Coordination, Property & Intellectual Property: An Unconventional Approach to Anticompetitive Effects & Downstream Access

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Countless high profile cases like the recent patent litigation threatening to shut down the BlackBerry® service have long drawn sharp criticism; and in response, most of the intellectual property (IP) literature argues for the use of weaker, or liability rule, enforcement as a tool for solving the problems of anticompetitive effects and downstream access while still providing sufficient rewards to IP creators. This paper takes an unconventional approach under which rewards don’t matter much, but coordination does matter a great deal. The paper shows how stronger, or property rule, enforcement facilitates the good type of coordination that increases competition and access. The paper further shows how, paradoxically, the reforms urged by IP critics end up facilitating the different, bad type of coordination that decreases competition and access. Simply put, the paper shows how policy debates would be radically improved by consideration of these two different coordination effects.

The paper follows the general approach of the field called New Institutional Economics (“NIE”), which has explored many problems that are triggered by different institutions of laws and norms. Because no institution is perfect, the NIE approach suggests that our choices among institutions must be informed by our views of the solutions we most want and the problems we can best mitigate or bear.
The paper explores a theory of the institution of property rights backed up by property rules as playing a particular, good role in facilitating coordination among many diverse complementary users of an asset in a way that increases competition and access. Under this view, coordination is offered as an alternative to other goals that have been suggested including internalizing externalities, mitigating rent dissipation, or providing direct incentives, and property is offered as an alternative to other institutions or organizations that also can facilitate this coordination goal, including, norm communities such as open source projects, firms, and government. The paper also shows how property rights backed up by weaker, or liability rule, enforcement can play a particular, bad role in facilitating the kind of coordination among large, established players that decreases competition and access.

The shift in focus towards the link between property rule treatment and coordination has several practical effects. First, it explains why many of reform proposals of yesterday and today that do not use the coordination approach should be expected to exacerbate the two key persistent problems of anticompetitive effect and reduced downstream access. Second, it explains why certain aspects of IP regimes may be working well and why others may be candidates for change or elimination. Third, it elucidates factors that cut against changing IP regimes in ways that likely will exacerbate the two key persistent problems of anticompetitive effect and reduced downstream access. Providing one example of how the coordination approach could inform practical policy discussions, the paper frames a discussion for evaluating a case against the present copyright regime.

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I. INTRODUCTION

Despite numerous reforms over the past century, important problems continue to plague the IP systems of today, generating numerous proposals for further reform tomorrow. For example, recent high profile cases like the patent litigation threatening to shut down the BlackBerry® service have drawn sharp criticism in the business community as being prime examples of the pernicious impact of protecting intellectual property (IP) rights with strong property rules, backed up by injunctions, rather than weaker liability rules, which would give rise only to a right to payment. Various forms of liability treatment have been offered. For example, Ayres & Klemperer advocate a patent litigation system characterized by uncertainty and delay, which they show could serve as a form of compulsory license, or liability rule. Others simply advocate various exemptions to infringement, such as for what they call fair use.

Underlying these critiques of IP is a view that property rights either restrict access or cause anticompetitive effects. The arguments raised today are quite similar to those raised throughout most of the past century; and, as usual, the reform efforts target all three branches of the federal government – legislature, executive agencies, and courts.

This paper endeavors to show how addressing these

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2 Indeed, there are two similar cases that have been sharing the high profile. One involves the BlackBerry® service, and the Supreme Court ultimately did not grant review of this one, and one involving the eBay service, in which the Supreme Court reaffirmed that a trial court is not writing entirely on a clean slate in view of past practices when the court is applying the ordinary four-factor test for permanent injunctions to determine whether a patentee may get a permanent injunction once patent validity and infringement have been adjudicated. See, NTP, Inc. v. Research In Motion, Ltd., 418 F.3d 1282 (Fed. Cir. 2006), cert denied, 126 S.Ct. 1174 (2006) (BlackBerry®); eBay Inc. v. MercExchange, 126 S.Ct. 1837, ___ U.S. ___ (May 15, 2006). For more on the BlackBerry® case see infra notes 233-234 and accompanying text.

3 See, e.g., Patently Absurd, WALL ST. J. (Mar. 1, 2006), at A14 (criticizing a set of cases including NTP); Bruce Sewell, Troll Call, WALL ST. J. (Mar. 6, 2006), at A14 (criticizing both the NTP and eBay cases).

4 The label “property rule” is used here as it is used in the classic Calabresi-Melamed framework under which an entitlement is said to enjoy the protection of a property rule if the law condones its surrender only through voluntary exchange. The holder of such an entitlement is allowed to enjoin infringement. An entitlement is said to have the lesser protection of a liability rule if it can be lost lawfully to anyone willing to pay some court-determined compensation. The holder of such an entitlement is only entitled to damages caused by infringement. See Guido Calabresi & A. Douglas Melamed, Property Rules, Liability Rules, and Inalienability: One View of the Cathedral, 85 HARV. L. REV. 1089 (1972). But see, Jules L. Coleman & Jody Kraus, Rethinking the Theory of Legal Rights, 95 YALE L.J. 1335 (1986) (offering a “reinterpretation of the Calabresi-Melamed framework” under which property rules and liability rules merely represent two pieces of a broader “transaction structure” in that they are two different approaches for setting forth “conditions of legitimate transfer”).


6 See, e.g., Maureen A. O’Rourke, Toward A Doctrine of Fair Use in Patent Law, 100 COLUM. L. REV. 1177 (2000) (offering fair use exception because of excessive transaction costs causing too many market failures in the transactions over IP rights as property rights).

