

The Role of Courts in Technology Policy

Sepehr Shahshahani*

Princeton University

Abstract

We develop and solve a dynamic game to help understand the process of technological policymaking involving courts, interest groups, and Congress. The main question is this: When established firms sue a newcomer who has developed a technology that threatens their market dominance, and the copyright and patent laws are unclear as to whether the challenged use is illegal, what are the welfare consequences if the court rules for the newcomer or the old guard? This question is usually answered by conceptualizing the court's decision as the final choice of policy. But that is misleading because the court's decision merely forms the baseline from which Congress, lobbied by interest groups, enacts the final policy. We therefore replace the common framework with a multi-period game and investigate the welfare consequences of restrictive and permissive judicial decisions. We show that the court's optimal decision is to rule in favor of the resource-constrained party, which is often the newcomer, even when the opposite ruling would be preferable in a single-period game. The logic of the model is illustrated using case studies of important Supreme Court decisions on copyright law.

1 Introduction

Testifying before Congress in 1982, famous Hollywood lobbyist Jack Valenti likened the VCR to the Boston Strangler (Home Recording Hearings 1982). The VCR came and went, and the American film industry was not strangled. But the struggle between

*sepehrs@princeton.edu. I wish to thank Matias Iaryczower, Kris Ramsay, Tom Romer, and Mehdi Shadmehr for conversations about the model, and Chuck Cameron, Brandice Canes-Wrone, and Nolan McCarty for advice on the project. Helpful comments and questions from participants in research groups at Princeton University, the annual meeting of the American Law and Economics Association, and the annual meeting of the American Political Science Association, especially my discussant Ian Turner, are also gratefully acknowledged.

purveyors of emerging technologies that promise new benefits to consumers and entrenched firms whose business structure and profits are threatened by the newcomer remains. Just two years ago, the television network ABC told the Supreme Court that Aereo—a service that allowed subscribers to record and watch broadcast television on an Internet-connected device without the need to install hardware or get a cable subscription—“threatens the very existence of broadcast television as we know it.” Brief of Petitioners, *Am. Broad. Companies, Inc. v. Aereo, Inc.* (No. 13-46), at 39.

This paper focuses on conflicts between emerging and established technologies, and how their resolution by courts shapes economic policy. The economic conflict over market share often acquires a legal dimension in the form of allegations that the new technology as implemented violates federal intellectual property laws. Such cases have long occupied the American federal courts, sometimes going all the way to the Supreme Court—from the piano roll (*White-Smith*)¹ to cable (*Fortnightly* and *Teleprompter*) to peer-to-peer filesharing (*Napster* and *Grokster*) to YouTube (*Viacom*) to Google Books (*Authors Guild*) to Aereo (*Aereo*). The choices courts make when confronted with such cases have profound implications for the future of new technologies and the economy, implications that make the role of courts in technology policy an important subject of study.

What this paper brings to the subject is an appreciation for the role of courts as policymakers *in a political process*, a process that includes not just the courts but also Congress and interest groups. Litigants in important tech-policy cases before the Supreme Court frame the Court’s task as one of setting policy for the future. They ask whether it would make more sense for the Court to hold that the new technology violates the copyright or patent statutes or to hold that it does not. The litigants, of course, have opposite views about how the Court should answer that question. But what they often share with each other, and with the Court and legal commentators, is a presupposition that the Court’s answer to the question is final. So the parties’ briefs, the Court’s opinion, and legal commentaries usually compare a restrictive regime to a permissive regime, as though the ruling made by the Court will remain in force as the governing law. In the recent *Aereo* case, for example, the Supreme Court justified its ruling against Aereo by reasoning that a contrary ruling would allow cable companies to “continue the same commercial and consumer-oriented activities, free of copyright restrictions, [by] substitut[ing] . . . new technologies for old.” *Aereo*, 132 S. Ct. at 2509.

¹Caselaw is cited in short form throughout the paper; full citations appear in References.

But this way of framing the issue is misguided. The ruling handed down by the Court does not remain the choice of policy in perpetuity; rather, it sets the baseline from which interest groups and Congress refashion technology policy. Supreme Court adjudication of high-technology cases is often conceptualized as a one-period game in which the Court sets final policy, but what really goes on is a multi-period game in which the policy set by the Court in the first period is subject to revision by Congress, lobbied by interest groups, in subsequent periods. We show that this misperception of the nature of the game can lead to a mistaken assessment of the welfare consequences of alternative rulings and, with it, to a suboptimal rule choice. Specifically, there are circumstances in which a restrictive ruling would be welfare-maximizing if the Court's decision were to be the last word, but the opposite ruling becomes optimal when we consider the dynamics of post-ruling activity by interest groups and Congress.

This paper draws from and contributes to literatures in law, political science, and economics. Academic lawyers have long been preoccupied with the role of federal courts vis-à-vis Congress, the President, and administrative agencies in making national policy. Attention is mostly focused on constitutional law, but statutory interpretation has also been treated extensively, especially since insights from the public choice school began to penetrate the legal academy in the 1980s and 1990s. See, e.g., Macey (1986); Farber and Frickey (1987); Elhauge (1991). The public choice framework was found particularly apt for analyzing intellectual property law, especially copyright law, where the law review literature on lawmaking and legislative history has uncovered the unmistakable print of special interest politics. Studies of copyright legislation and legislative history show that Congress takes its cue from interest groups, sometimes to the point of outsourcing the actual drafting of statutes. Moreover, the fact that the benefits of copyright expansion are concentrated in a small number of content owners whereas the costs are spread among large numbers of users has led, in accordance with Olson's *Logic of Collective Action* (1965), to a kind of "client politics" (Wilson 1980) that produces continual expansion of copyright protection. See Litman (1987, 1989); Patry (1996); Landes and Posner (2004); Dourado and Tabarrok (2015); Shahshahani (2015).

Political scientists have been less focused on details of doctrine and legislative history, especially in a technical field like intellectual property law, but they have brought more analytical rigor and systematic data analysis to bear on the subject of judicial interaction with other branches of government. Again the bulk of attention is focused on constitutional law, where courts are formally the final interpreters of the law (in

game-theoretic terms, they move last), but “separation of powers” games have also been used to study statutory interpretation, where courts move before Congress. See, e.g., Ferejohn and Shipan (1991); Eskridge (1991); Spiller and Gely (1992); Spiller and Tiller (1996); Segal (1997); Hausegger and Baum (1999). Using powerful tools from game theory and statistics, these studies have helped us better understand whether and under what conditions various political actors can get what they want; they have not, however, shed much light on the normative concerns that animate many legal scholars’ interest in the respective policymaking roles of courts and Congress.

The present paper seeks to bridge this gap by building a formal model that focuses on the welfare consequences of judicial decisions as they impact subsequent interest group lobbying and congressional legislation. In doing so it draws on the work of Bernheim and Whinston (1986) on menu auctions, and its application to special interest politics by Grossman and Helpman (1994). To our knowledge, menu auctions have never been used to analyze intellectual property law (or the role of courts in policymaking more generally), but they provide a particularly appropriate framework given the aforementioned characteristics of the subject. The framework developed here is also general enough to be useful in understanding the role of courts in other policy areas, a possibility we discuss in the Conclusion.

We hope to make a number of contributions to the study of law and politics. First, as mentioned, we use game theory to shed light on important normative and policy questions that are often ignored in separation of powers models. Second, we bring a rigorous examination of the political process to bear on technology policy, an area that is critically important to the nation’s economic life but has been neglected in political science, which tends to focus on issues with more obvious ideological content. Third, we have stuck close to institutional and doctrinal realities so as to allay the charge commonly leveled by lawyers (and not always without justice) that social scientific models of the legal process are insensitive to actual law. Finally, our main result seems counterintuitive and important. It illuminates the importance of resource constraints as a source of inefficiency in policymaking, and how courts can allay its detrimental effects.

The next section contains the theoretical core of the paper. It models judicial decisionmaking followed by interest-group and congressional activity as a dynamic game and solves for its subgame-perfect Nash equilibria, focusing on truthful Nash equilibria. The following section provides case studies that illustrate the analytical results at work in the real world. The last section concludes, hinting at some implications and extensions.

2 The Model

Before launching into the model, it would be helpful to review the basic structure of American intellectual property law. Article I, Section 8, Clause 8 of the United States Constitution empowers Congress “To promote the Progress of Science and useful Arts, by securing for limited Times to Authors and Inventors the exclusive Right to their respective Writings and Discoveries.” This grant of authority, known as the Copyright and Patent Clause, has long been interpreted by courts as establishing an “economic” or “utilitarian” justification for intellectual property. Unlike its European counterparts, American intellectual property law is not centrally concerned with notions of “moral rights,” “just reward for labor,” “author’s rights,” and suchlike. Rather, the copyright and patent laws are grounded in basic economics, justified as limited monopolies promised to incentivize artistic and scientific activity. See, e.g., *Sears*; *Compco*; *Twentieth Century Music*; *Bonito Boats*; *Kimble*. Such an incentive is presumably necessary because intellectual creations are public goods (i.e., nonrivalrous and, in the absence of intellectual property rights, nonexcludable) and their creators would not be able to recoup their costs without a copyright or patent. On the other hand, copyrights and patents, like other monopolies, impose a deadweight loss on society in the form of a higher cost for accessing and using copyrighted and patented works. The central balancing act of intellectual property law is thus to manage the tradeoff between creative incentives and monopoly costs.

The point of departure for the present analysis is when a new technology comes along whose use is challenged by proprietors of entrenched technologies as violative of the copyright or patent statutes. Because the existing legal structure was put in place without considering the (then-unforeseen) new technology, it is unclear whether the challenged use actually violates the law.² The case makes its way through the lower federal courts, and the Supreme Court (hereinafter “court”) grants certiorari because of the case’s economic importance. To motivate this, think of cases such as *Fortnightly* and *Teleprompter*, concerning the legality of cable companies’ rechanneling of broadcast television signals, or *Sony*, involving whether VCR manufacturers ran afoul of the law because their devices enabled users’ copying of copyrighted movies.

