.

Although the Supreme Court affirmed this common law rule, it only directly addressed the federal courts' jurisdiction over these cases. By delegating the task of establishing the parameters of this rule, the Supreme Court gave the federal lower courts the opportunity to shape the contours of the new legal rule.

Studying Legal Change

The most formidable obstacle to systematically examining legal development is measuring legal change. As noted earlier, judicial scholars have conceptualized change in a variety of ways. Some have examined the Supreme Court's decision to overturn or alter its precedent (Ball 1978; Brenner & Spaeth 1992; Kemper 1997; Spriggs & Hansford 1998), while others have examined whether lower court decisions evade or comply with earlier decisions, following the treatment of the Shepard's Citation service (Johnson 1979; Klein 1996; Reid 1988). These treatments of legal change are likely to understate its occurrence. For instance, the Supreme Court's decision to overturn or alter precedent formally is relatively infrequent, having occurred only 117 times (2.2% of all decisions) between the 1953 and 1995 terms (Spaeth 1997).[1] Alternatively, one can view the law as a set of factual circumstances that are encompassed within the scope of the legal rule (Levi 1949; Mather 1995; Wahlbeck 1997). The crux of this process is the determination that a specific factual circumstance should be included within this set or excluded from it. If the factual circumstance falls within the set encompassed by the legal rule, a particular judicial response is triggered, such as liability or an injunction. Thus, in every case, judges may produce legal change, on the one hand, by determining that a new factual situation triggers the judicial response mandated by the legal rule or, on the other hand, by holding that a factual circumstance that once was seen as prompting a judicial response is now excluded from the set.

This focus on the law as key factual attributes that produce a legal response has been used previously by judicial scholars to test the constraining effects of the law. Beginning with Kort (1957, 1963) and Segal (1984), legal standards are identified by certain legally relevant facts. In Segal (1984), the doctrine of search and seizure is defined by the presence of a warrant or probable cause, the defendant's expectation of privacy as indicated by the search's location, and exceptions to the general rule, such as searches incident to an arrest. If a case presents certain facts, Segal finds that the Supreme Court is much more

[1] These data are derived from the "alter precedent" variable in Spaeth (1997). The unit of analysis is case citation, and I include all decisions announced after the Court heard oral argument, whether the decision was released as a signed opinion, a per curiam opinion, or a judgment of the Court.

likely to hold a search unreasonable and bar evidence derived from that search. The focus on legal facts has since been adopted by other judicial scholars as a means of controlling for the law (George & Epstein 1992; Hagle 1991; McGuire 1990; Songer & Haire 1992).[2]

Most uses of legal facts, however, assume that the law and the set of legally relevant facts are stable. Defining the law as consisting of a set of facts does not necessarily suggest that the law is fixed. Instead, legal change can be observed in the movement of factual circumstances into and out of the set covered by the legal doctrine. The scope of the law changes as judges include new factual matters in the set covered by the rule or as judges exclude factual matters from the set covered. Using this conception of the law and legal change, I examined the Supreme Court's search and seizure decisions (Wahlbeck 1997).

I build on this work in three ways. First, I defined the legal status quo on the basis of issue-based categories, like requirements for a warrant. I placed case facts into these issue-based categories and then defined legal change according to whether the state assigned to the most recent cases in those categories is altered.[3] As I noted, this allows one to observe legal change, but the use of issue-based categories conceals some of the richness of the dynamic character of the law. Instead, one can examine the changing contours of the set of factual circumstances comprised by the legal rule by observing the flow of specific facts into and out of the set encompassed by the legal rule. To do this, I changed the baseline for the legal status quo from the state assigned to issue-based categories to a legal doctrine enunciated by the Supreme Court. Second, I examined the behavior of the Supreme Court as an institution, rather than examining the choices of individual justices. Clearly, understanding the dynamics of the Court's policy output is important. After all, positive theories of Court-Congress interactions, for instance, are premised on the assumption that Congress may respond to the Court's, not a justice's, policy positions (Epstein & Walker 1995). Nevertheless, the dominant explanations of judicial behavior tend to focus on the individual decisionmaker, the judge (see, e.g., Segal & Spaeth 1993). Thus, it is important to determine if these common explanations of behavior extend to judges' deci-

[2] This is consistent with the game-theoretic literature that defines legal doctrines as sets of fact situations that are grouped together and treated similarly (Cameron, Segal, & Songer 1997). For more discussion, see Kornhauser (1992a, 1992b).

[3] I placed factual circumstances into 12 issue-based categories and characterized the Court's action as either including them within the ambit of a reasonable search or seizure (inclusive state) or placing them outside the scope of the Fourth Amendment's protection (exclusive state). If the Court had not yet considered the placement of a category's fact, it was considered to be in a null state. If the Court changed the state assigned to a fact category, I coded the Court's decision as producing either expansive or restrictive legal change.

sions on legal change. Third, as noted above, I examined the Supreme Court's role in developing the law. While many landmark developments begin at the Supreme Court, the lower courts may play a significant role in the development of the law.

The Federal Common Law of Public Nuisance

The federal common law of public nuisance provides an example of a legal rule in development. In short, this legal doctrine allows parties to bring suit in federal court to stop pollution. The Supreme Court first recognized this doctrine in 1907 and then reaffirmed it in 1972, but relegated responsibility for its development to the lower federal courts.[4] During the relatively short life of this common law rule, the U.S. Courts of Appeals decided 28 cases that pertained directly to it. The Supreme Court, however, arrested the development of this common law doctrine in 1981 when it ruled that the common law was preempted by federal environmental legislation.