7 Representative examples from different times throughout the past century include the effort by Congress to create the Temporary National Economic Committee (also known at the TNEC), S.J. Res. 300, 75th Cong. ¶ 2 (1938), the President’s Commission on the Patent System, “To Promote the Progress of ... Useful Arts” In an Age of Exploding Technology (1966), and the year-long set of hearings jointly held in 2001 by the Federal Trade Commission and the Justice Department’s Antitrust Division. See Notice of Public Hearings Competition and Intellectual Property Law and Policy in the Knowledge-Based Economy, 66 Fed. Reg, 58,146, 58,147 (Nov. 20, 2001).
Concerns about competition and access with conventional approaches\(^8\) is likely to exacerbate the problems of competition and access by tapping into property’s bad coordination effects, and how these problems can be mitigated by adopting an unconventional strong-property-rule approach informed by property’s good coordination effects.

This paper offers a comparative institutional analysis using the set of analytical tools from the field generally called new institutional economics (“NIE”), which is often associated with the work on institutions, transaction costs, agency costs, and the theory of the firm.\(^9\) This systems-based approach\(^10\) is broader than prior works at the interface between NIE and IP, and is particularly timely given the recent surge in interest in particular aspects of the interface between NIE and IP.\(^11\)

The tools NIE uses to conduct comparative institutional analyses have played a central role in the scholarly debate within property theory about the shifts that occur over time among property regimes, generally.\(^12\) Yet, despite the many recent shifts that have occurred within the field of IP, the

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\(^8\) For more on conventional approaches see infra Part III.

\(^9\) Some examples that are accessible to a broad audience include the works by Robert Fogel and Douglass North as discussed in “The Bank of Sweden Prize in Economic Sciences in Memory of Alfred Nobel 1993,” available on-line at http://www.nobel.se/economics/laureates/1993/, and the work by Ronald Coase as discussed in “The Bank of Sweden Prize in Economic Sciences in Memory of Alfred Nobel 1991,” available on-line at http://www.nobel.se/economics/laureates/1991/. The term NIE, itself, was coined by Oliver Williamson, in Oliver E. Williamson, Markets and Hierarchies: Analysis and Antitrust Implications (1975) at 1, whose work has elucidated the pervasive impact of transaction costs across a range of settings from markets and firms to other organizational structures and politics.

As Coase points out, while the older field known as “institutional economics” highlighted the economic impact of institutions as compared with capital, labor, and technology, the newer field of NIE develops a research agenda devoted to characterizing this impact. That is, NIE does not just note that institutions matter, or that law matters, NIE studies how institutions matter. See Ronald Coase, The New Institutional Economics, 88 Am. Econ. Rev. 72 (1998).

Although some see NIE as a distinct field, there is some debate over the relation between the field of NIE itself and other fields such as “Law and Economics,” and “neoclassical economics.” For a collection of views on the debate over the proper characterization of the field of NIE in relation to the disciplines of economics and law, see, generally, Richard A. Posner, The New Institutional Economics Meets Law and Economics, 149 J. Institutional & Theoretical Econ., 73 (1993)[hereinafter Posner, NIE Meets L&E]; Oliver E. Williamson, Transaction Costs Economics Meets Pomerene Law and Economics, 149 J. Institutional & Theoretical Econ., (1993); Ronald H. Coase, Coase on Posner on Coase, 149 J. Institutional & Theoretical Econ., 96 (1993); Richard A. Posner, Reply, 149 J. Institutional & Theoretical Econ., 119 (1993). This paper is agnostic about these debates and takes as positive the contributions of the many scholars whose work serves as the basis on which the field, by any name, has been built.


basic case for or against formal property rights for IP backed up by property rules has largely escaped the attention of the NIE literature.  

Put simply here for introductory purposes, the paper first suggests a goal that IP can achieve effectively and efficiently. The paper endeavors to shift the dialog over property rights in general to include in its focus the problem of coordination in addition to the long-standing focus on the problems of externalities and rent dissipation.

In the context of IP in particular, the paper explores reasons why although IP regimes should not be expected to be very effective in achieving a narrowly tailored reward function by providing direct incentives for specific inventive or creative efforts, they should be expected to be fairly effective in facilitating the coordination among complementary users of the subject matter IP rights protect that is needed to facilitate commercialization of that subject matter. This type of good coordination, which is important for increasing competition and access, hinges on whether the IP rights themselves are enforced by strong property rules backed up by a right to exclude. The basic intuition behind this view is motivated by the recognition that enforcing property rights with property rules helps property achieve two beneficial effects: a beacon effect and a bargain effect. The beacon effect refers to the drawing together of these many complementary users. The bargain effect refers to their ability to negotiate with each other. While the private ordering needed to achieve commercialization can lead to textured contracts having many terms including price but also including a host of seemingly esoteric and unique provisions - such as technical support, field-of-use or territory limitations, grant-backs, cross-licenses, payment schedules, most-favored-nation provisions, etc. - a court imposed damage award, which is emblematic of liability rule treatment, is in all but the rarest of cases reduced to a simple monetary amount. In this regard, property rule treatment is seen as a criterion of efficacy.

Recognizing that enforcing IP rights with property rules also would require them to be designed in ways that would mitigate the various social costs generally associated with property rule treatment, the paper explores ways this can be done. The rights must have their contours staked out at their time of creation by claimants instead of being set immutably by statute so as to mitigate problems of rent-dissipation and information cost. The creation of these rights must not frustrate reasonable investment backed expectations of others when staked out so as to mitigate the problems of the asset specificity and opportunism. Once in existence, these rights must give clear and predictable notice about what they cover after being staked out so as to mitigate transaction costs. In addition, to mitigate monopoly effects and anticommons effects, the ownership of these rights must be in the hands of an openly identifiable residual claimant, which is an individual market actor who can negotiate over them and extract value - the residual claim - from electing to give up either permission via a license or title via an assignment.