²Of course, there might be cases where the legal status of new uses of emerging technologies is clear. Then a court need not go back to the underlying purposes of intellectual property laws and can simply make a ruling on the basis of formal legal criteria. Such cases will not be terribly interesting and are not the subject of the present analysis. In fact, they would not even reach the Supreme Court.

Play of the game is as follows:

1. The court decides the case, thereby setting policy governing the use of the new technology (for now).
2. Interest groups lobby Congress for a new policy. The lobbying process takes the form of a menu auction, à la Bernheim and Whinston (1986).
3. Congress, after considering the interest groups' contribution menus, makes the final policy.³ In the event Congress does not pass legislation, the court's policy becomes the final policy.

Relevant objects are defined as follows:

The court's action space is $\{\alpha, \beta\}$, where β represents a decision that the challenged use of the new technology is legal (a "permissive ruling" or a "baseline of noninfringement") and α represents a decision that the use is illegal (a "restrictive ruling" or a "baseline of infringement"). The reason for modeling the action set as binary is that the court can set policy only by deciding the case, and it can decide the case in only one of two ways: for the plaintiff, or for the defendant. In so modeling the court's action space we are not insensitive to the distinction between dispositions and rules, underlined by Kornhauser (1992) and subsequently operationalized in many models of judicial politics (e.g., Carrubba and Clark 2012) (see Lax (2011) and Cameron and Kornhauser (2017) for overviews of the literature). Of course it is true that courts not only decide cases but also make rules that govern future conduct, and in this sense a court's action space is not simply binary. Our purpose in this paper, however, is to understand the role of courts in making policy *for a given emerging technology*, the legal status of whose use is unclear under intellectual property law as hitherto developed. Our policy world is the world of policy for a single technology, for a single legal question, so it is sensible to model the court's action space as binary. (By the same token, we do not model the case itself as a mathematical object.) This precise focus will enable us to shed light on how courts, interest groups, and Congress interact to make policy governing emerging technologies.

$J(p)$ is the court's utility from policy p , which is directly proportional to social utility ($J(p) = cW(p)$ for some $c > 0$). The analysis thus takes the vantage point of

³Cases of the kind discussed in the paper arise under the copyright and patent statutes—not under the Constitution—so the assumption that Congress can revise judge-made law is uncontroversial. Moreover, the Supreme Court has proven unwilling to invalidate intellectual property laws as unconstitutional (see *Eldred* and *Golan*), making it reasonable to model Congress as the final player in the game.

a court that attempts to strike a socially optimal balance between creative incentives and monopoly costs. This assumption about judicial goals is reasonably realistic in the intellectual property context, where the law does not have an obvious political slant and instead seeks to maximize welfare from intellectual innovation (see the Conclusion for more discussion). In any event, the assumption is not necessary to the analysis. Whatever may be our assumptions about judicial goals, the following analysis shows the differing welfare consequences of different judicial rules.

An action for Congress is the choice of a policy p , where $p \in [\alpha, \beta]$. To justify this, recall that the court can rule in one of two ways: the technology's challenged use either violates or does not violate the law. Congress, by contrast, is not limited to this binary policy choice and can choose a policy in-between the extrema of fully legal and fully illegal. For example, when cable companies came along and erected antennas to receive and rechannel signals from broadcast television networks to provide access to areas that normally would not receive the signals, Congress's choices were not limited to deciding that the cable companies' activities violate or do not violate the Copyright Act. Rather, Congress could, and in fact did, establish a compulsory-licensing system whereby cable companies were allowed to continue their activities provided that they pay certain fees in exchange. See 17 U.S.C. § 111; see also, e.g., 17 U.S.C. §§ 119, 122 (similar royalty scheme for technologies other than cable). In this context, the policy interval $[\alpha, \beta]$ can be interpreted as the periodical amount of required royalties, with β representing 0 and α representing a prohibitively high fee.

The assumption that Congress and courts have different abilities in setting policy is a critical device for capturing real institutional features. Courts can impact policy through deciding discrete cases, but they do not possess (nor exercise) legislative authority under the Constitution. By modeling the courts' action space as a subset of Congress's action space, we give precise analytical content to the slogan that "courts are not legislators" while recognizing their role in shaping policy.

In the lobbying stage of the game, i indexes the interest groups that lobby Congress for a new policy, and L is the set of all such interest groups. $W_i(p)$ is the welfare effect of policy p on group i , and $\sum_{i \in L} W_i(p)$ is the policy's total welfare effect (for affected groups). For now we conceive of social welfare as the sum of utilities for affected parties who attempt to influence congressional policy, so $\sum_{i \in L} W_i(p)$ is our benchmark of efficiency. Later we will discuss the consequences of relaxing this assumption.

$C_i(p)$ is the contribution by group i to Congress in return for Congress's enacting

policy p . $C_i : [\alpha, \beta] \rightarrow \mathbb{R}^+$ is group i 's contribution menu. A strategy for group i takes the form of a contribution menu, which we also call a contribution strategy. Contribution menus are announced simultaneously and credibly. Later, when we introduce resource constraints, the range of C_i changes from \mathbb{R}^+ to $[0, R_i]$, where R_i represents the resources available to i .⁴ $B_i(p) = W_i(p) - C_i(p)$ is the net benefit of policy p for group i .

A strategy for Congress is the choice of a policy p given a set of contribution menus $\{C_i\}_{i \in L}$. $G(p) = \sum_{i \in L} C_i(p)$ is Congress's utility for policy p . So Congress is interested only in maximizing the contributions it receives. This utility function was chosen because, as discussed in the Introduction, it is a fair representation of congressional policymaking in copyright.⁵ Much of the analysis goes through all the same given a more general congressional utility function of the form $G(p) = \sum_{i \in L} C_i(p) + aW(p)$, where a is the weight Congress attaches to general social welfare W (normalized by the weight given to monetary contributions). This can be interpreted as congressmembers' pandering for votes or as their non-instrumental concern for public welfare.

We have now fully specified the game. The specification is clearly different from the usual conceptualization under which, as discussed in the Introduction, the court's choice of α or β is seen as the final policy choice. But does this different specification make any difference to the optimal ruling of a welfare-maximizing court? The optimal decision rule in the one-period game is

$$\text{court's ruling} = \begin{cases} \alpha & \text{if } \sum_{i \in L} W_i(\alpha) > \sum_{i \in L} W_i(\beta) \\ \beta & \text{if } \sum_{i \in L} W_i(\alpha) < \sum_{i \in L} W_i(\beta) \end{cases} \quad (1)$$

(It does not matter how indifference is resolved.) By contrast, the optimal decision rule in the multi-period game is

$$\text{court's ruling} = \begin{cases} \alpha & \text{if } \sum_{i \in L} W_i(p_\alpha) > \sum_{i \in L} W_i(p_\beta) \\ \beta & \text{if } \sum_{i \in L} W_i(p_\alpha) < \sum_{i \in L} W_i(p_\beta) \end{cases} \quad (2)$$

where p_α and p_β represent the expected equilibrium congressional policies following the

⁴Of course, contributions in the model need not be interpreted literally as bagfuls of cash. They could include all kinds of valuable goods and services.

⁵The reason we have switched from talking about intellectual property law in general to copyright law in particular is that the kind of conflict motivating this paper is litigated under the copyright rather than patent laws. We surveyed all Supreme Court intellectual property decisions, and every single one that fit the new-versus-established paradigm was a copyright case.

court's restrictive and permissive rulings, respectively.⁶ We now proceed to investigate whether the equilibria will be different in games where the court chooses α in the first period versus where it chooses β , and whether the multi-period nature of the game makes any difference to the court's optimal decision. First we characterize subgame-perfect Nash equilibria of the game.

PROPOSITION 1 (B-W): The menu-policy profile $(\{C_i^*\}_{i \in L}, p^*)$ is a subgame-perfect Nash equilibrium iff

- (a) $C_i^* \geq 0$ for all $i \in L$;
- (b) $p^* \in \arg \max_p \sum_{i \in L} C_i^*(p)$;
- (c) $p^* \in \arg \max_p \left[W_j(p) - C_j^*(p) + \sum_{i \in L} C_i^*(p) \right]$ for all $j \in L$;
- (d) for every $j \in L$ there exists a policy p_j such that $p_j \in \arg \max_p \sum_{i \in L} C_i^*(p)$ and $C_j^*(p_j) = 0$.

PROOF: We prove necessity for parts (a)-(c) and refer the reader to Lemma 2 of Bernheim and Whinston (1986) for necessity of part (d) and sufficiency. Part (a) is simply saying that every interest group's contribution menu must be feasible; an interest group cannot give Congress a negative amount of money.⁷ Part (b) follows from the fact that the choice of policy is up to Congress. For part (c), suppose the set of contribution menus $\{\tilde{C}_i\}_{i \in L}$ is before Congress and that it would induce Congress to adopt policy \tilde{p} where $\tilde{p} \notin \arg \max_p [W_j(p) - \tilde{C}_j(p) + \sum_{i \in L} \tilde{C}_i(p)]$ for some group j . We show that j can defect to a new contribution strategy C_j^* such that, faced with the new set of contribution menus (which we call $\{C_i^*\}_{i \in L}$), Congress would choose $p^* \in \arg \max_p [W_j(p) - C_j^*(p) + \sum_{i \in L} C_i^*(p)]$, and we show that the defection would be profitable for j . (Note that, because we must take all other players' strategies as fixed,

⁶More accurately, the optimal legal rule is

$$\text{court's ruling} = \begin{cases} \alpha & \text{if } \sum_{i \in L} tW_i(\alpha) + W_i(p_\alpha) > \sum_{i \in L} tW_i(\beta) + W_i(p_\beta) \\ \beta & \text{if } \sum_{i \in L} tW_i(\alpha) + W_i(p_\alpha) < \sum_{i \in L} tW_i(\beta) + W_i(p_\beta) \end{cases} \quad (3)$$

where t represents the length of time during which the interim court policy will be in force, normalized by the length of time Congress's final policy will be in force or remain relevant (compounded by appropriate discount factors). The lifetime of congressional policy is generally much longer than judicial policy, so we assume in the baseline model that t goes to zero in equation (3), thereby obtaining equation (2).