The common law of public nuisance historically has been particularly well suited to attempts to condemn socially undesirable behavior. It grew from its origins in protecting the sovereign and the public from interference with commonly held interests to prohibiting a wide range of conduct deemed socially unacceptable. A public nuisance has come to mean

> a violation of a public right, either by a direct encroachment upon public rights or property, or by doing some act which tends to a common injury, or by omitting to do some act which the common good requires, and which it is the duty of a person to do, and the omission to do which results injuriously to the public. (Wood 1893:38–39)

Relying on this definition of public nuisance, courts have banned a wide array of social behavior to protect the public interest in health, safety, morals, peace, comfort, or convenience (Keeton 1984; Wood 1893). It has been applied to protect public health by proscribing the sale of diseased meats or the exposure of persons with contagious diseases, public safety by proscribing the storage of combustible or explosive materials, and public morality by banning lotteries and obscene pictures (Keeton 1984).

The Supreme Court in *Georgia v. Tennessee Copper* (1907) first recognized that pollution creates a public nuisance. The Supreme Court held that states have a legally enforceable interest in stopping pollution based on their quasi-sovereign interest in "all the earth and air within its domain" (p. 619). Justice Holmes, writing for the Supreme Court, stated:

[4] The Supreme Court relied on the federal common law of public nuisance in spite of its broad pronouncement in *Erie Railroad Co. v. Tompkins* (1938:78) that "there is no federal general common law."

> It is a fair and reasonable demand on the part of a sovereign that the air over its territory should not be polluted on a great scale by sulphurous acid gas, that the forests on its mountains, be they better or worse, and whatever domestic destruction they have suffered, should not be further destroyed or threatened by the act of persons beyond its control, that the crops and orchards on its hills should not be endangered from the same source. (P. 619)

This doctrine lay dormant until a federal appellate court allowed the state of Texas to file an action to stop pollution originating in another state (*Texas v. Pankey* 1971). The following year, the Supreme Court followed suit by recognizing the federal common law of public nuisance in *Illinois v. City of Milwaukee* (1972).

Development of the Legal Doctrine

The Supreme Court's decision in *Illinois v. City of Milwaukee* (1972) created a wave of cases seeking to apply this newly reemergent legal doctrine to other polluters. The legal debate centered primarily on three aspects of this formative doctrine: the character of the parties, the nature of the pollution, and preemption.[5] The lower court decisions illustrate the dynamic nature of legal rules, which can be observed in the changing set of factual circumstances covered by the federal common law.

The Character of the Parties

The earliest cases applying the federal common law of public nuisance involved states seeking to abate pollution. Indeed, it was arguably the interest of the state that led the federal courts to permit such suits. In *Georgia v. Tennessee Copper* (1907), the Court ruled that states have a quasi-sovereign interest in the land and air within their domain. This interest in "all the earth and air within its domain" is independent of title to the property (p. 619). The states' special interest was reinforced in *Texas v. Pankey* (1971). The appellate court announced that a state has the right to protect its ecological interests; a state may protect itself "from an improper impairment of its natural conditions of environment and resources, by acts done outside its boundary and so not subject to local reach or control" (pp. 239–40). Thus, at the outset, states were included within the ambit of the public nuisance doctrine.

The principle announced in *Georgia* and *Texas*, however, might appear to limit the scope of the set of proper plaintiffs to state governments. When the City of Evansville, Indiana, sought to stop a company from dumping toxic chemicals into its drink-

[5] For a discussion of the federal common law of public nuisance, see Bryson & Macbeth 1972; Environmental Law Reporter 1980; McCarthy 1982; Murchison 1986.

ing water supply, the defendant company maintained that the federal court lacked jurisdiction because the plaintiff was not a state and did not represent Indiana's quasi-sovereign interest or ecological rights (*City of Evansville v. Kentucky Liquid Recycling* 1979). The appellate court, however, held that municipalities could bring suit. Similarly, the set of permissible plaintiffs was expanded to include the federal government (*United States v. Ira Bushey & Sons* 1972).

Individuals, on the other hand, were excluded initially from this classification. District courts denied individuals access to the federal courts because they were not government entities (*Parsell v. Shell Oil* 1976; *Township of Long Beach v. City of New York* 1978). The District Court for New Jersey stated: "Defendants herein first argue that plaintiff cannot bring this action since it is not a State. It is agreed that the decision in *Illinois v. City of Milwaukee* . . . should not be extended to encompass an action by a private person" (*Township of Long Beach* 1978:1213). Nevertheless, individuals were eventually brought within the set of proper plaintiffs (*National Sea Clammers Ass'n v. City of New York* 1980). In holding that individuals could maintain actions for nuisance, the appellate court noted that the Supreme Court in *Illinois v. City of Milwaukee* (1972) did not rely on the governmental character of the parties but on the federal interest at stake. Thus, private persons were eventually allowed to bring suit under the federal common law of public nuisance.