13 To some extent, the use here of the term “property” is somewhat imprecise, which is good in providing a short hand introduction to help frame the central theme of the paper, and bad in failing, like all short hand expressions, to capture the full complexity of the situation. The approach in this paper may be fairly characterized under the taxonomy of property provided by Henry Smith, as focusing on the exclusion forms of property rather than on governance forms. See, Henry E. Smith, Exclusion versus Governance: Two Strategies for Delineating Property Rights, 31 J. LEGAL STUD. S453 (2002). See also Adam Mossoff, What is Property? Putting the Pieces Back Together, 45 ARIZONA L. REV. 371 (2003) (reviewing theories of property).

This owner must be given broad flexibility to divide them up and aggregate them. Together, these several parameters can be seen as criteria of efficiency. The paper next shows how property rights backed up by weaker, or liability rule, enforcement can play a particular, bad role in facilitating the kind of coordination among large, established players that decreases competition and access. One basic intuition behind this view is that populating a market with only weak forms of property rights allows the large players in that market to fight with each other over those rights in a way that mitigates two key problems of trust and antitrust otherwise facing such large players endeavoring to engage in the communication and coordination that enables anti-competitive collusive behavior. Another basic intuition behind this view is that because legal institutions are endogenous to the established political and social processes, the particular features of the liability rules that ultimately get adopted end of being dangerously tiled in ways that keep out market entrants, such as by locking-in a set of immutable rules around which new entrants cannot contract to even try out their new business models. Together, these several parameters can be seen as particular hallmarks of anticompetitive effects.

Setting forth these various criteria in this summary format is designed only to highlight some reasons why some different institutional features of the different IP regimes of patent, trademark, and copyright may be working well and why others may not. The ultimate net economic performance of each regime is highly multi-factorial and indeed most industries do not interact with just one IP regime. But while judging overall net economic performance is beyond the scope of this paper, what this paper does endeavor to add to the analysis is an elucidation of the types of impacts different institutional choices are likely to make for a given system, as well as how some types of positive impacts might be achieved and some types of negative impacts might be mitigated.

For example, the different regimes employ different degrees of property rule treatment. The patent regime generally follows a property rule approach. The trademark regime is somewhat similar, but does provide for some fair use defense. In contrast, the copyright regime employs a host of liability rules, as well as exceptions to infringement (such as fair use and home recording for self use and for distribution to friends and family) and exceptions to those exceptions (such as the Napster case holding liability for sharing with peers where done over the internet). Other examples include the compulsory licensing at positive rates in many areas like re-transmissions and jukeboxes, as well as the compulsory licensing for free for those uses determined to be fair.

This paper's focus on coordination helps show why the extent to which a regime employs property rule treatment is an

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16 See, e.g., Jennifer E. Rothman, Initial Interest Confusion: Standing at the Crossroads of Trademark Law, 27 CARDOZO L. REV. 105, 178 (2005) (reviewing limits of trademark fair use defense). Nevertheless, it is not entirely clear whether this doctrine really provides an exemption for a use that otherwise would be infringing or whether it merely restates what is not infringement in the first place because it refers to trademark being used in a non-trademark sense.

17 See A & M Records, Inc. v. Napster, Inc., 239 F.3d 1004, 1020 (9th Cir. 2001) (suit against service that facilitated peer to peer sharing of copyrighted music).


19 17 USC § 116.

20 17 USC § 107 (fair use); 17 USC § 122 (copies for the blind).
important factor in explaining why that regime should be expected to be effective in facilitating the good coordination among complementary users of the subject matter protected by the regime that is needed to facilitate commercialization. At the same time, the extent to which a regime employs liability rule treatment is an important factor in explaining why that regime should be expected to be effective in facilitating the bad coordination among established market players that frustrates market entry.

This paper proceeds as follows. Employing a comparative analysis of alternative goals such as providing direct incentives, mitigating rent dissipation, or internalizing externalities, and alternative institutions and organizations such as norm communities like an open source project, firms, and government, Part II develops a theory of the institution of property rights as playing a particular role in coordinating among the many complementary users of an asset. Part III shows how this coordination theory of property in general is particularly well suited as a theory for IP, especially when compared to other dominant IP theories in the literature such as the reward and prospect, or rent dissipation, theories. The coordination theory also is shown to explain why some particular aspects of IP regimes may be working well and why others may be candidates for change. Part IV concludes.

II. NIE, COORDINATION, AND PROPERTY RIGHTS

The field of NIE pays particular attention to the economic significance of institutions and organizations, as distinct from other factors, such as technology, capital, or labor.21 As described by North:

Institutions are the humanly devised constraints that structure human interaction. They are made up of formal constraints (rules, laws, constitutions), informal constraints (norms of behavior, conventions, and self imposed codes of conduct), and their enforcement characteristics.…

It is the interaction between institutions and organizations that shapes the institutional evolution of an economy. If institutions are the rules of the game, organizations and their entrepreneurs are the players.

Organizations are made up of groups of individuals bound together by some common purpose to achieve certain objectives. Organizations include political bodies (political parties, the Senate, a city council, regulatory bodies), economic bodies (firms, trade unions, family farms, cooperatives), social bodies (churches, clubs, athletic associations), educational bodies (schools, universities, vocational training centers).22

This paper focuses on several of the most salient alternative tools for facilitating coordination: norm communities, firms, government actors, and property rights. Although applying the above definitions strictly would make some of these tools look more like organizations than institutions, for purposes of this paper it is sufficient to note that they all have important institutional aspects that benefit from NIE’s comparative institutional analyses.


22 Douglass C. North, Prize Lecture, available on-line at http://www.nobel.se/economics/laureates/1993/north-lecture.html. The logical relationship between organizations and institutions can be conceived topologically in at least two ways. The first sees organizations as operating within institutions, such as a firm following society’s laws and rules. The second sees institutions as operating within organizations, such as the internal set of rules, norms, and enforcement characteristics that govern those within the organization and, in effect, define who is within the organization and who is outside of it.
NIE emphasizes the use of comparative institutional analyses to look at the different characteristics of institutions and what impact they have on individuals and organizations over time. Following such an approach suggests we should ask not only what we want, but also which mix of formal and informal institutions will work better in achieving our set of goals. The approach makes both conceptual and practical sense.