⁷Limitation to positive contributions is innocuous. Bernheim and Whinston show (1986, Lemma 1) that any menu auction can be transformed into an equivalent auction with a lower bound of zero on all bids.

$C_i^* = \tilde{C}_i$ for all $i \neq j$.) Namely, j could change its contribution menu to $C_j^*(p) = \sum_{i \in L} \tilde{C}_i(\tilde{p}) - \sum_{i \in L, i \neq j} \tilde{C}_i(p) + \epsilon f(p)$ where $\epsilon > 0$ and f is any nonnegative function that attains its unique maximum at p^* . Faced with this new set of contribution menus, Congress would be better off choosing p^* instead of \tilde{p} because the fact that p^* is the unique maximizer of f guarantees that $G(p^*) = \sum_{i \in L} \tilde{C}_i(\tilde{p}) + \epsilon f(p^*) > \sum_{i \in L} \tilde{C}_i(\tilde{p}) + \epsilon f(\tilde{p}) = G(\tilde{p})$. (By the same token, Congress would choose p^* over any other p .) Now we show that the defection would be profitable for j . For this to be true, it must be that j 's net benefit under the new policy ($W_j(p^*) - C_j^*(p^*)$) is larger than its net benefit under the old policy ($W_j(\tilde{p}) - \tilde{C}_j(\tilde{p})$), which implies that

$$\epsilon f(p^*) < W_j(p^*) - W_j(\tilde{p}) + \sum_{i \in L, i \neq j} [\tilde{C}_i(p^*) - \tilde{C}_i(\tilde{p})]. \quad (4)$$

For this to be possible, the right-hand side must be positive. To see that it is, recall that $p^* \in \arg \max_p [W_j(p) - C_j^*(p) + \sum_{i \in L} C_i^*(p)] = \arg \max_p [W_j(p) + \sum_{i \in L, i \neq j} C_i^*(p)] = \arg \max_p [W_j(p) + \sum_{i \in L, i \neq j} \tilde{C}_i(p)]$, and that $\tilde{p} \notin \arg \max_p [W_j(p) - \tilde{C}_j(p) + \sum_{i \in L} \tilde{C}_i(p)] = \arg \max_p [W_j(p) + \sum_{i \in L, i \neq j} \tilde{C}_i(p)]$. Accordingly, j can assure that the defection is profitable by picking ϵ sufficiently small that inequality (4) is satisfied. We have shown that $(\{\tilde{C}_i\}_{i \in L}, \tilde{p})$ cannot be sustained in equilibrium.⁸ \square

The proof is somewhat subtle, but the intuition is simple. Part (c) is saying that for any interest group, equilibrium policy maximizes the joint welfare of Congress and that interest group, given other interest groups' contribution menus. Intuitively, the logic of the proof is that if Congress were about to choose a policy that did *not* maximize joint welfare for some group j , then j would defect to an alternative contribution menu that would result in Congress's adoption of a joint-welfare-maximizing policy. j could ensure such adoption by designing a contribution menu that would compensate Congress for any decrease in congressional welfare resulting from the policy switch, plus an infinitesimal amount of the joint-welfare surplus to incentivize the switch, and j would then capture all but an infinitesimal amount of the joint-welfare surplus.

Contribution menus can take many forms, and the set of contribution menus that sustain an equilibrium policy is not unique.⁹ It would therefore be useful to find a subset of equilibria that is both substantively likely and analytically tractable. Bernheim and Whinston's notion of a *truthful contribution menu* enables just that. A truthful contribution menu is one in which the contributions promised by a group for different

⁸The same proof works for a congressional utility function with a weight on social welfare.

⁹For a simple example of a game with a number of different contribution menus in equilibrium, see Bernheim and Whinston (1986, 4-5).

policies reflect the underlying utility of those different policies to the group. A group that promises two more dollars for one policy than another, for example, must get two more dollars (gross) out of the former. (But note that the reflection may be imperfect because the contribution amount cannot go below zero.) In other words, a change in policy that produces a small change to a group's welfare will cause the same small change in the group's contribution. Formally, a truthful contribution menu takes the form

$$C_i^T(p, B_i) = \max\{0, W_i(p) - B_i\} \quad (5)$$

for some B_i , which measures the group's utility net of its political contribution.¹⁰

Truthful contribution menus are attractive because they are simple. They are free from the complexity or subtlety that makes the real-world applicability of certain strategies suspect. This simplicity is all the more attractive because an interest group sustains no losses from restricting itself to truthful contribution strategies. That is so because, per Proposition 2 below, any group's best-response set to any set of strategies played by other groups contains a truthful strategy.

PROPOSITION 2 (B-W): For any set of contribution menus $\{C_i\}_{i \neq j}$, group j 's best-response correspondence contains a truthful contribution menu.

PROOF: Consider any non-truthful element of j 's best-response correspondence and call it C_j . Suppose that C_j would lead Congress to choose policy p^* . Now consider a truthful contribution menu C_j^T such that $C_j^T(p^*) = C_j(p^*)$. We claim that j 's net payoff from playing C_j^T is the same as its net payoff from playing C_j . To see this, note that if C_j^T leads Congress to choose p^* , then the payoffs must be the same because the contributions and the gross benefits are the same. If C_j^T does not lead Congress to choose p^* and leads it instead to choose \tilde{p} , then it must be that $C_j^T(\tilde{p}) > C_j(\tilde{p})$. It also follows from the definition of truthfulness that $W_j(\tilde{p}) - C_j^T(\tilde{p}) = W_j(p^*) - C_j^T(p^*) = W_j(p^*) - C_j(p^*)$. But it must be true, by definition of a best response, that $W_j(p^*) - C_j(p^*) \geq W_j(\tilde{p}) - C_j(\tilde{p})$, which implies $C_j^T(\tilde{p}) \leq C_j(\tilde{p})$, a contradiction. \square

Finally, truthful contribution menus are attractive because they result in equilibria ("truthful Nash equilibria")¹¹ that are *coalition-proof*. This means that truthful Nash equilibria continue to hold even if we allow any coalition of interest groups to communicate among themselves so as to arrange a mutually profitable joint deviation.

¹⁰Intuitively it is more helpful to think of a truthful contribution menu as taking the form $C_i^T(p, B_i) = W_i(p) - B_i$. But such a specification would not be correct because it would allow for a negative contribution where $B_i > W_i(p)$. Hence the "max" formulation.

¹¹To be precise, truthful Nash equilibria are Nash equilibria in which all contribution menus ($\{C_i\}_{i \in L}$) are truthful.

Indeed, truthful Nash equilibria are (essentially) unique among all equilibria in being immune to such nonbinding coalitional communication. (See Theorem 3 and Appendix in Bernheim and Whinston (1986) for precise statement and proof.) These properties of truthful Nash equilibria—the simplicity and optimality of their strategy profiles, and their coalition-proofness—makes them focal among equilibria in menu auctions of policy. We will therefore focus on truthful contribution menus and truthful Nash equilibria.¹²

Once we tune our focus to truthful contribution menus, we are able to see the first essential result in investigating the role of courts in technology policy. Namely, truthful Nash equilibria are efficient.

PROPOSITION 3 (the Bernheim-Whinston theorem): Any policy p^* that is chosen in a truthful Nash equilibrium satisfies

$$p^* \in \arg \max_p \sum_{i \in L} W_i(p). \quad (6)$$

PROOF: Suppose not—i.e., suppose that, faced with truthful contribution menus $\{C_i\}_{i \in L}$, Congress does not choose $p^* \in \arg \max_p \sum_{i \in L} W_i(p)$ but instead chooses $p^0 \notin \arg \max_p \sum_{i \in L} W_i(p)$. Denote i 's benefit in equilibrium as B_i^* . Because contribution menus are truthful, we know that, for all $i \in L$, $C_i^*(p^*) \geq W_i(p^*) - B_i^* = W_i(p^*) - [W_i(p^0) - C_i^*(p^0)]$. Summing over all $i \in L$, we get $\sum_{i \in L} C_i^*(p^*) \geq \sum_{i \in L} [W_i(p^*) - W_i(p^0)] + \sum_{i \in L} C_i^*(p^0) > \sum_{i \in L} C_i^*(p^0)$, a contradiction (by Proposition 1(b)). \square

Proposition 3, which we have dubbed the Bernheim-Whinston theorem, says that if the players choose truthful contribution menus then the resulting equilibrium will maximize social welfare. (Recall that, for now, the notion of social welfare is constricted to the players' welfare.)

There is an interesting resemblance between the Bernheim-Whinston theorem and the Coase theorem (attributed to Coase 1960) which, to our knowledge, has not been remarked upon. The Coase theorem says that if transaction costs are zero then private parties will bargain to an efficient allocation of an entitlement, and that they will do so regardless of the entitlement's initial allocation. Bernheim-Whinston is, in a sense, the public-policy corollary of this: When private parties seeking to influence the government

¹²It turns out, as Grossman and Helpman (1994) show, that any differentiable contribution menu is locally truthful around equilibrium policy p^* . The proof goes like this: Proposition 1(b) implies that $\sum_{i \in L} \nabla C_i^*(p^*) = 0$. And Proposition 1(c) likewise implies that $\nabla W_j(p^*) - \nabla C_j^*(p^*) + \sum_{i \in L} \nabla C_i^*(p^*) = 0$ for every group j . These two equations together imply that $\nabla W_j(p^*) = \nabla C_j(p^*)$, which is a necessary and sufficient condition for local truthfulness. Again, the same proof works for a more general congressional utility function with a weight on social welfare.

limit themselves to certain plausible strategies, the resulting public policy is efficient. The difference is that in the Bernheim-Whinston setup the players select public law through a governmental intermediary, whereas in the Coasean version the parties select private law by bargaining amongst themselves. Seen in this light, the intuition behind the Bernheim-Whinston theorem is straightforward: Policy efficiency obtains because, given truthful contribution menus, the policymaker internalizes the affected parties' costs and benefits.