Source of the Pollution

Another issue in the federal common law of public nuisance is the interstate nature of pollution. States lack the ability to stop polluters located outside their territory. By joining the Union, states forfeited their independent right to forcibly stop emissions that harmed their domain, but they "did not renounce the possibility of making reasonable demands on the ground of their still remaining quasi-sovereign interests" (*Georgia v. Tennessee Copper* 1907:619). When this legal doctrine was resuscitated in *Texas v. Pankey* (1971), the court held that Texas was not required to go into New Mexico state courts to seek relief from pollution occurring in New Mexico that adversely affected Texas drinking water. The court stated: "Federal common law and not the varying common law of the individual States is, we think, entitled and necessary to be recognized as a basis for dealing in uniform standard with the environmental rights of a State against improper impairment by sources outside its domain" (p. 241).

The converse of interstate pollution is intrastate pollution, which appellate courts first excluded from the scope of the federal common law of public nuisance. In *Reserve Mining v. Environmental Protection Agency* (1975), the appellate panel addressed the

issue of whether intrastate pollution is covered by the federal common law of public nuisance. Minnesota, joined by the federal government and the states of Wisconsin and Michigan, brought suit against Reserve Mining Company to enjoin pollution emanating from a processing plant in Silver Bay, Minnesota. The court rejected Minnesota's nuisance claim since the source of pollution was deemed to be intrastate. In fact, the United States only alleged health risks in the immediate vicinity of the plant, and Wisconsin and Michigan surprisingly did not allege interstate effects. Subsequently, other appellate courts also excluded intrastate pollution from the scope of the federal common law.

Despite the accumulated weight of decisions excluding intrastate pollution, this factual circumstance was placed ultimately within the scope of the federal common law of public nuisance when the state of Illinois brought an environmental nuisance action against an Illinois company for discharging pollutants from its Illinois-based plant into the North Ditch, Waukegan Harbor, and Lake Michigan (*Illinois v. Outboard Marine Corp.* 1980). In permitting a suit against intrastate pollution, the appellate court maintained that the Supreme Court in its 1972 decision did not attach "any weight to the fact that the pollution came from an out-of-state source" (p. 626). The court instead emphasized the Supreme Court's intention to extend the common law to nuisances caused by pollution of either interstate or navigable waters. After all, intrastate pollution of large lakes and long rivers has an interstate effect; as succinctly stated by the court, "Fish swim" (p. 628).

Preemption

In light of federal legislation addressing environmental concerns, appellate courts confronted the question of the relationship between the federal common law and federal environmental statutes. The earliest cases of environmental nuisance found that this common law remedy was not preempted by federal environmental legislation. In *Illinois v. City of Milwaukee* (1972), the Supreme Court found that the remedy sought by Illinois was not within the precise scope of the remedies prescribed by Congress. That case's progeny reaffirmed that environmental nuisance was not preempted by federal legislation. In *California Tahoe Regional Planning Agency v. Jennings* (1979), although the court ultimately restricted the scope of the federal nuisance law, the court stated that the federal common law of public nuisance was not preempted by the Clean Air Act or the Federal Water Pollution Control Act. Each of these environmental laws contains a "citizen suit" provision stating that the statutory remedies do not "restrict any right which any person . . . may have under any statute or

common law." The appellate court took this provision as a restriction on the preclusive effect of these statutes.

Despite these precedents, appellate courts ultimately found that federal environmental legislation preempted recovery under the federal common law. This development began with the finding in *United States v. Dixie Carriers* (1980) that the Federal Water Pollution Control Act provides the exclusive remedy for recovering the government's oil spill cleanup costs. The appellate judges found that the structure of remedies under the statute suggests that Congress intended to create a "balanced and comprehensive remedial scheme" (p. 739). As a result, the court ruled that the act provides the exclusive remedy for recovering the cost of cleaning oil pollution. Indeed, in *City of Milwaukee v. Illinois* (1981), the Supreme Court again weighed in on the federal common law of public nuisance by deciding that the common law was preempted by the Federal Water Pollution Control Act Amendments of 1972.

Legal Change and Environmental Nuisance

This discussion of the development of the federal common law of public nuisance demonstrates the dynamic nature of law. The set of legal matters encompassed by the law is not static. By focusing on changes in the set of legal matters that will or will not prompt the court to step in to stop pollution under this legal doctrine, one gains a sense for the path of legal development. Courts eventually allowed private individuals to bring environmental nuisance suits after years of maintaining that only governmental entities were proper plaintiffs. In 1980, the court allowed a suit seeking to stop intrastate pollution while previously permitting only suits to abate interstate pollution. In 1981, the Supreme Court held that federal legislation preempted the federal common law of public nuisance, after courts had ruled that such legislation preserved the federal common law. Comparisons with the legal rule as originally announced by the Supreme Court, then, provides a measurable sense for the occurrence of legal change. Clearly, when the appellate courts decided, for instance, that private individuals could maintain a suit under this federal common law rule, it expanded the breadth of the rule's reach.

It is important to note, as well, that this focus on a dynamic set of matters covered by the legal doctrine differs from usual voting studies. Those studies highlight the disposition of the case—whether the litigant advocating the environment position, for instance, won the case. While this provides information on the ideological character of the decision, it does not tell us anything about the legal development that occurs in the opinion. It is quite possible, of course, for a decision to follow the existing legal rule with no necessary alteration. In the foregoing discus-

sion, it becomes apparent that for many years, appellate courts did not overturn the Supreme Court's conclusion that environmental legislation did not preempt this federal common law doctrine. In essence, these decisions were supportive of the position taken by environmental proponents, but the opinions did not modify the set of legal facts encompassed by the legal doctrine. This is not to say that legal change does not have a strong ideological component—here, opinions that expand the legal rule are, by definition, liberal decisions, while those that restrict its scope are conservative. Measures of legal change, however, depart from vote-based ideology when judges simply follow the existing legal doctrine. This underscores the fact that the enterprise of studying legal change is fundamentally different from studying simple outcome voting.