Engaging in a comparative institutional analysis makes conceptual sense because the perfect institution, like the perfect anything, simply is not achievable. Every real institution will have some problems. For this reason, institutional choices should not be about a singular search for perfection but rather about which sets of problems and benefits are best suited to tolerances and needs. It is better to compare the particular costs and benefits of actually available options than merely to identify problems with any one option and seek to perfect it. This is a theory of the “second-best.” Because different institutional choices will have different implications – positive and negative – for different problems, NIE teaches why it makes sense as a conceptual matter to pay attention to means as well as ends.

What is more, institutions are essentially endogenous in that we make them and we can change them if we want. As a result, a comparative institutional analysis makes great sense as a practical matter as well.

As discussed more fully below, our views about the proper role for a particular institution like property should be informed by what NIE has shown about various problems operating on what can be seen as three distinct levels. Recognizing them to be terms of art discussed more fully below, the labels typically used for each of these problems are mentioned here by way of introduction. On the individual level, these problems include, inter alia, those of incentives, rent dissipation, information costs, and behavioralism. On the interpersonal level, these problems include, inter alia, those of transaction costs, agency costs, and the need for coordination and private ordering. On the institutional level, these

The term “we” is used here in its broadest sense to refer to people, in general. Often, even groups of people are unable effectively to have particular government agencies or other institutions fully incorporate their views. It is recognized that some institutions are harder to change than others. For example, re-writing statutes may not change the behavior of courts, and may also not have the desired effect on norms. In the end, the mix of institutions that may be best may depend in part on the institutions that are presently at play. Put differently, path dependency may also be relevant to the comparative institutional analysis. In addition, the field of NIE extends far into the realm of political science, where the process of institutional change is well studied.

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24 See, e.g., Peter J. Hammer, Antitrust Beyond Competition: Market Failures, Total Welfare, and the Challenge of Intramarket Second-Best Tradeoffs, 98 Mich. L. Rev. 849 (2000) (applying second-best analysis in antitrust context); Richard S. Markovits, Monopolistic Competition, Second Best, and the Antitrust Paradox: A Review Article, 77 Mich. L. Rev. 567 (1979) (same); Richard S. Markovits, Second-Best Theory and Law & Economics: An Introduction, 73 CHI.-KENT L. REV. 3 (1998) (overview of second best theory); Andrew P. Morriss, Implications of Second-Best Theory for Administrative and Regulatory Law: A Case Study of Public Utility Regulation, 73 CHI.-KENT L. REV. 135, 170-76 (1998) (application to administrative law); Oliver E. Williamson, Economics as an Antitrust Defense: The Welfare Tradeoffs, 58 Am. Econ. Rev. 18 (1968) (example of early work using second-best approach); Oliver E. Williamson, Economics as an Antitrust Defense Revisited, 125 U. Pa. L. Rev. 699 (1977) (same). The search for perfection is what Harold Demsetz calls the “nirvana” fallacy, Harold Demsetz, Information and Efficiency: Another Viewpoint, 12 J.L. & Econ. 1, 1 (1969) (critiquing the so-called nirvana approach in favor of a comparative institution approach), and as Voltaire noted, it is through such searches that “the perfect is the enemy of the good.” VOLTAIRE, DICTIOINAIRE PHILOSOPHIQUE (“le mieux est l ennemi de bien,” literally, “the best is the enemy of the good,” or colloquially, “the perfect is the enemy of the good”). This is not to say that any particular institution, existing or otherwise, should not be studied critically or that everything should be left alone. Such complacency would ignore the countervailing sage warning by John Dewey and reiterated by Cass Sunstein that “the better is too often the enemy of the still better.” Cass R. Sunstein, Free Speech Now, 59 U. Chi. L. Rev. 255, 315 (1992) (citing John J. McDermott, ed, THE PHILOSOPHY OF JOHN DEWEY 652 (Chicago, 1973)) (“To the economists’ plea that ‘the perfect is the enemy of the good,’ we might oppose Dewey’s suggestion that ‘the better is too often the enemy of the still better.’”).
problems include, *inter alia*, enforceability of laws and norms, market failures, the differences between dynamic and static efficiency or between *ex ante* and *ex post* considerations, monopoly effects, government failures and public choice, as well as public goods problems and the tragedies of the commons and anticommons.26

The discussions that follow explore two themes about the institution of property rights. The first theme elucidates a role for property rights as tools for facilitating coordination among complementary users of an asset and compares the institution of property rights to other institutional and organizational arrangements in how they play this role. The second theme ties together a number of important insights from NIE about how the detailed institutional arrangements that implement a system of property rights can be structured so as to mitigate what otherwise are important recognized problems associated with property.

A. Coordination as an Emerging Theory of Property Rights

Although property rights have long existed, evolution continues in the views about why property rights emerge within communities and what role property rights can and should play. This paper elucidates one view that has only recently emerged in the literature: a view that sees the role of property rights as facilitating coordination. Property rights in general and IP rights in particular are not offered as perfect solutions to every problem. The case is not being made for property or IP, *uber alles*. Rather, the point is that property rights can provide an important additional and middle-ground tool for optional use by individuals engaged in private ordering beyond those offered by the extreme poles of either the free, open market without them on the one hand or the hierarchies of a norm community, firm, or government on the other hand. But, to play this role, property rights must be designed to facilitate private ordering in a way that increases output of, and as a result access to, the subject matter they protect. To achieve this role effectively, they must operate as rights of exclusion around which coordination can take place. This provides incentives to complementary users of the asset protected by the property right to engage in trades with each other. To do so efficiently, property rights must be structured to mitigate the costs of rent dissipation, information, transactions, and public choice. The below discussions show how each of these goals can be targeted.