Indeed the two theorems are similar not just in their results but also—and more importantly for our purposes—in their implications. What makes the Coase theorem striking to those who labor in the law is its showing that the initial allocation of legal entitlement does not matter. Similarly, the Bernheim-Whinston theorem's efficiency result does not depend on where policy is located when affected groups submit their menus to Congress. The parties will end up on the Pareto frontier regardless of where they begin. The court's initial decision is inconsequential because Congress will end up choosing a welfare-maximizing policy either way. Formally, $p_\alpha = p_\beta \in \arg \max_p \sum_{i \in L} W_i(p)$. (We caution, as we did on page 6, that this result speaks to the court's effect on the final policy governing the emerging technology—it is not a result about the impact of courts in general.)

Of course, the foregoing analysis is incomplete because it ignores transaction costs. The optimal rule in the one-period game, incorporating transaction costs, is

$$\text{court's ruling} = \begin{cases} \alpha & \text{if } \sum_{i \in L} [W_i(\alpha)] - T(\alpha) > \sum_{i \in L} [W_i(\beta)] - T(\beta) \\ \beta & \text{if } \sum_{i \in L} [W_i(\alpha)] - T(\alpha) < \sum_{i \in L} [W_i(\beta)] - T(\beta) \end{cases} \quad (7)$$

where $T(\alpha)$ and $T(\beta)$ represent transaction costs under a restrictive and permissive regime, respectively. But it does not seem that transaction costs would be systematically higher for one decision rule rather than the other, so adding them to the mix does not change the basic result.¹³

¹³Perhaps one could argue that transaction costs will be lower when the status quo set by the Court is closer to the optimal policy: Drafting legislation is costly, so we would prefer that the legal regime start close to optimality and not move, rather than start far away and then move closer to optimality, because the movement itself embodies unproductive transaction costs. If we buy this argument, then we would reject the result that the court's choice of rule does not matter, but we would still accept the decision rule of equation (1). And the optimal choice implied by this decision rule remains the same under the one-period and multi-period games—in the one-period game because rule (1) results in the final outcome closest to the optimal regime and in the multi-period game because the optimal regime

The foregoing analysis, culminating in the Bernheim-Whinston theorem, destroys the logic undergirding the optimal decision rule of equation (1). It defeats the idea that the court's best decision is to pick the extremum of the policy continuum that would be preferable to the other extremum as the final choice of policy, because it shows that Congress will pick the optimal policy regardless of the court's initial decision. But the result does not render the decision rule of equation (1) suboptimal; indifference implies that the decision rule can do no wrong. We see that the foregoing analysis of post-ruling legislative lobbying adds considerable depth to our understanding of the court's role in setting technology policy, but it does not change the bottom line for the court's decision rule. Nor do transaction costs.

What *does* change the bottom line is the presence of resource constraints. Resource constraints do not receive any attention in the Bernheim-Whinston and Grossman-Helpman analyses, but they seem plainly important in the real world. Not all firms are equally wealthy, and wealth differentials matter in a world where money buys policy. We might thus expect the Bernheim-Whinston theorem to not hold in the presence of resource constraints. To see this, and to get a concrete illustration of the results derived so far, consider the following game.

Suppose the newcomer and the old guard are before Congress after the court has made its decision. Congress's policy space consists of four policies, denoted p_1 through p_4 , with p_1 representing full restriction ($p_1 = \alpha$), p_4 representing full permission ($p_4 = \beta$), and the other two policies lying somewhere in between.¹⁴ The gross payoffs from these policies are as follows:

	p_1	p_2	p_3	p_4
$W_O(\cdot)$	3	2.5	1.5	0
$W_N(\cdot)$	0	1	1.75	2.25

Note that the payoffs are set up realistically in that the old guard's utility is increasing at a decreasing rate in restrictiveness and the newcomer's utility is increasing at a

would result anyway and rule (1) minimizes transaction costs by minimizing the distance between the court's interim policy and Congress's final policy. Formally, if we assume (somewhat plausibly) that $\sum_{i \in L} W_i(\alpha) > \sum_{i \in L} W_i(\beta) \iff T(\alpha) < T(\beta)$ then the court's optimal rule remains the one announced in (1). Even if we don't buy that assumption (also somewhat plausible), there is no good reason to believe the opposite—i.e., that $\sum_{i \in L} W_i(\alpha) > \sum_{i \in L} W_i(\beta) \iff T(\alpha) > T(\beta)$ —so we still would not have any reason to change the optimal rule.

¹⁴All the results in this paper hold for a continuous policy space; the choices are discrete in this example only for clarity of illustration.

decreasing rate in permissiveness of policy. This reflects the reasonable assumption that the difference between having no legal protection at all and a little bit of legal protection is larger than the difference between enjoying a very high degree of legal protection and enjoying a little bit more of it.

Solving this game yields a unique truthful Nash equilibrium with the following truthful equilibrium strategies:

$$C_N^T(p) = \max\{0, W_N(p) - 0.5\}, \quad (8)$$

$$C_O^T(p) = \max\{0, W_O(p) - 1.25\}, \quad (9)$$

which in turn present Congress with the following choices:

	p_1	p_2	p_3	p_4
C_N^T	0	0.5	1.25	1.75
C_O^T	1.75	1.25	0.25	0
G	1.75	1.75	1.50	1.75
W	3	3.5	3.25	2.25

Congress maximizes G by choosing p_2 , which also turns out to maximize $W_1 + W_2$. Efficiency prevails.¹⁵ Moreover, the efficient result does not depend on the baseline from which lobbying started. The equilibrium policy and strategies are in no way affected by whether the pre-bargaining status quo was α or β . This example shows the Bernheim-Whinston theorem at work.

Now consider the same game, but with resource constraints. Suppose the newcomer can spend only up to a certain amount, R_N , on congressional contributions, and $R_N = R_N^0 + R_N^1(sq)$, where R_N^0 represents the newcomer's initial resources and $R_N^1(sq)$ represents the resources accrued to the newcomer as a result of the court's decision ($sq \in \{\alpha, \beta\}$). Assume for convenience that $R_N^1(sq) = W_N(sq)$ (though as we shall see this is not necessary to the result). In particular, suppose the payoffs are the same as in the last game and $R_N^0 = 0.4$.

First consider the game where the Supreme Court has made a restrictive ruling. In

¹⁵We assume that Congress resolves indifference in favor of the socially optimal policy. This tie-breaker assumption is, as Bernheim and Whinston point out (1986, 5 n.5), unproblematic and "an artifact of the infinite divisibility of money in the model." It can be given the substantive interpretation that Congress attaches an infinitesimal weight to social welfare.

that case $R_N = 0.4$ and the newcomer's truthful contribution strategy becomes¹⁶

$$C_N^T(p) = \begin{cases} \max\{0, W_N(p) - 0.5\} & \text{for } W_N(p) \leq 0.9 \\ 0.4 & \text{for } W_N(p) > 0.9 \end{cases} \quad (11)$$

In response, the old guard can do better than the contribution menu in equation (9), and would instead choose¹⁷

$$C_O^T(p) = \max\{0, W_O(p) - 2.59\}. \quad (12)$$

The foregoing menus are best responses to one another, and they present Congress with the following choices:

	p_1	p_2	p_3	p_4
C_N^T	0	0.4	0.4	0.4
C_O^T	0.41	0	0	0
G	0.41	0.4	0.4	0.4
W	3	3.5	3.25	2.25

Congress maximizes G by choosing p_1 , which is *not* the socially optimal choice. The court's choice of a restrictive ruling is not succeeded by an efficient congressional policy.

By contrast, if the Supreme Court makes a permissive ruling then $R_N = 0.4 + 2.25 = 2.65$, which means that the newcomer is not forced by resource constraints to alter its truthful contribution menu in equation (8). The contribution menus in equations (8) and (9) continue to hold in equilibrium, and Congress chooses the optimal policy p_2 .

This example shows how both the Bernheim-Whinston theorem and the decision rule of equation (1) break down in the presence of resource constraints. That is so because the judicial choice of pre-lobbying status quo has an impact on how much the newcomer can spend on lobbying to buy policy. A restrictive ruling entrenches a resource constraint, which prevents the newcomer from expending the necessary amount to adequately represent its interests and thus leads to a suboptimal policy; a permissive ruling, by contrast, frees up resources for political competition and leads to an efficient

¹⁶We have adapted the definition of a truthful contribution menu to situations involving resource constraints. In the presence of resource constraints R_i , a truthful contribution menu takes the form

$$C_i^T(p, B_i) = \max\{0, W_i(p) - B_i\} \text{ such that } \max\{0, W_i(p) - B_i\} \leq R_i. \quad (10)$$

¹⁷We have assumed that a penny is the smallest possible unit of payment. This is necessary given the earlier assumption that Congress chooses the welfare-maximizing policy in case of indifference.

outcome. What is remarkable about this example is that $\sum_{i \in L} W_i(\alpha) > \sum_{i \in L} W_i(\beta)$ but $\sum_{i \in L} W_i(p_\alpha) < \sum_{i \in L} W_i(p_\beta)$. That is, the fully restrictive policy is better than the fully permissive policy in the one-period game, but the fully permissive ruling is the optimal judicial decision. This counterintuitive result is not the artifact of weird payoff specifications and was demonstrated in a realistic example.