Judicial Politics and the Development of the Law

What explains legal development? In particular, what explains the development of the federal common law of public nuisance? When attempting to explain legal development, many judicial scholars rely on an explanatory mode common to judicial voting studies. Indeed, they have had success explaining change on the Supreme Court as a function of policy preferences, the litigation environment, and political factors (Baum 1992; Epstein & Kobylka 1992; Hensley & Smith 1995; Segal 1985; Wahlbeck 1997).

Judicial Policy Views

The study of judicial politics emphasizes the importance of judges' policy preferences (see Pritchett 1948; Schubert 1965; Rohde & Spaeth 1976; Segal & Spaeth 1993). These studies and others have found that votes cast by judges are consistent with their underlying policy views. Just as judges prefer the disposition that is closest to their policy preference, it is reasonable to expect judges to prefer legal rules that match their preferences. After all, these rules are not neutral, but have profound policy consequences (see Knight 1992; Shepsle 1989). Accordingly, one expects judges to favor rules that produce their preferred policy outcome. As such, legal rules should not only be seen as factors that influence judicial behavior (Segal 1984; George & Epstein 1992) but as the principal policy product of the court, and judges are expected to prefer rules proximate to their preferred policy position (Knight & Epstein 1996a; Wahlbeck 1997).

While these findings are drawn largely from studies of the Supreme Court, the expectation is consistent with the appellate court literature. Beginning with Goldman (1966, 1975), scholars have found a relationship between political preferences and deci-

sionmaking (Gottschall 1986; Rowland, Songer, & Carp 1988; Songer & Davis 1990; Spriggs & Wahlbeck 1995). One might particularly expect this to be the case when the Supreme Court, as here, gives the lower courts considerable discretion (Songer 1982, 1991). Thus, one would expect appellate court judges to develop the federal common law of public nuisance in a manner consistent with their policy preferences.

Litigation Environment

Legal rules are forged by judges in an adversarial arena where attorneys, parties, and amici curiae are pitted in competition. In this environment, as I discuss below, some litigants have an advantage over others by virtue of their superior resources, experienced counsel, and amicus support, and one expects the more resourceful party to be more likely to win court sanction of favorable legal rules.

First, one expects litigants with superior resources to be successful in attaining favorable rules. Principally this means litigants with substantial financial resources who are able to hire superior legal representation and incur extensive expenses to bolster their case (Sheehan, Mishler, & Songer 1992). One result is that they are much more successful in appellate courts than less resourceful litigants (Songer & Sheehan 1992; Lawrence 1990). For instance, research has demonstrated that the federal government is particularly successful (Segal 1988, 1990; Segal & Reedy 1988). One would expect resourceful parties not only to have a winning record in court but also to gain rules that will give them substantial leverage in future encounters (Galanter 1974).

A second facet of litigant strength is the counsel employed by the parties. Litigants who are represented by experienced attorneys have an advantage over litigants represented by inexperienced attorneys. Judges need a clear presentation of the issues, of the relationship of those issues to existing law, and of the implications of a decision for public policy (McGuire 1995). On the one hand, experienced attorneys may be more prepared to offer such a presentation because they are repeat players who have developed expertise (Galanter 1974). On the other hand, the reliability of information presented by attorneys may vary with the credibility of the source, and attorneys who regularly argue cases on the appellate level desire to protect their credibility for future litigation (McGuire 1995). As a result of the litigators' expertise and greater credibility, parties represented by attorneys with more experience are more likely to gain advantageous rules.[6]

[6] It may be, however, that experienced attorneys will be selective in their choice of cases. If this is true, one would find that experienced litigators will take cases that are more likely to be significant; in other words, seasoned lawyers may take cases when the court is expected to produce a decision that results in legal change. In fact, in my 1997 study I found that greater attorney experience is positively related to both restrictive and

Third, many interest groups and institutions participate in court by filing amicus briefs, which signal the possible policy significance of the case as well as the potential political implications of the decision (Barker 1967; Caldeira & Wright 1988) and also supplement or reinforce the arguments made by the litigants (Epstein & Kobylka 1992; Spriggs & Wahlbeck 1997). Consequently, one expects parties that have substantial amicus support to be strategically advantaged (but see Songer & Sheehan 1993).

The Political Environment

Judicial scholarship also suggests that judges are strategic actors who make decisions within a broader political context (Murphy 1964; Knight & Epstein 1996b). In the lower federal courts, one component of the political environment is the public. Although there is some question as to the effect of public opinion on Supreme Court justices (see Barnum 1985; Flemming & Wood 1997; Mishler & Sheehan 1993; Norpoth et al. 1994), appellate court judges are arguably more likely to be affected by the views of the public. Supposedly, their proximity to and interaction with people in their communities make them more susceptible to influence (Cook 1977; Kritzer 1978; Peltason 1961). Thus, as the public's support for pro-environment policies is heightened, it is more likely that the judge will act in support of those views.