1. Overview of Conventional Focus on Externalities

The conventional view of property rights in the literatures of both law and economics follows the 1967 work by Demsetz that sees property rights as tools for internalizing externalities.27 Demsetz built on the 1960 work on externalities by Ronald Coase,28 which itself was a response to work on externalities from the beginning of the 1900s by A.C. Pigou.29

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29 Pigou saw factory chimney soot as a problem of externalities imposed on others in the environment around the factory and argued that the proper use of taxes or subsidies could be used by the government to encourage such factories to account properly for the benefits and harms they project on those around them. According to Pigou, “resources devoted to the prevention of smoke from factory chimneys” provide an “uncompensated service,” or what some would call a positive externality, while smoke “inflicts a heavy uncharged loss on the community,” or provides what some would call a negative
Although this lineage likely is familiar to those versed in the property literature, a review is useful in highlighting some important questions that it left open, which relate to the issue of coordination. What is more, as discussed infra in Part III.A, the majority conventional view of IP rights is premised on the same externality focus as this literature, but seems to follow only its beginnings relating to Pigouvian taxes and subsidies, while overlooking its refinements relating to property rights. The discussion here has two central goals: to remind IP theory about the benefits of using property rights to solve externality problems; and to introduce to both IP theory in particular and property theory in general the questions left open by this lineage. The discussion in the following section will explore the role coordination can play in addressing these open questions and its implications for shaping regimes.

The term “externality” typically is used to refer to some cost or benefit that is external to a given economic decision-making system in that it is not factored into the decisions made by that system. But the term can be somewhat misleading because if the decision-making process is working perfectly, then nothing will be completely external to the individual or the market. Because decision-making in the real world is not perfect, Coase’s work points out two other and more important implications about externalities: (1) the problem of externalities is entirely reciprocal; and therefore (2) the tough questions facing any real decision-making process about how best to allocate rights among reciprocal parties cause the damage.” See also, Terry L. Anderson, Donning Coase-Colored Glasses: A Property Rights View of Natural Resource Economics, Distinguished Fellow Address presented to Australian Agricultural and Resource Economics Society, 13 February 2004, at 3 (copy of manuscript on file with author) (“Coase emphasized that because one use precludes the other, the costs are reciprocal.”); A.W. Brian Simpson, Coase v. Pigou Reexamined, 25 J. LEGAL STUD. 53, 60 (1996) (describing one of the core ideas presented by Coase to be that “the problem of social cost [or externalities] is, at least to an economist, a reciprocal problem.”). Even a leading scholar who is often seen as a critic of Coase has agreed that this lesson is not merely a question of terminology. See Guido Calabresi, Neologisms Revisited, 64 Md. L. REV. 736, 738 (2005) (citing Guido Calabresi, Some Thoughts on Risk Distribution and the Law of Torts, 70 YALE L.J. 499, 506 n.24 (1961)). In the case of the externality of soot, for example, the factory’s neighbor would see a potential interference with the right to use the air as a reservoir free from emissions while the factory would see a potential interference with the right to use the air as a reservoir in which to place the emissions. In this sense, there is no such thing as “an externality,” in the singular, because externalities only come in pairs. What this means for the externality analysis is that it must be studied from both angles, with the understanding that otherwise the attractiveness of different institutional responses may likely turn on the angle from which the problem is viewed rather than on the proposed solution’s overall ability to ensure that resources are used best over time. Put differently, the questions facing society as a whole in this hypothetical case concern both how free the air should from emissions and how full the air should be of emissions. This is because both parties to the problem are to at least some extent connected to both sides of the problem. For example, as long as the factory has constituencies of owners, workers, and customers having some preference for air that is free of emissions, the factory must consider both its own direct interest in dumping and its indirect interest through these constituencies in avoiding dumping. Similarly, as long those constituencies want the investment opportunities, jobs and products that are associated with a factory having some need to use air as a reservoir into which it can dump, they must consider both their direct interest in avoiding dumping and their indirect interest through their tie to the factory in having dumping.

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30 Some definitions in the literature seem to define the term in relation to individuals, in that an externality is seen as something external to the decision-making of an individual. See, e.g., HAL R. VARIAN, MICROECONOMIC ANALYSIS, 423 (3rd ed. 1992) (“When the actions of one agent directly effect the environment of another agent, we say that there is an externality”) (emphasis in original). Other definitions in the literature see the term as referring to something external to the decision-making process of the entire market. ROBERT S. Pindyck & DANIEL L. Rubinfeld, Microeconomics, 297, 617 (1989) (“Such costs or benefits are called externalities because they are ‘external’ to the market.”). In this chapter we study externalities—the effects of production and consumption activities not directly reflected in the market”) (emphasis in original).

31 This is one of the insights of the work by Coase that was labeled by Stigler as the Coase Theorem. See supra note 9 (discussing Nobel Prize to Coase). See also, RONALD COASE, THE FIRM, THE MARKET, AND THE LAW 157 (1988), (“I did not originate the phrase, ‘the Coase Theorem,’ nor its precise formulation, both of which we owe to Stigler.”); GEORGE J. STIGLER, THE THEORY OF PRICE, 113 (3rd ed. 1966) (coining the term “[t]he Coase Theorem” writing that it “asserts that under perfect competition private and social costs will be equal” and Coase supra note 28).