In this example we assumed that the resources accrued to the resource-constrained party as a result of the court's ruling are equal to the welfare effects of that ruling for that party (i.e., $R_i^1(sq) = W_i(sq)$ for $i \in \{O, N\}$). But this assumption is not necessary to the result. All that is required is that the resources accrued to the resource-constrained party be greater under a more favorable court ruling than a less favorable ruling (i.e., $R_N^1(\beta) > R_N^1(\alpha)$ and $R_O^1(\alpha) > R_O^1(\beta)$). Note further that $R_i^1(sq)$ is a transfer of wealth, which is why it is not taken into account in calculating welfare consequences.

The foregoing discussion leads to a general result: If one (and only one) of the litigants has resource constraints then the court should rule in that litigant's favor. Such a decision would be optimal because a ruling in favor of the resource-constrained party will add to its resources (say by establishing a base of customers and attracting venture capital), and might thus enable it to spend as much as is efficient on lobbying, which in turn will create the conditions for the efficiency result of Proposition 3 to reappear. This logic is formalized in the proof of the next proposition.

PROPOSITION 4: Suppose that, for $i = N$ or $i = O$ (but not both), there exist resource constraints R_i such that C_i cannot exceed R_i . Then the court's optimal decision is α if $i = O$ and β if $i = N$.

PROOF: We prove that β is optimal when $i = N$; the other case is symmetric. The only scenario to consider is when the resource constraint is binding—that is, $\max\{0, W_N(p) - B_N\} > R_N$ for some p, B_N —because otherwise the court's ruling does not matter (per Proposition 3). Note that, because $R_N^1(\beta) > R_N^1(\alpha)$, there exist α, β such that

$$R_N(\alpha) = R_N^0 + R_N^1(\alpha) < C_N^{T*}(p^*) < R_N^0 + R_N^1(\beta) = R_N(\beta)$$

where p^* is an equilibrium of the game without resource constraints. Denote the equilibria of the game in which the court chooses α in the first period by $\{p'_j\}$. Because $p^* \in \arg \max_p \sum_{i \in L} W_i(p)$ (by Proposition 3) whereas it is possible that $p'_j \notin \arg \max_p \sum_{i \in L} W_i(p)$ for all j , it follows that β is optimal. \square

We have shown that in the multi-period game it is optimal for the court to rule in favor of the resource-constrained party, even when the opposite ruling would be optimal

in the one-period game. This result forces a fundamental rethinking of the consequences of judicial decisionmaking. Interested parties and commentators have conceptualized the Supreme Court’s task as setting technology policy for the foreseeable future, or in all events have assumed that this situation is not essentially different from one in which the Court sets interim policy in anticipation of congressional legislation. Proposition 4 shows that this line of thinking is mistaken. When one side of the controversy is resource-constrained, what is optimal for the interim need not be optimal for the long run. The optimal decision is to rule in favor of the resource-constrained party, even if such a ruling would be suboptimal in the interim.¹⁸

This result holds irrespective of which party (the newcomer or the old guard) is subject to resource constraints, but it’s more natural to expect newcomers to be cash-strapped. The old guard is well-established and thus more likely to be financially secure. The newcomer’s resources, by contrast, are not practically unlimited and depend on the legal baseline. Venture capital firms’ willingness to fund startup companies depends on whether the latter’s activities are legal. Moreover, a legal prohibition on a newcomer’s activities deprives venture capitalists of a chance to observe the new technology in commercial operation and assess whether it is worth funding. In addition, an adverse judicial ruling halts the stream of revenue and political support that a newcomer could obtain from consumers if it could go forward. Nor would newcomers’ resource constraints be perfectly obviated by credit markets. We would expect credit to be harder to obtain for newcomers than for established firms because lenders have less information about newcomers and because newcomers are less able to post collateral. Moreover, newcomers’ initial resource constraints might hamper access to credit, which in turn solidifies resource constraints. To the extent newcomers are more likely to be resource constrained, Proposition 4 implies that the optimal ruling will often be a permissive one.¹⁹

It is important to note the limits of the court’s power: Proposition 4 does not say that ruling in favor of the resource-constrained party *guarantees* efficiency. A permissive

¹⁸This analysis does not consider the welfare consequences of the court’s ruling during the interim period between the court’s ruling and Congress’s establishment of final policy, under the assumption that the length of this period is comparatively negligible (see footnote 6). If the court’s policy will be in effect for a substantial time (relative to Congress’s policy), then the optimal ruling would depend on the length of that time. For instance, in our numerical example with resource constraints, choosing β would be optimal for $t \leq 2/3$ (see footnote 6 for notation).

¹⁹Of course, newcomers are not always cash-strapped. Uber often comes up in discussion as an example of a well-financed newcomer. This example is not from the intellectual property context, but it serves to alert us to the possibility of well-financed newcomers going against a resource-constrained old guard.

ruling might fail to alleviate resource constraints to a degree sufficient to bring back the efficiency of unconstrained lobbying. But, if so, then a restrictive ruling must similarly fail. By contrast, it is possible for a permissive ruling to reestablish efficiency where a restrictive ruling would fail to do so. That much is sufficient to make ruling in favor of the resource-constrained party optimal.

Like Proposition 3, Proposition 4 does not take account of transaction costs. But, again, there is no reason to expect that transaction costs are likely to be higher for any one decision rule than the other. Transaction costs are a random variable with no apparent systematic association with pre-ruling resource constraints. As such, they do not change the conclusion that the decision rule of Proposition 4 is optimal in expectation, though they might make it fallible in some peculiar contexts.

Finally, one might ask what would happen if the benchmark of efficiency were extended from the involved firms' welfare to social welfare more generally. The answer to that question is unfortunately hard to come by, even in theory, because there is no consensus on the optimal degree of intellectual property protection. In the international trade context of the Grossman-Helpman model, the benchmark of efficiency is free trade. But no comparable benchmark exists in intellectual property law. The case for the complete abolition of intellectual property has been forcefully argued by Boldrin and Levine (e.g., 2002, 2008), but it does not represent the consensus view of scholars (see Gilbert (2011) for a review), and at this point the evidence does not seem sufficient to go much beyond the agnostic assessment rendered sixty years ago by Machlup (1958).²⁰ In the absence of an adequate benchmark of social welfare, modeling welfare consequences beyond those felt by politically active agents does not seem feasible.

But this difficulty is not as damning to the generalizability of the present analysis as it might first appear. Consider that, in restricting the analysis to the lobbying groups' welfare, we have effectively assumed that all relevant benefits and costs are internalized by these groups. Extending the analysis to general social welfare would thus require us to ask what kinds of consequences are less likely to be internalized. Many benefits of a restrictive copyright regime are concentrated in current content owners, whereas the costs are largely spread among a diffuse group of potential users. Although neither side of the balance is fully internalized by lobbying firms, the benefits of copyright protection have a more powerful political champion (see discussion and sources cited on

²⁰It is fair to say, however, that most legal and economic experts consider the present system to be overly protective. See the sources cited on page 3, as well as Akerlof et al. (2003); Bessen and Meurer (2009); Gilbert (2011); but see Cass and Hylton (2013).

page 3). Accordingly, to the extent the analysis of lobbying firms' welfare ignores social welfare, it mostly ignores the costs of restrictive policies (or the benefits of permissive policies). If anything, then, a more general social welfare analysis is likely to strengthen the above-derived result that permissive rulings are optimal.

3 Case Studies

The model predicts that, when newcomers are resource-constrained, a permissive judicial ruling will lead to subsequent congressional compromise between new and established technologies whereas a restrictive ruling will lead to the newcomer being shut out. To see whether this prediction is borne out, one would have to examine intellectual property cases that (1) pit a game-changing newcomer against the technological old guard, and (2) reach the Supreme Court. The second requirement is necessary because in the model the court's policy can be overturned only by Congress, which is true only of courts at the apex of the judicial hierarchy. Because intellectual property law is largely federal, that final authority is the United States Supreme Court. Moreover, by design, the scope of the model is limited to cases that are basically indeterminate under the law. To include run-of-the-mill cases that have a clearly correct answer under preexisting law would confound the analysis of comparative welfare consequences because compliance with the law is itself valuable, both intrinsically and as a source of predictability in economic life. And one would generally expect that if the law is clear then competent judges would simply apply it. Restricting our sample to Supreme Court cases is a ready way of eliminating routine cases. Unfortunately, however, this restriction decreases the number of observations to the point of rendering statistical analysis meaningless. So for present purposes we will have to do with case studies, choosing three cases concerning the public-performance right of copyright law. The Conclusion discusses possibilities for statistical analysis.

3.1 The Cable Cases

Today cable is commonplace. At one point, though, it was the new thing—a cutting-edge development that both extended the reach of broadcast television to hitherto unserved areas and greatly multiplied the variety of programs available to viewers. Cable thus challenged the primacy of the Big Three television networks (ABC, CBS, NBC) and their affiliates. See, e.g., Wu (2011, 176-86). Legal fights broke out, and they soon found their way to the Supreme Court.

The copyright controversy over cable first reached the Supreme Court in *Fortnightly Corp. v. United Artists Television*. In that case, cable companies erected large antennas on hilltops to receive broadcast television signals in remote areas of West Virginia where the signals could not be cleanly reached by rooftop antennas. They sold area residents access to the television programming picked up by these antennas, known as community antenna television (CATV), by stringing cables from the antennas to the residents' television sets in return for fees (hence the name "cable"). United Artists Television, which held copyrights on several films that it had licensed local TV stations to broadcast, sued a local cable company for copyright infringement. The legal issue was whether cable companies' receipt and rechanneling of the signals counted as a "performance" under section 1 of the 1909 Copyright Act. If it did, the cable companies were infringing the content owners' copyright because they had not obtained permission for their service.