A second component of the political environment pertains to judges' interaction with the Supreme Court. In many respects, appellate courts can be seen as agents of the Supreme Court (Baum 1976; Johnson & Canon 1984; Murphy 1959; Songer, Segal, & Cameron 1994). They are charged with implementing the policies announced by the high court. Although appellate courts retain discretion over their response to the Supreme Court's decision, some scholars have found that lower federal courts are responsive to the Supreme Court (Baum 1980; Johnson 1979; Songer 1987). With its 1981 decision, the Supreme Court largely removed the lower courts' discretion in the area of the federal common law. Moreover, it gave a clear signal that the federal common law would not extend to areas covered by environmental legislation. Thus, I expect appellate courts to have become more restrained in producing legal change once the Supreme Court issued its second, more specific, decision in 1981.

expansive legal change. In light of this, I utilize a two-tail test of significance for this hypothesis here.

Data and Methods

Over the years, the U.S. Courts of Appeals announced decisions in 28 cases raising issues under the federal common law of public nuisance between 1971 and 1988.[7] The vote of each judge empaneled in these cases was placed into one of three categories: did not support legal change, supported expansive legal change, or supported restrictive legal change.[8] To determine whether a judge supported legal change, I first defined the set of factual circumstances that constitutes the doctrine of public nuisance as defined by the Supreme Court. The Court's decision, *Illinois v. City of Milwaukee* (1972), announced a rule that can be summarized as allowing state governments to sue in federal courts to abate pollution to waterways and the air from out-of-state sources under a federal common law doctrine, which is not preempted by federal environmental statutes.[9] Thus, the set of factual circumstances encompassed by the federal common law can be defined by the party bringing suit (state governments), the source of the pollution (out of state), the medium polluted (water and air), and preemption (not preempted). If the appellate panel heard a case involving whether a municipality may bring suit under the federal common law, and the court decided that it may, this would expand the set of factual circumstances encompassed by the doctrine. On the other hand, if an appellate tribunal decided that a party may not seek to abate pollution emanating from within the state, this would restrict the set of factual circumstances covered by the federal common law. After the Supreme Court reached its subsequent decision in *City of Milwaukee v. Illinois* (1981), the baseline for legal change was modified to indicate that the status quo was legislative preemption of the federal common law. Thus, if an appellate judge voted that the common law is preempted by a federal statute, this was coded as not changing the law. The 28 appellate decisions are listed in the

[7] I identified these cases by searching a computerized database of all published decisions from the federal appellate courts between 1970 and 1991. These searches requested all cases that contain combinations of key words, including "common law" and "nuisance," "environment," or "pollution." These searches disclosed many decisions that are not directly related to environmental issues, making only incidental mention of the environment or the common law. The sample was thus further screened to exclude cases not involving claims of damage from pollution, and again winnowed to include only decisions that directly resolved a question related to the federal common law of public nuisance. This screening process removed all those cases in which the plaintiff claimed that pollution created a public nuisance when that claim was not at issue or was not decided in the appeal. The product was 28 decisions in which the U.S. Courts of Appeals directly considered the application of the federal common law of public nuisance.

[8] In two cases, the court's decision both restricted the scope of the federal common law and retained the status quo. For these two cases, I coded the issue on which legal change occurred. Alternatively, I could add a second set of observations for the issue, but this does not change my findings.

[9] Note that the holding of *Illinois v. City of Milwaukee* (1972) is consistent with the Supreme Court initial ruling in *Georgia v. Tennessee Cooper* (1907).

Appendix with a brief description of the issue raised by the appeal and its resolution.

I estimated the model using a multinomial logit model, which is appropriate when the dependent variable includes several nominal categories (Aldrich & Nelson 1984; Greene 1993; Maddala 1983).[10] Since this technique estimates the likelihood that an option will be chosen compared with another alternative, which serves as a base, the model provides two sets of estimates. To get at the decision to change the legal rule in an expansive or restrictive direction, as opposed to preserving the status quo, I execute the model with the base category of no change. Since the unit of analysis is the judge's position, I have between 3 and 15 observations for each case. In such a data arrangement, the observations within case are not independent of the other observations from that case, although they are independent of observations from other cases. To correct for this within-case correlation of errors, I use the robust variance estimator, which relaxes the independence assumption (White 1980).

Independent Variables

Policy Preference

I measured the judge's policy preferences by ascertaining his or her partisan affiliation. This variable assumes the value of 2 if the judge is a Republican, 1 if the judge is an independent, and 0 if the judge is a Democrat.[11] These data were derived from Zuk, Barrow, & Gryski (1997).

Party Type

The categories for parties were the federal government, a state or local government, a business, an organization or association, or an individual. I used two variables—one that identified the type of party asserting a right under the federal common law (environmental party) and one corresponding to the party defending against that action (other party). If the party is the federal government, the party type variable was coded 5; state and local governments received the value of 4, businesses equaled 3, interest groups and other associations were assigned the value of 2, and individuals were coded 1.[12]

[10] One assumption underlying the multinomial logit model is the independence of irrelevant alternatives. In this event, the appropriate estimator is a multiple-equation bivariate probit model (Greene 1993:670–72). This modeling strategy produces similar results for expansive and restrictive change.

[11] The results reported below do not change if one drops the independents and runs the model with a party variable that takes the value of 1 for Republican judges and 0 for Democrats.

[12] It would be preferable to use a series of party-specific dummy variables, but the model is unable to estimate coefficients for each of these variables.