32 See Coase, The Problem of Social Cost, supra note 28, at 2, 13 (“If we are to discuss the problem in terms of causation, both parties cause the damage.”). See also, Terry L. Anderson, Donning Coase-Colored Glasses: A Property Rights View of Natural Resource Economics, Distinguished Fellow Address presented to Australian Agricultural and Resource Economics Society, 13 February 2004, at 3 (copy of manuscript on file with author) (“Coase emphasized that because one use precludes the other, the costs are reciprocal.”); A.W. Brian Simpson, Coase v. Pigou Reexamined, 25 J. LEGAL STUD. 53, 60 (1996) (describing one of the core ideas presented by Coase to be that “the problem of social cost [or externalities] is, at least to an economist, a reciprocal problem.”). Even a leading scholar who is often seen as a critic of Coase has agreed that this lesson is not merely a question of ideology. See Guido Calabresi, Neologisms Revisited, 64 Md. L. REV. 736, 738 (2005) (citing Guido Calabresi, Some Thoughts on Risk Distribution and the Law of Torts, 70 YALE L.J. 499, 506 n.24 (1961)). In the case of the externality of soot, for example, the factory’s neighbor would see a potential interference with the right to use the air as a reservoir free from emissions while the factory would see a potential interference with the right to use the air as a reservoir in which to place the emissions. In this sense, there is no such thing as “an externality,” in the singular, because externalities only come in pairs. What this means for the externality analysis is that it must be studied from both angles, with the understanding that otherwise the attractiveness of different institutional responses may likely turn on the angle from which the problem is viewed rather than on the proposed solution’s overall ability to ensure that resources are used best over time. Put differently, the questions facing society as a whole in this hypothetical case concern both how free the air should from emissions and how full the air should be of emissions. This is because both parties to the problem are to at least some extent connected to both sides of the problem. For example, as long as the factory has constituencies of owners, workers, and customers having some preference for air that is free of emissions, the factory must consider both its own direct interest in dumping and its indirect interest through these constituencies in avoiding dumping. Similarly, as long those constituencies want the investment opportunities, jobs and products that are associated with a factory having some need to use air as a reservoir into which it can dump, they must consider both their direct interest in avoiding dumping and their indirect interest through their tie to the factory in having dumping.
claimants requires determining what truly is the best allocation in every given case and how best to insure its implementation.33

Coase pointed out that under appropriate conditions, such as zero transaction costs, a well defined allocation of property rights among those impacted would ensure that these individuals traded with each other to achieve the same perfect result sought by Pigou.34 A central benefit of Coase's property rights alternative is that it would not require an ex ante determination of what truly is the best allocation in every given case because the impacted parties themselves would gather information and make trades to ensure the resource is put to its highest and best use at any given time. Coase continued by pointing out that of course the world is not perfect and therefore not all potential exchanges will occur, due to the presence of transaction costs and other imperfections.35 As a result, he urged that there be consideration of overall net costs and benefits associated with the alternative initial allocations, including the costs of any subsequent transactions that might be needed, with an eye towards ensuring that the entitlement to the resource be allocated in such a way that the resource itself would most likely end up at its highest and best use.36 The essential policy implication from this point is therefore to compare carefully real costs and benefits of available institutional arrangements – such as different entitlement allocations, enforcement rules, or taxes and subsidies.37

This focus by Coase on the comparative costs of institutions laid an important part of the foundation for the later work by Demsetz on the emergence of property rights as a tool for internalizing positive externalities,38 among those facing what Garrett Hardin soon thereafter termed the “tragedy of the commons.”39 What is so tragic about a commons is its resources tend to be either overused or underused because of what some call a free rider problem or a public goods problem.40

33 See generally COASE supra note 31, at 157-186 (1988) (responding to a number of common misperceptions regarding the Coase Theorem).

34 See Coase, The Problem of Social Cost, supra note 28, at 8. In the case of the soot this would be either a right to emit it or a right to be free from it.

35 Id. at 16 (and noting that because of transaction costs “the initial delimitation of legal rights does have an effect on the efficiency with which the economic system operates”).

36 Id. at 27 (arguing that we should ask “whether the gain from preventing the harm is greater than the loss which would be suffered elsewhere as a result of stopping the action which produced the harm”).

37 Anderson, Dunning Coase-Colorado Glasses, supra note 32, at 8 (“Following Coase’s lead, we need to carefully examine the institutions”). As a qualitative example, consider that the costs of using a government tax or subsidy approach include public choice costs, and administration costs, while the costs of using an entitlement delimitation approach include transaction costs and enforcement costs.

38 See Demsetz, supra note 27, at 356 (explaining the emergence of property rights in land among Labradorian Indians as a response to over hunting: “an owner, by virtue of his power to exclude others, can generally count on realizing the rewards associated with husbanding the game and increasing fertility of his land”).

39 Garrett Hardin, The Tragedy of the Commons, 162 SCIENCE 1243 (1968) (elucidating how unrestricted sharing of limited resources can lead to their over use and depletion). See also, THE COMMONS, ITS TRAGEDIES AND OTHER FOLLIES, (Tibor R. Machan, ed., 2001) (providing critical review of literature on the “tragedy of the commons”). For more on the role of property rights in avoiding the tragedy of the commons see Armen A. Alchian & Harold Demsetz, The Property Rights Paradigm, 33 J. ECON. HIST. 16, 23-24 (1973) (providing the example of a community in which food caught in a hunt for animals may be shared by all and the resulting diminished incentive for individuals in that community to elect to hunt, or in their words “shirk,” absent other inducements such as a state order to hunt or a cultural indoctrination to hunt) and Michael A. Heller, The Tragedy of the Anticommons: Property in the Transition from Marx to Markets, 111 HARV. L. REV. 621, 675 (1998) (providing the example of a hypothetical community called “Poach Pond” in which under-fishing of the pond may occur if the rule were that any community member could appropriate fish until the moment of consumption because people might prefer to wait on shore and poach others’ catches rather than invest in fishing itself).