The Court approached the question by drawing a line between broadcasters and viewers. Lower-court decisions had held (and the parties had apparently not disputed) that broadcasters perform whereas viewers don't. The question, then, was on which side of the line cable fell. The Court held that it fell on the viewers' side. A cable system, reasoned the Court, "no more than enhances the viewer's capacity to receive the broadcaster's signal," a function that is "little different from that served by the equipment generally furnished by a television viewer." *Id.* at 399. If an individual were to erect an antenna on a hill and string a cable to his house to better receive broadcast signals, he would not be "performing" within the meaning of the Copyright Act; the result should be no different, held the Court, whether the erecting and stringing was done by a community of people or by an entrepreneur. *Id.* at 400.

Moreover, what a cable company does is fundamentally different from what a broadcaster does: "Broadcasters select the programs to be viewed; CATV systems simply carry, without editing, whatever programs they receive. Broadcasters procure programs and propagate them to the public; CATV systems receive programs that have been released to the public and carry them by private channels to additional viewers." *Id.* The Court therefore held that cable companies "do not perform the programs that they receive and carry." *Id.* at 401.

Interestingly for our purposes, the Court in *Fortnightly* was alert to the fact that cable was a new technology that had not been anticipated and hence not provisioned for in the 1909 Copyright Act. It noted that a legislative overhaul of the sixty-year-old copyright statute had long been in the works and that "progress has not been rapid."

Id. at 396 n.17. But the Court rebuffed the Solicitor General’s invitation to effectively create a new regulatory regime through judicial rulemaking, remarking that “that job is for Congress.” *Id.* at 401.

Fortnightly paved the way for cable’s reach into American homes. But copyrightholders would not let up, and in four years the Supreme Court was again at the center of the controversy in *Teleprompter Corp. v. Columbia Broadcasting Systems*. The technology at issue in *Teleprompter* was basically no different from *Fortnightly*, but the plaintiff (CBS) argued that a number of factors distinguished the case and brought the cable companies “to the broadcasters’ side of the line”: (1) cable companies had taken to producing and airing programs of their own, rather than just carrying broadcast companies’ signals; (2) cable companies sold time to advertisers; (3) different cable companies sold programming to one another; and (4) the CATV antennas in this case not only enabled clearer reception of broadcast signals within the area of the broadcasters’ original network but also received signals hundreds of miles away from the local broadcasting area, where the signals could never be received by home or community antennas. *Teleprompter*, 415 U.S. at 403-06.

The Supreme Court held that none of these distinctions made a difference. The first three facts were swiftly dismissed as irrelevant. It mattered not that cable companies produced their own programs, sold advertising time, and interconnected, reasoned the Court, because none of these functions had anything to do with their receipt and rechanneling of the broadcasters’ signals. There was no evidence that the original broadcasters’ programs were edited or interrupted by the cable companies’ own programming or commercials; the cable companies’ “origination service” and “reception service” were strictly separated, even though they were sold as a bundle to viewers. *Id.* at 405.

As for the fourth distinction, the copyrightholders had claimed that the cable companies were more like broadcasters than viewers because, in electing to receive and rechannel signals from distant stations, they sometimes “leapfrogged” nearer stations, thereby exercising an element of choice akin to a broadcast network’s selecting the mix of materials to broadcast. But the Court held that this “limited freedom to choose” among broadcast stations was not comparable to a broadcast network’s “creative choice” of airing a program from a diverse array of available ones, possibly with additional editing, or producing entirely new programs. Moreover, unlike broadcasters, cable companies did not “convert[] the sights and sounds of an event or a program into electronic signals available to the public,” but simply received and rechanneled “electronic signals [that]

ha[d] already been ‘released to the public’” by broadcasters. *Id.* at 410.

Finally, copyrightholders had argued that cable’s receipt and rechanneling of distant signals made a real economic difference and disturbed the existing market structure. Revenues generated from the “first run” of broadcasts in local markets were typically insufficient for copyrightholders to recoup their investments in creating content, so they relied on “second run” syndications to other broadcasters. But secondary-market syndications would become less profitable if cable companies could come along and scoop the content for free, because viewer appeal declines as the number of showings increases. The Court responded that the Copyright Act was not intended to freeze preexisting business structures: “While securing compensation to the holders of copyrights was an essential purpose of that Act, freezing existing economic arrangements for doing so was not.” *Id.* at 413 n.5. The advent of cable had rearranged the existing relations between broadcasters, creators, and advertisers to a degree that devising the proper regulatory framework to deal with it would “entail extended factfinding and a legislative, rather than a judicial, judgment.” *Id.* “These shifts . . . simply cannot be controlled by means of litigation based on copyright legislation enacted more than half a century ago, when neither broadcast television nor CATV was yet conceived. Detailed regulation of these relationships, and any ultimate resolution of the many sensitive and important problems in this field, must be left to Congress.” *Id.* at 414.

As a matter of technical legalism, the Court’s decisions in *Fortnightly* and *Teleprompter* are fine but not air-tight. The Court did not justify why it framed the question as a choice of whether to throw cable in the broadcaster or viewer category, rather than asking more directly what course of action is faithful to the constitutional purpose of copyright. Nor is it evident that cable companies actually look more like viewers than broadcasters. They fall somewhere in between, and they can be persuasively analogized to both, depending on which features are emphasized. The Court did not explain why it found certain features more salient than others, so its choice of emphasizing cable’s viewer-like features and deemphasizing its broadcaster-like features seems result-oriented.

Instead, the Court’s opinions are better understood as strategic decisionmaking with an eye to the development of good technology policy. One can interpret the Court’s decisions in light of the model as an effort to prevent cable from getting stifled in the cradle. Indeed the lone dissenter in *Fortnightly* characterized the majority’s opinion as an “attempt to foster the development of CATV.” *Fortnightly*, 392 U.S. at 304 (Fortas, J., dissenting). But there is more to the Court’s approach here than is revealed by its

insistence in both cases that the ultimate authority for making cable policy rests with Congress. Of course Congress is the final policymaker—but the question is *from what baseline* it makes policy, and the choice of baseline is up to the Court. A baseline of infringement could have killed cable’s prospects, given the political dominance of the Big Three networks and their allies, whereas a baseline of noninfringement would have allowed cable to develop and take hold to the point that a policy of flatly outlawing it would not be feasible.

Our ability to gauge the soundness of this strategic analysis is limited by the fundamental problem of causal inference—we cannot observe the counterfactual world in which the Court set an infringement baseline—but the evidence suggests that the Court’s attempt to foster legislative compromise by setting a noninfringement baseline was successful. The overhaul of the 1909 Copyright Act that had long been in the works was finally accomplished in 1976, two years after the *Teleprompter* decision. The Copyright Act of 1976 built a two-part system to regulate cable. First, in the context of a copyright holder’s exclusive right to “perform the copyrighted work publicly” (17 U.S.C. §106(4)), the Act defined both “perform” and “publicly” very broadly in 17 U.S.C. §101 to encompass transmission by cable. Second, the Act in 17 U.S.C. §111 built a new compulsory-licensing scheme which allows cable companies to retransmit copyrighted works first aired by broadcast television companies in exchange for paying a fee calculated according to a formula. This two-pronged system allows cable companies to operate at profit while ensuring increased payments to the copyright holders whose content is being retransmitted. Although the Court’s precise contribution to the resulting legislative compromise cannot be quantified, the evidence shows that the Court’s rulings against copyright liability strengthened the cable companies’ position in the negotiations leading up to the 1976 Act. See Litman (1989, 330-31).

In sum, the model helps us arrive at a fresh interpretation of the Supreme Court’s cable decisions. Legal commentary often portrays *Fortnightly* and *Teleprompter* as failures, because Congress ultimately replaced the Court’s flat exemption of cable from copyright liability with a statutory scheme that brought cable’s activities under the public-performance right. The Supreme Court itself seems to have internalized the critical reception of its cable decisions. Indeed, the Court’s main rationale in the recent *Aereo* case was to avoid their example. “In 1976 Congress amended the Copyright Act in large part to reject the Court’s holdings in *Fortnightly* and *Teleprompter*,” and “bring the activities of cable systems within the scope of the Copyright Act,” wrote

Justice Breyer for the Court. *Aereo*, 134 S. Ct. at 2505-06. Accordingly, the Court must attach copyright liability to any new technology that looks like cable in order to effectuate congressional intent. *Id.* at 2506. But this way of looking at the cable decisions completely misses their contribution. It fails to appreciate that there is an interaction between the baseline established by the Court and the policy ultimately adopted by Congress. The workable legislative compromise crafted by Congress to deal with cable does technically “overrule” the Court’s decisions, but it was enabled only by them. Seen in this light, the fate of cable vindicates the model’s prediction that a permissive ruling leads to subsequent congressional compromise between new and established technologies. By the same token, as the next section shows, the Supreme Court’s recent experience with online technologies is consistent with model’s prediction that a restrictive ruling can lead to the newcomer being shut out.

3.2 Aereo

American Broadcast Companies v. Aereo, decided in 2014, represents the Supreme Court’s latest experience with a disruptive technology accused of violating intellectual property laws. The case was about Aereo, a company founded in 2012 that allowed subscribers to record and watch broadcast television anytime, anywhere on an Internet-connected device without the need to install hardware or get a cable subscription. After buying a subscription for about eight dollars a month, a user could log on to the Aereo website, make a selection from a list of programs airing or set to be aired on broadcast television, and watch the program virtually live. Aereo made this possible by means of thousands of dime-sized antennas located on antenna boards in Brooklyn. When a user elected to watch a program, Aereo’s antenna server assigned one antenna and one transcoder to the user. The server then tuned the antenna to the appropriate broadcast frequency and sent the data received from the antenna to a hard drive in a directory specifically reserved for that user. A copy was then made specifically for that user, and the feed was transmitted to the user’s device (hence a ten-second delay when watching a program “live”). No two users were ever assigned the same antenna or the same directory at the same time, nor was a copy created for one user ever accessible to another user.²¹

A group of broadcast television stations sued Aereo, claiming that its unlicensed transmission of their copyrighted programming violated the public-performance right under section 106 of the Copyright Act (as well as a variety of other claims that did

²¹This description of Aereo’s technology was based on the Second Circuit’s opinion in the case.

not reach the Supreme Court). Deciding the case required determining, first, whether Aereo “performed” the works and if so, second, whether it performed them “publicly.”