Attorney Experience

I measured the experience of the lead litigator for each party by counting the number of previous federal court appearances. These data were collected by searching Lexis for the lead attorney's name in cases decided prior to the case in question.[13] Since these data are skewed, as indicated by a mean experience of 18.9 prior cases compared with the median of 4, I employed a variable indicating whether an attorney had participated previously in 5 or more cases. Of the cases examined in this study, the environmental party was represented by an experienced litigator 14 times (50%), while their adversaries hired experienced attorneys in 14 cases as well.

Amicus

I measured amici support by counting the number of amicus briefs filed in support of each party. There was amici participation in 6 of the 28 public nuisance cases (21.4%). Amici activity was identified by searching each decision in Lexis for "amici" or "amicus."[14] I used the difference between the number of amicus briefs filed for the environmental party and the number of briefs supporting the other party. Thus, a positive value reflects greater amici support for the party pursuing the federal common law.[15]

Public Opinion

I adopted a measure taken from the General Social Survey (Davis & Smith 1998). This annual survey has asked a question on the level of government spending for the environment to which respondents may reply that too little is being spent, too much, or about the right amount.[16] I calculated the proportion of respondents who believed that too little was being spent. The

[13] More specifically, I searched the Lexis federal courts database (courts file in the "genfed" library) for the attorney's name in the counsel field. In those cases where each side had multiple parties, I used the count for the most experienced lead litigator.

[14] The decisions identified amicus participation in either the counsel field by listing the attorneys of record for the amici or in the text of the opinion by referring to the arguments presented by the amici.

[15] I use the difference-based variable because coefficients cannot be estimated when one includes separate amicus variables for the two sides, as I do for litigant status and attorney experience.

[16] More specifically, the survey asks: "We are faced with many problems in this country, none of which can be solved easily or inexpensively. I'm going to name some of these problems, and for each one I'd like you to tell me whether you think we're spending too much money on it, too little money, or about the right amount. Are we spending too much, too little, or about the right amount on improving and protecting the environment?" Note that this survey is missing data for two years in which appellate courts reached decisions in public nuisance cases. In those two years, 1971 and 1981, I used the value assigned to the following year only (1972) since 1971 is the first year the survey was conducted, and I used the average of the preceding (1980) year and the following (1982) year.

mean public opinion is .520 on a scale ranging from .406 (the most conservative citizenry) to .688 (the most liberal).

Supreme Court

I included a dichotomous variable that took the value of 1 if the appellate court's decision was rendered after the Supreme Court's announced its decision in *City of Milwaukee v. Illinois* (1981).[17] Eight cases were decided following 28 April 1981.

Findings

There were 106 votes cast by judges on appellate panels in the 28 cases resolving federal common law issues. In 90 instances, judges favored legal change. Principally, the judges supported restrictive change to the federal common law (65 of the 90, 76.4%), voting to exclude, say, intrastate pollution from the set of factual circumstances encompassed by the public nuisance doctrine. Only 25 judges (23.6%) cast votes to expand the parameters of the federal common law to include, for instance, private individuals. The model does reasonably well predicting the decisions of the federal appellate judiciary to produce doctrinal change. It correctly predicts the decision of judges—restrictive change, no change, or expansive change—in 80 of 106 votes (75.5%). The proportional-reduction-of-error statistic is 55.0%, and the pseudo R^2 is .446.[18] Finally, the Wald test, as seen in the statistically significant χ^2, allows rejection of the null hypothesis that all of the estimates except the intercept equal 0 (Table 1).

The expectation that appellate court judges would develop legal rules consistent with their policy preferences gained partial support. More specifically, the negative and significant coeffi-

[17] Some might suggest that it would be preferable to use, as an alternative, a measure of Supreme Court ideology. I chose not to use this measure because it does not directly tap the effect that I expect the Supreme Court to have on the development of this legal doctrine. The measure that I use directly captures the Supreme Court's monitoring of the lower courts' development of this legal rule. This change in course sent a signal to lower courts of what the Supreme Court would tolerate. Nevertheless, when I subsequently ran a model with Supreme Court ideology, that coefficient was statistically insignificant.

[18] I use tau as the proportional reduction of error statistic instead of lambda, which compares the number of errors from predictions generated from the model with observed nonmodal outcomes. The advantage of tau is that it takes into account the distribution across the outcomes. In short, one calculates the number of errors one would make if one randomly guessed the observed number of observation in each category. One can calculate the number of erroneous random predictions by multiplying the number of observations in the category by the proportion of observations that fall into other categories. For instance, there were 25 observations in which judges actually supported expansive change. If one randomly drew 25 observations and predicted that they would each fall into the expansive change category, one would be wrong 19.1 times (25 * .7642). After performing this calculation on each outcome category and summing the errors, one subtracts the model-generated errors from this sum and then divides that difference by the summed, randomly drawn errors. For more on using this proportional reduction of error statistic, see Sigelman (1984).