40 Public goods are distinct from private goods in being both nonrival (i.e., inexhaustable) and nonexclusive. A good is considered to be nonrival if consumption by one individual does not leave any less of the good to be consumed by others. Put differently, a good is considered to be nonrival if for any given level of production, the marginal cost of providing it to an additional consumer is zero. A good is nonexclusive if people cannot be excluded from consuming it. National defense, television signals, and police protection are generally considered to be examples of public goods. For a more detailed
Demsetz argued that property rights emerge when the benefits of internalization outweigh its costs – when the good of concentrating benefits and costs on owners so they deploy resources more efficiently outweighs the bad of the transaction costs associated with recognizing those rights.\textsuperscript{41} According to Demsetz, property rights emerged among the historical native North American population he was studying because with the lack of property rights, “the underuse of animal husbanding and land management resources (skills and labor) led to near exhaustion [or overuse] of animal resources (food and clothing) . . . [while the presence of property rights] provided incentives for individuals to make more use of the one set of resources so as to not waste, and indeed to replenish, the other.”\textsuperscript{42}

But this left open two important questions. The first concerns the exact mechanism by which property rights operate to achieve this internalization benefit. The second concerns the ways the costs and benefits of using property rights compare to the costs and benefits of alternative institutions.

2. New Focus on Coordination

This paper contributes understanding of these open questions by focusing on the issue of coordination. The paper elucidates how property rights can operate to achieve coordination in a way that involves a unique mix of the benefits and costs associated with relying solely on other institutional and organizational tools.

The type of coordination emphasized here refers to the process by which many diverse individuals interact with each other for a particular activity to be achieved effectively. This helps them not only achieve that common goal, it also helps them to be more diverse from each other and specialized in what skills and other resources they each bring to the collective enterprise than if they could not coordinate.\textsuperscript{43} For IP, coordination can be particularly important because the subject matter protected by IP ideally is not yet the subject of successful commercialization, or perhaps not even known yet.\textsuperscript{44} Although it has long been recognized that such uncertain and risky endeavors have a
particularly strong need for coordination, it also has been long recognized that this is a call for “collective action, but not necessarily state action.”

Coordination of this type is more about a beacon effect than control, and more about stability and certainty of complex deals (a bargaining effect) than about simple rate of return investment. The key is the incentive for diverse complementary users of the asset to come together (the beacon effect) and transact with each other (the bargaining effect). Both effects are facilitated by the credibility of the threat of an injunction, which is the signature attribute of a legal entitlement that is backed up by a property rule, and frustrated by the alternative of a liability rule.

The basic Calabresi-Melamed framework for deciding between property and liability focuses attention on which locus of decision-making about the true value of the underlying asset is the lowest cost provider of a correct decision. Under this rubric, a liability rule can be more efficient if a collective, public, or governmental determination of the true value of the asset would be cheaper than a private evaluation reached by agreement of the parties; and conversely a property rule should be used if the private evaluation would be cheaper. Rob Merges points out that one implication of this approach is that property rules are better for IP because private parties have a comparative advantage over courts in valuing IP. But the coordination approach explored here pushes beyond this rubric’s focus on the problem of relative advantages information-processing and extends the analysis to these two other concerns – the beacon effect and the bargain effect.

The beacon effect is achieved because the more credible the threat of the injunction behind every patent, for example, the more it creates incentives for diffuse individuals having an interest in the subject matter protected by the patent to decide individually to act in a way that ends up being coordinated. While the infringe-and-pay-damages approach of liability rule treatment may provide sufficient incentive for the individual patentee to come to court to receive payment, it does little compared to the right to exclude in drawing towards that individual all of the other potential complementary users of the patented subject matter so they may work together to engage successfully in the complex commercialization process.

But the bargaining effect associated with property rule treatment is even more important. Where there are large numbers of potential infringers, liability rules make bargaining between the patentee and the potential infringers, licensees, or assignees, more difficult. The problem afflicts both sides of the potential transactions.

The patentee’s incentives are disrupted in at least two ways. First, the patentee may face decreased incentives because of the ordinary under-compensation error that is typically associated with

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45 See, e.g., FRANK KNIGHT, RISK, UNCERTAINTY, AND PROFIT, 268 (1965).
47 To be sure, important additional considerations not directly applicable here have also been offered. See, e.g., Richard R.W. Brooks, The Relative Burden Of Determining Property Rules And Liability Rules: Broken Elevators In The Cathedral, 97 NW. U. L. REV. 267, 268, n. 8 (2002) (elucidating analytical framework for assessing “the relative burden (or costs, or difficulty) faced by judges when attempting to determine property rules and liability rules”).
48 Calabresi & Melamed, supra note 4 at 1106. Also compare RICHARD A. POSNER, ECONOMIC ANALYSIS OF LAW 29 (1st ed. 1972) (“where transaction costs are high, the allocation of resources to their highest valued uses is facilitated by denying property right holders an injunctive remedy against invasions of their rights and instead limiting them to a remedy in damages”) and James E. Krier & Stewart J. Schwab, Property Rules and Liability Rules: The Cathedral in Another Light, 70 N.Y.U. L. REV. 440, 459-64 (1995) (arguing that property rules are better when administrative costs are high) with A. Mitchell Polinsky, Resolving Nuisance Disputes: The Simple Economics of Injunctive and Damage Remedies, 32 STAN. L. REV. 1075, 1111 (1980) (pointing out that where decisions by a court are more costly the case for property rules is stronger).
50 Kieff, Commercializing Inventions, supra note 14, at 733 (citing David Haddock et al., An Ordinary Economic Rationale for Extraordinary Legal Sanctions, 78 CAL. L. REV. 1, 17 (1990)).
liability rules. Second, the use of a liability rule may create a prisoner’s dilemma or collective action problem among potential infringers in which each individual’s dominant strategy is to infringe in order to garner more of the potential gains from exchange for itself. That is, the use of a property rule is particularly important for the impact it has in limiting each potential infringer’s incentive to infringe \textit{ex ante}. Otherwise, under a liability rule, the patentee will not have adequate incentive to bargain with these infringers because such bargaining will not yield effective protection from others. In effect, the patentee faces what property skeptics call an anticommons problem because the patentee must get a binding commitment from each of the many possible takers; but because none of them can sell such a binding commitment under a liability rule regime, they leave the owner facing a thicket.