As to the first question, the Court found that although the text of the Act is unclear, its legislative history compels the conclusion that Aereo does in fact perform. The Court argued, relying on House Reports, that a primary purpose of the pertinent provisions of the 1976 Copyright Act was to “overturn” the Court’s determination in *Fortnightly* and *Teleprompter* that cable systems “fell outside the Act’s scope.” *Aereo*, 134 S. Ct. at 2504-06. This history makes clear, wrote the Court, that an entity which “acts like” cable performs; ergo, because Aereo’s activities are “substantially similar” to those of cable, Aereo performs. *Id.* at 2506.

Moving on to the question of whether Aereo performs “publicly,” the Court rejected Aereo’s argument that its practice of allotting one dedicated antenna and one dedicated copy to each subscriber exempted its performance from being public. The Court dismissed these practices as “behind-the-scenes” technological details that do not matter to “Congress’s regulatory objectives,” to a subscriber’s viewing experience, or to “Aereo’s commercial objectives.” Aereo is indistinguishable from cable “in terms of the Act’s purposes,” so Aereo, like cable, performs publicly. *Id.* at 2508-09.

Three members of the Court dissented from the judgment. Justice Scalia wrote for the dissenters that the majority’s approach “disregard[s] widely accepted rules for service-provider liability and adopt[s] in their place an improvised standard (‘looks-like-cable-TV’) that will sow confusion for years to come.” *Id.* at 2512 (Scalia, J., dissenting). The dissent noted that most lawsuits against service providers involve claims of *secondary* liability (which means, to simplify, that the defendant enabled or aided copyright infringement, not that it directly infringed copyrights), whereas the claim before the Court alleged Aereo’s *direct* liability. It is well established that prevailing on the latter requires proving that the defendant “engaged in volitional conduct that violates the Act.” *Id.* at 2512. This volitional-conduct requirement cannot be met where a defendant, like Aereo, did “nothing more than operate an automated, user-controlled system,” where the selection of copyrighted content is up to the user. For example, an Internet service provider is not liable for direct copyright infringement if one user illegally copies a copyrighted file and emails it to another, and a copy shop is not directly liable if a customer illegally copies a copyrighted book using the shop’s equipment. *Id.* at 2513. Similarly, Aereo cannot be directly liable because its subscribers “call all the shots.” “Aereo does not ‘perform’ for the sole and simple reason that it does not make

the choice of content.” *Id.* at 2514. (Having found that Aereo does not “perform,” the dissent did not reach the issue of whether it performed “publicly.”)

It is hard to say whether the majority or the dissent had the better argument under the law. There is strong intuitive appeal to the majority’s contention that a company which provides practically the same service as cable should be subject to the same rules as cable. And it seems perverse to reward Aereo for over-engineering (i.e., assigning an individual antenna and copy to each user) to avoid the Copyright Act’s reach. On the other hand, there is no such thing as a legal claim for “exploiting a statutory loophole.” Rather, as Aereo had argued, “designing technologies to comply with the copyright laws is precisely what companies *should* do.” Respondents’ Brief at 3 (emphasis in original). Moreover, as the dissent pointed out, the majority simply invented a “looks-like-cable-TV” standard out of thin air. The pertinent provisions of the Copyright Act speak to cable and certain similar technologies; they do not speak to “anything that does similar things as cable.” The majority’s practice of plucking selected quotations from House Reports as evidence of “legislative intent” is a procedure long discredited by some social scientists and jurists alike: It is not clear what the notion of “intent” means when applied to a body of hundreds (which individuals’ intent counts? what if different individuals had different intentions? how do we aggregate individual intentions to arrive at one collective intent?); even if it meant something, it is unclear how the subjective feelings of a group of people can be ascertained (presumably not just by looking at House Reports drafted by interest groups or at best by committees representing a small fraction of legislators); and even if it meant something and could be ascertained, it is unclear why such legislative intent has any claim to being law. See, e.g., Shepsle (1992); *Lawson* (Scalia, J., dissenting). The point is that the majority’s approach, despite its surface appeal, is by no means clearly correct under the law.

Rather, like cable systems in the late 1960s and early 1970s, Aereo today is a statutorily unanticipated technology that falls in a legal grey zone. The question illuminated by the model is how Congress will legislate for such technologies depending on where the Supreme Court locates the baseline of liability. In cable’s case we saw that, as the model predicts, the Court’s decision to establish a baseline of noninfringement enabled subsequent legislative compromise that permitted cable’s benefits to flow to consumers while obligating cable systems to compensate copyright owners. In Aereo’s case the Court’s decision to establish a baseline of infringement had the opposite effect: Aereo is dead. The company suspended operations a few days after the Court’s decision in June

2014 and filed for Chapter 11 bankruptcy in November. Appeals to Congress by Aereo and its subscribers got nowhere. This does not mean, of course, that affordable Internet TV will never be possible. TiVO has announced plans to develop a “legal version” of Aereo, and other newcomers might be able to provide similar services to consumers if the FCC promulgates favorable regulations.²² But the upshot is that, as the model predicts, the Supreme Court’s restrictive decision doomed the prospects for subsequent legislative compromise that would establish legal obligations for new technologies while allowing consumers to enjoy their benefits.

Of course, the episodes reviewed in these case studies do not provide rigorous empirical tests of the model. They do, however, illustrate its plausibility and its potential to explain political processes with important policy implications.

4 Conclusion

The primary takeaway is this: A restrictive judicial ruling that would be optimal if the court’s decision were the final step of the policy process might become suboptimal once the decision is understood as the first step in a process that includes interest groups and Congress building on top of the court’s ruling. In general, the optimal judicial decision is to rule in favor of the resource-constrained party, which will often be the newcomer.

The intuition behind this central result is simple. The legislative process in copyright is one in which interest groups lobby Congress to obtain favorable laws. We therefore expect legislation to reflect the affected parties’ respective lobbying power, which is determined by the resources they are willing to invest in lobbying. When there are no resource constraints, the parties’ willingness to spend on lobbying is determined by how much value they would create if their technology were allowed to operate, so the outcome of the legislative process will be efficient (the Bernheim-Whinston theorem). In this plentiful world, the court’s allocation of the liability baseline does not matter (except as it might incidentally affect transaction costs). But the efficiency-indifference result no longer holds when we introduce resource constraints because a resource-constrained party (often the newcomer) cannot invest as much as is optimal in lobbying to obtain a

²²For reports on what happened after the Supreme Court’s *Aereo* decision, see Kwame Opam, *Aereo Turns to Congress to Reverse Supreme Court Decision*, The Verge, July 1, 2014; Mike Snider, *Aereo Gets Discouraging Response from Copyright Office*, USA Today, July 17, 2014; Emily Steel, *Aereo Concedes Defeat and Files for Bankruptcy*, N.Y. Times, Nov. 21, 2014; Chris Welch, *Aereo Will Pay \$950,000 to the TV Broadcasters*, The Verge, Apr. 21, 2015; Bill Rosenblatt, *TiVo Moves Towards Legal Aereo Offering*, Forbes, May 20, 2015. FCC regulation of Internet TV remains a story in development.

favorable policy. A permissive ruling might alleviate this resource constraint and allow efficiency to prevail; a restrictive ruling cannot do so.

It is important to understand this result not as a prediction of what courts will do but as a prediction of what final policy will be chosen depending on what courts do. As our discussion of *Aereo* makes clear, the Supreme Court itself sometimes buys into the final-policy-setter framework, and we do not imply that it always takes the long political-process view. What we show, rather, is that a judicial ruling in favor of the resource-constrained party is likelier to result in legislative compromise, whereas ruling against the resource-constrained party is likelier to shut out that party from influence in subsequent policymaking and thus entrench the Court's ruling as the final choice of policy. Our case studies of cable and Internet TV confirm this theoretical prediction.

Our analysis has important normative implications. It implies that, in deciding whether new uses of emerging technologies violate intellectual property laws, the Supreme Court should resolve legal ambiguity in favor of finding no violation. In other words, it should err on the side of noninfringement. We might call this the “copyright rule of lenity” (in reference to the original rule of lenity, which “requires ambiguous criminal laws to be interpreted in favor of the defendants subjected to them,” *Santos*, 553 U.S. at 514). Readers familiar with constitutional law might recognize an analogy between the implications of the present analysis and the famous footnote 4 of *Carolene Products*, which counsels stricter judicial scrutiny of legislation when the policymaking process evinces “prejudice against discrete and insular minorities.” We have showed, similarly, that courts should put a thumb on the scale in favor of those who are disadvantaged in the legislative process.

Such a normative implication can be relevant to the real-world behavior of judges only if judges are trying to do the right thing. Political scientists might find such an assumption about judging too “legalistic,” and lawyers might find it not legalistic enough. As for the political scientists, we mostly accept the refutation of the legalistic model of Supreme Court decisionmaking. However, in the context of intellectual property law, the “ideological” model of judging does not have much purchase. The subject does not lend itself to ideological position-taking, and judicial votes, even on the Supreme Court, do not line up ideologically. See, e.g., *Tasini*; *Eldred*; *Golan*; *Kirtsaeng*; *Petrella*. So the assumption of law-based judging is eminently defensible. The lawyers, on the other hand, might charge that doing the right thing by the law is not the same thing as maximizing social welfare. That is true, but the focus of the paper is on cases where

the law is indeterminate. Making a correct decision then involves recourse not just to “purely legal” materials but also to policy analysis within legal bounds. And, given the aforescribed economic understanding of intellectual property law, which has been ingrained for centuries in American jurisprudence, legal-policy analysis in this context is very much an attempt at welfare maximization. Our assumptions about judicial goals, in short, are reasonably realistic.²³ In any event, those who do not buy these assumptions may simply regard the model as illuminating the consequences of different judicial decisions, without paying attention to normative implications of the positive analysis.