Table 1. Multinomial Logit Model of Legal Change

Variables	Expansive Change/ No Change	Restrictive Change/ No Change
Policy preference	−1.533***	−.965
	(.433)	(.343)
Environmental party type	−1.046	1.287
	(.910)	(1.002)
Other party type	−1.942	2.079*
	(1.756)	(1.008)
Environmental attorney experience	7.808**	7.179**
	(2.614)	(2.282)
Other attorney experience	7.959***	4.050*
	(2.696)	(1.857)
Amicus	13.742***	5.065
	(4.145)	(1.977)
Public opinion	23.427	−29.455*
	(22.594)	(13.564)
Supreme Court	−11.646***	−7.297**
	(3.697)	(2.551)
Constant	−3.182	4.241
	(6.351)	(5.509)
No. of observations = 106		
χ^2 (16 df) = 47.500***		
Pseudo R^2 = .446		
% correctly predicted = 75.472		
Reduction of error (%) = 55.043		

NOTE: Robust standard errors reported in parentheses.
* $p < .05$ ** $p < .01$ *** $p < .001$

cient for the expansive change–no change comparison indicates that Republican judges were less likely to produce expansive change than to support the status quo.[19] The impact of judicial preferences is illustrated in the simulated probabilities presented in Table 2. For Republican appointees, the likelihood of expansive change was only 4.2%. In contrast, a Democrat was nearly three times as likely to support expansive change. Surprisingly, however, the policy preferences coefficient for the restrictive change–no change comparison was not significant.

The litigation environment also had a significant effect on the development of the federal common law. First, the resources available to the litigants, especially the defendant's resources, influenced the likelihood that the appellate judge would support change in the legal doctrine and also influenced the direction of that change. The positive and significant coefficient for other party type reported in Table 1 indicates that the judge was more apt to favor restrictive change, compared with no change, when the party defending against the common law action was more resourceful. Businesses and the federal government were the

[19] One might expect judges to be more likely to vote their preferences in en banc deliberations. Of the 28 cases studied here, only 4 are en banc decisions, accounting for 36 of the 106 judge-level observations. However, because none of the votes in en banc cases were to sustain the status quo, a multinomial logit model cannot be estimated with that variable.

Table 2. Predicted Probabilities of Legal Change

Variables	No Change	Expansive Change	Restrictive Change
Benchmark[a]	.01	.07	.92
Policy preference			
Democrat	.00	.12	.87
Republican	.02	.04	.93
Other party type			
Individual	.00	1.00	.00
Private association	.00	.99	.01
Business	.02	.74	.24
State/local government	.01	.05	.94
Federal government	.00	.00	1.00
Environmental attorney			
Not experienced	.35	.03	.62
Experienced	.00	.09	.91
Other attorney			
Not experienced	.11	.01	.88
Experienced	.00	.25	.74
Amicus[b]			
Pro-environment	.00	1.00	.00
Balance	.01	.06	.93
Pro-other party	1.00	.00	.00
Public opinion[c]			
Liberal	.02	.65	.33
Conservative	.00	.00	1.00
Supreme Court			
Before 1981 decision	.00	.26	.74
After 1981 decision	.56	.00	.44

[a] The benchmark probabilities are calculated with each variable set to its mean value, using the extimates generated from the multinomial logit model comparing expansive and restrictive change with no legal change.

[b] Amicus is set at 1 for pro-environment amicus support, 0 for balanced, and –2 for pro-other party.

[c] State ideology is set at 1 standard deviation above the mean for a liberal state (.581) and 1 standard deviation below the mean for a conservative state (.459).

most common parties to defend against a public nuisance action. As seen in Table 2, when the federal government was one of the defendants, restrictive change was a virtual certainty, occurring with a probability of .998. On the other hand, the probability of restrictive change dropped precipitously to .24 when the defendant was a business.

Attorney experience affected the development of the law by making legal change more likely. Consistent with my earlier findings (Wahlbeck 1997), the experience of both parties' attorneys was positively and significantly related to both forms of legal change, as opposed to the status quo. When either party was represented by experienced counsel, the likelihood of no legal change was less than .01. This contrasts with the case where the parties hired an inexperienced attorney—the probability of no legal change increased to .35 for the environmental party and to .11 for the other party. This leads one to question the causal rela-

tionship between legal change and attorney experience. Given the positive coefficients for each set of attorneys on both types of legal change, it may not be the hypothesized effect of experience producing a greater likelihood of change, but the odds of legal development may entice experienced attorneys to participate in a case.

In many respects, one might suspect amicus support to operate like attorney experience. After all, Table 1 notes that there is a positive and significant relationship between amicus support and the occurrence of both types of legal change. The simulation reported in Table 2 reveals that amicus support of the party pursuing the federal common law action led to virtually no chance that the judge would support the legal status quo. Instead, judges favored expansive change with a likelihood of 99.7%.

Judges were also seemingly affected by the broader political context. On the one hand, the negative, but significant, coefficient for public opinion in the restrictive change–no change comparison indicates that when public attitudes toward the environment were relatively conservative, the judge was more likely to prefer restrictive legal change to no change. This is evidenced by the 99.5% probability of restrictive change by judges when public opinion was running in a more conservative direction, compared with a 0.3% probability of no change. On the other hand, The negative and significant coefficients for the Supreme Court provide support for the proposition that appellate judges were more likely to favor the status quo and resist legal change in cases following the Supreme Court's decision in *City of Milwaukee v. Illinois* (1981). After all, in this decision, the Court announced that the federal common law was preempted by federal statutes. As judges considered preemption by other federal laws, they followed the Supreme Court's guidance and were 56.0% more likely to produce no further legal development.

Conclusion

I have examined the development of the federal common law of public nuisance in the U.S. Courts of Appeals, following the conceptualization of legal change proposed by Levi (1949) and adopted subsequently by Wahlbeck (1997) and Mather (1995). The focus of the analysis has been the flow of factual circumstances into and out of the set of legal matters making up the legal rule. If a federal appellate judge favored expanding the set announced by the Supreme Court in 1972 by, for example, allowing a private individual to maintain an action, the judge's position was coded as expansive. It was coded as restrictive if the judge supported the exclusion of a factual matter, like intrastate pollution, from the legal set covered by the federal common. Of

course, the judge's position could be coded as no change if the judge preferred retaining the status quo set.

Using a multinomial logit model, I observed that the occurrence of legal change, as opposed to no change, can be explained by the judge's policy preference, the litigation environment of party resources, attorney experience, and amicus support, and the broader political context of public opinion and subsequent Supreme Court rulings. The decision of the judge to favor expansive change compared with restrictive change was influenced by the judge's preferences, the resources of the party defending against the common law action, and amicus support for the parties. These findings largely confirmed expectations based on the judicial process literature on the development of legal rules.

This analysis has implications for work exploring the relationship between law, policy preferences, and judicial decisionmaking. As noted earlier, most studies that examine the influence of law on judicial decisionmaking utilized particularly relevant legal facts. While that is a useful method for capturing the constraining effects of the law, the study reported here demonstrates that relevant legal facts are endogenous. Judges may change the pertinent factual characteristics of the legal classification from case to case. This does not suggest that the law does not constrain judges, but it does suggest that we should control for the endogeneity of legal facts. It also suggests a more complex causal connection between preferences, law, and judicial decisionmaking. Judicial scholars tend to favor separating legal factors from policy factors in their models. This, however, sets up what may be a false dichotomy between policy concerns and the law. For instance, the attitudinal model suggests that judges have preferences on the disposition in a case (i.e., the case outcome). This, of course, is only one avenue by which preferences are influential. Since judges shape the law, which they apply in a case, the interplay of law and politics is far more complex than judicial scholars have captured in decisionmaking models to date.

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Appendix
U.S. Courts of Appeals' Federal Common Law of Public Nuisance Decisions

Case	Decision Date	Issue
Texas v. Pankey, 441 F.2d 236	8 Feb. 1971	Jurisdiction (+)
Armco Steel Corp. v. United States, 490 F.2d 688	22 Jan. 1974	Corporate parent defendant (–)
Reserve Mining v. United States, 498 F.2d 1073	4 June 1974	Remedy/evidence (–)
Stream Pollution Control Bd. v. U.S. Steel Corp., 512 F.2d 1036	14 March 1975	Jurisdiction (+)
Reserve Mining v. EPA, 514 F.2d 492	14 March 1975	Intrastate (–)
Committee for the Consideration of the Jones Falls Sewage Sys. v. Train, 539 F.2d 1006	16 July 1976	Intrastate (–)
Massachusetts v. United States Veterans Admin., 541 F.2d 119	26 Aug. 1976	Federal defendant (–)
Moore v. Hampton Roads Sanitation Dist. Comm'n, 557 F.2d 1030	7 Oct. 1976	Intrastate (–)
Moore v. Hampton Roads Sanitation Dist. Comm'n, 557 F.2d 1030	13 July 1977	Intrastate (–)
Jette v. Bergland, 579 F.2d 59	11 May 1978	Preemption (–)
California Tahoe Regional Planning Agency v. Jennings, 594 F.2d 181	15 Feb. 1979	Preemption (+), remedy/evidence (–)
Steuart Transp. v. Allied Towing Corp., 596 F.2d 609	10 April 1979	Preemption (–)
Illinois v. City of Milwaukee, 599 F.2d 151	26 April 1979	Preemption (+), evidence (–)
Ancarrow v. Richmond, 600 F.2d 443	5 June 1979	Intrastate (–)
Evansville v. Kentucky Liquid Recycling, 604 F.2d 1008	9 Aug. 1979	Municipal plaintiff (+)
National Sea Clammers Ass'n v. City of New York, 616 F.2d 1222	5 Feb. 1980	Private party (+)
Illinois v. Outboard Motor, 619 F.2d 623	28 March 1980	Intrastate (+), state intervene (+)
District of Columbia v. Schramm, 631 F.2d 854	18 June 1980	Evidence (–)
United States v. Dixie Carriers, 627 F.2d 736	10 Oct. 1980	Preemption (–)
United States v. City of Redwood City, 640 F.2d 963	23 Feb. 1981	Preemption (+)
New England Legal Found. v. Costle, 666 F.2d 30	24 Aug. 1981	Preemption (–)
United States v. Arrow Transp., 658 F.2d 392	8 Oct. 1981	Defense of laches (–)
United States v. Oswego Barge Corp., 664 F.2d 327	20 Oct. 1981	Preemption (–)
Marquez-Colon v. Reagan, 668 F.2d 611	23 Dec. 1981	Consent agreement (–)
Illinois v. Outboard Marine, 680 F.2d 473	19 April 1982	Evidence (–)
Louisiana v. M/V Testbank, 752 F.2d 1019	11 Feb. 1985	Private party plaintiff (–)
United States v. Hooker Chem. & Plastics, 776 F.2d 410	6 Nov. 1985	Evidence (–)
National Audubon Soc'y v. Dep't of Water, 869 F.2d 1196	6 Oct. 1988	Preemption (–), intrastate (–)

NOTE: In the *Issue* column, a "+" indicates that the appellate panel decided to include the particular factual circumstance within the scope of the law, while a "–" indicates that the court chose to exclude the factual circumstance from the law's scope.

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