Our results are preliminary in the sense that they have not been subjected to rigorous empirical testing. Follow-up studies might attempt this in a variety of ways. First, it might be possible to exploit cross-country variation in judicial approaches to intellectual property to assess whether countries where courts treat technological newcomers more leniently produce more balanced legislation. Challenges to causal identification abound, however, as cross-country variation exists on a number of other potentially important covariates as well. A similar comparison could be done across jurisdictions within the United States, though it would encounter the problem that most intellectual property law is federal. Second, and probably more promising, the model might be generalized to areas of economic regulation beyond intellectual property to increase the number of observations and enable statistical hypothesis-testing. Antitrust might be a promising area of extension, for example with respect to allegations of boycotting, exclusive dealing, market segmentation, predatory pricing, or other measures to stifle market entry.

Our preoccupation was technology policy and intellectual property law, and we adopted a model that would be a good fit for this area. We regard incorporation of salient real-world features to be an important determinant of a formal model’s explanatory power, so we were reluctant to venture in our main discussion beyond the context we know best. But our analysis is sufficiently general to accommodate other policy areas. The framework developed here will be most useful in understanding the role of courts in policymaking where three conditions are met. First, interest-group-dominated legislation is prevalent. Second, the policy area is not of an obviously ideological character which produces partisan cleavages among Justices and congressmembers (e.g., abortion).

²³None of this implies that judges share the same opinion on thorny questions of intellectual property law. Many judicial opinions in this area, including those reviewed in our case studies, are not unanimous. But all that our analysis requires is that judges share the same goal of maximizing welfare from intellectual innovation. Given this goal, the normative implication of the positive analysis goes through regardless of specific doctrinal differences.

Finally, courts interpret statutes in a common law style, with an eye toward economic considerations that animate the relevant statutes (e.g., antitrust). These stylized features well describe a fairly wide terrain of economic policy.

References

Articles, Books, Briefs, and Hearings

- [1] Akerlof, George et al. 2003. *Brief of George Akerlof et al. as Amici Curiae Supporting Petitioners*, Eldred v. Ashcroft, 537 U.S. 186.
- [2] Bernheim, B. Douglas and Michael D. Whinston. 1986. *Menu Auctions, Resource Allocation, and Economic Influence*. 101 Quarterly Journal of Economics 1.
- [3] Bessen, James and Michael J. Meurer. 2009. *Patent Failure: How Judges, Bureaucrats, and Lawyers Put Innovators at Risk*.
- [4] Boldrin, Michele and David Levine. 2002. *The Case Against Intellectual Property*. 92 American Economic Review 209.
- [5] —. 2008. *Against Intellectual Monopoly*.
- [6] Cameron, Charles M. and Lewis A. Kornhauser. 2017. *Theorizing the U.S. Supreme Court*, in Oxford Research Encyclopedia of Politics.
- [7] Carrubba, Clifford J. and Tom S. Clark. 2012. *Rule Creation in a Political Hierarchy*. 106 American Political Science Review 622.
- [8] Cass, Ronald A. and Keith N. Hylton. 2013. *Laws of Creation: Property Rights in the World of Ideas*.
- [9] Coase, Ronald H. 1960. *The Problem of Social Cost*. 3 Journal of Law and Economics 1.
- [10] Dourado, Eli and Alex Tabarrok. 2013. *Public Choice and Bloomington School Perspectives on Intellectual Property*. Mercatus Center, Working Paper No. 13–23.
- [11] Elhauge, Einer R. 1991. *Does Interest Group Theory Justify More Intrusive Judicial Review?*. 101 Yale Law Journal 31.
- [12] Eskridge, William N., Jr. 1991. *Reneging on History? Playing the Court/Congress/President Civil Rights Game*. 79 California Law Review 613.

- [13] Farber, Daniel A. and Philip P. Frickey. 1987. *The Jurisprudence of Public Choice*. 65 Texas Law Review 873.
- [14] Ferejohn, John and Charles Shipan. 1990. *Congressional Influence on Bureaucracy*. 6 Journal of Law, Economics, and Organization 1.
- [15] Gilbert, Richard. 2011. *A World without Intellectual Property?*. 49 Journal of Economic Literature 421.
- [16] Grossman, Gene M. and Elhanan Helpman. 1994. *Protection for Sale*. 84 American Economic Review 833.
- [17] Hausegger, Lori and Lawrence Baum. 1999. *Inviting Congressional Action: A Study of Supreme Court Motivations in Statutory Interpretation*. 43 American Journal of Political Science 162.
- [18] Home Recording of Copyrighted Works, Hearings Before the Subcommittee on Courts, Civil Liberties, and the Administration of Justice of the Committee on the Judiciary, House of Representatives, 97th Congress, Apr. 12, 1982.
- [19] Kornhauser, Lewis A. 1992. *Modeling Collegial Courts. II. Legal Doctrine*. 8 Journal of Law, Economics, & Organization 441.
- [20] Landes, William M. and Richard A. Posner. 2004. *The Political Economy of Intellectual Property Law*.
- [21] Lax, Jeffrey R. 2011. *The New Judicial Politics of Legal Doctrine*. 14 Annual Review of Political Science 131.
- [22] Litman, Jessica D. 1987. *Copyright, Compromise, and Legislative History*. 72 Cornell Law Review 857.
- [23] —. 1989. *Copyright Legislation and Technological Change*. 68 Oregon Law Review 275.
- [24] Macey, Jonathan R. 1986. *Promoting Public-Regarding Legislation through Statutory Interpretation: An Interest Group Model*. 86 Columbia Law Review 223.
- [25] Machlup, Fritz. 1958. *An Economic Review of the Patent System*.
- [26] Olson, Mancur. 1965. *The Logic of Collective Action: Public Goods and the Theory of Groups*.

- [27] Patry, William F. 1996. *Copyright and the Legislative Process: A Personal Perspective*. 14 Cardozo Arts & Entertainment Law Journal 139.
- [28] —. 2015. *Patry on Copyright*.
- [29] Segal, Jeffrey A. *Separation-of-Powers Games in the Positive Theory of Congress and Courts*. 91 American Political Science Review 28.
- [30] Shahshahani, Sepehr. 2015. *The Nirvana Fallacy in Fair Use Reform*. 16 Minnesota Journal of Law, Science & Technology 273.
- [31] Shepsle, Kenneth A. 1992. *Congress Is a “They,” Not an “It”: Legislative Intent as Oxymoron*. 12 International Review of Law and Economics 239.
- [32] Spiller, Pablo T. and Rafael Gely. 1992. *Congressional Control or Judicial Independence: The Determinants of U.S. Supreme Court Labor-Relations Decisions, 1949-1988*. 23 RAND Journal of Economics 463.
- [33] Spiller, Pablo T. and Emerson H. Tiller. 1996. *Invitations to Override: Congressional Reversals of Supreme Court Decisions*. 16 International Review of Law and Economics 503.
- [34] Wilson, James Q., ed. 1980. *The Politics of Regulation*.
- [35] Wu, Tim. 2010. *The Master Switch: The Rise and Fall of Information Empires*.

Caselaw

- [36] *A & M Records, Inc. v. Napster, Inc.*, 239 F.3d 1004 (2001).
- [37] *American Broadcast Companies, Inc. v. Aereo, Inc.*, 134 S. Ct. 2498 (2014).
- [38] *Authors Guild, Inc. v. Google Inc.*, 954 F. Supp. 2d 282 (S.D.N.Y. 2013).
- [39] *Bonito Boats v. Thunder Craft Boats*, 489 U.S. 141 (1989).
- [40] *Brown v. Board of Education*, 347 U.S. 483 (1954).
- [41] *Compco Corp. v. Day-Brite Lighting, Inc.*, 376 U.S. 234 (1964).
- [42] *Eldred v. Ashcroft*, 537 U.S. 186 (2003).
- [43] *Fortnightly Corp. v. United Artists Television, Inc.*, 392 U.S. 390 (1968).

- [44] *Golan v. Holder*, 132 S. Ct. 873 (2012).
- [45] *Kimble v. Marvel Entertainment, LLC*, 135 S. Ct. 2401 (2015).
- [46] *Kirtsaeng v. John Wiley & Sons, Inc.*, 133 S. Ct. 1351 (2013).
- [47] *Lawson v. FMR LLC*, 134 S. Ct. 1158 (2014).
- [48] *MGM Studios, Inc. v. Grokster, Ltd.*, 545 U.S. 913 (2005).
- [49] *New York Times Co. v. Tasini*, 533 U.S. 483 (2001).
- [50] *Sears, Roebuck & Co. v. Stiffel Co.*, 376 U.S. 225 (1964).
- [51] *Teleprompter Corp. v. Columbia Broadcasting*, 415 U.S. 394 (1974).
- [52] *Twentieth Century Music Corp. v. Aiken*, 422 U.S. 151 (1975).
- [53] *United States v. Carolene Products Co.*, 304 U.S. 144 (1938).
- [54] *United States v. Santos*, 553 U.S. 507 (2008).
- [55] *United States v. Windsor*, 133 S. Ct. 2675 (2013).
- [56] *White-Smith Music Publishing Co. v. Apollo Co.*, 209 U.S. 1 (1908).
- [57] *WNET, Thirteen v. Aereo, Inc.*, 712 F.3d 676 (2d Cir. 2013).
- [58] *Viacom Int'l, Inc. v. YouTube, Inc.*, 676 F.3d 19 (2d Cir. 2012).
- [59] *Viacom Int'l Inc. v. YouTube, Inc.*, 940 F. Supp. 2d 110 (S.D.N.Y. 2013).