The problem is similar to one previously described by Louis Kaplow and Steven Shavell in the context of multiple, serial takings:

Consider the situation of an owner and a particular potential taker who values the car less highly than does the owner (but above the level of damages). The owner would like to bargain with the taker and pay him not to take the car. However, it would be irrational for the owner to pay this taker not to take the car, for he would subsequently have to pay another potential taker not to take the car, and then another and another. Therefore, the potential taker will tend to take the car even though the owner values it more highly. The general point, in other words, is that when courts err and set damages too low, bargaining by owners will be effectively infeasible, and socially undesirable takings will occur.

But although instructive, the Kaplow and Shavell discussion understates the problem. It is not just a question of setting damages too low, but rather is a question of relying on damages rather than injunctions. Several negative impacts follow from the lack of injunction to block the behavior they correctly identify would otherwise be practiced by the set of infringers.

First: Each infringer may calculate the impact of his marginal output on price without taking into account the output from other infringers. Such uncoordinated acts of infringement may cause collective profits—those reaped by the patentee directly and through damage awards from infringers—to fall below the total costs of creating and commercializing the invention, resulting in a destruction of wealth.

Second, as recognized by Haddock, McChesney, and Speigel, the threat of this potential onslaught of infringements induced by a liability rule will discourage investments in the subject matter

\begin{itemize}
  \item See infra Part II.C.5 (discussing anticommons thicket).
    
    Our conclusion from the present argument is that a property rule enjoys a strong advantage over the liability rule, assuming, as is plausible, that the probability of underestimation of owners’ values would be substantial under a liability regime. We emphasize that this conclusion does not depend upon the assumption that there is systematic underestimation of owners’ values under a liability rule. Even when one assumes that courts’ estimates are on average correct, but are sometimes too high and sometimes too low, the liability rule will be inferior because the occasions in which damages are too low will involve the multiple-taker problem we have identified. (When damages are too high, there will be few takings, so the liability rule in such instances will be similar to a property rule.)

\textit{Id.} at 766.

\item Kieff, \textit{Commercializing Inventions}, supra note 14, at 733 (“As Ayres and Klemperer recognize, if there are fixed costs of entry or exit, or if infringers have higher marginal cost than the patentee, then market entry by infringers will generate extra costs for society.” (citing Ayres & Klemperer, supra note 5, at 1015). \textit{See also}, Henry Smith, \textit{Property and Property Rules}, 76 N.Y.U. L. Rev. 1719 (2004) (noting that in addition to information costs, property rules also make sense because they deter opportunism by potential takers and discourage owners from engaging in wasteful self help)
covered by the IP right \textit{ex ante}. But this drop of individualized investment by the IP owner, alone, is not the only result and could be mitigated by higher damages amounts.

While the patentee's incentives can be maintained under a liability rule regime by awarding enhanced damages or letting the patentee engaging in self help, the many complementary users of the patented subject matter also will face a drop in their incentives to even be drawn to the beacon effect otherwise associated with a property rule regime's right to exclude; and this incentive can't easily be maintained. The heart of this problem is tied to the limited nature of a court imposed liability rule. Often price is not the only important term in these deals and courts are woefully inadequate compared to the marketplace for determining and enforcing these other terms. While private ordering among parties can lead to textured contracts having many terms including price but also including a host of seemingly esoteric and unique provisions – such as technical support, field-of-use or territory limitations, grant-backs, cross-licenses, payment schedules, most-favored-nation provisions, etc. – a court imposed damage award is in all but the rarest of cases reduced to a simple monetary amount.

This effect is increased the more that those investments can't otherwise be deployed to other uses, the more they can't be insured, the more they can't be hedged, and the more they can't be diversified. What this means is that the more the players approach each investment decision simply as one item in a large portfolio, the more they will not care whether the investment is in an activity associated with a liability rule or a property rule. Conversely, the more the players are deploying unique assets and the more those investments cannot be insured, hedged, or diversified, which is often the hallmark of market entrants, the more they will care whether the enforcement is by a liability rule or a property rule. Put differently, the more the activity is associated with a liability rule, the more only large portfolio players will elect rationally to invest in it and the less it will be rational to invest unique skills and unique assets. In this way, liability rule treatment, which often is urged in the name of increasing competition, has the paradoxical effect of favoring large players, not market entrants.

Although the role of property rights as tools for facilitating coordination recently has been mentioned in the NIE literature, it has not been elaborated until now. As discussed previously, the classic work by Demsetz on the emergence of the institution of property rights focuses on their role in internalizing benefits and costs. Within the field of IP, prior work by the present author suggested the role of property rights as focal points in facilitating coordination among complementary users of an invention. Independently, newer work by Demsetz also highlighted this coordination function of property rights when discussing the increased specialization of labor that has occurred over time:

Difficulties in stipulating and enforcing agreements so as to encourage and facilitate productivity-increasing cooperation between different owners come into play here. The legal institutions that define private ownership and guide exchange arrangements must become operative if the complexity that is inherent in specialization is to be productive.

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55 Kieff, Commercializing Inventions, supra note 14, at 733 (citing Haddock et al. supra note 50, at 16-17).
56 Although, these higher damages amounts would still raise the ire of those who see property rights as tools that enable unfair holdout strategies.
57 See Smith, supra note 54, (discussing the problems of requiring self-help as an alternative to property rule protection).
58 The portfolio effect explains why property rules can dominate liability rules (in situations where assets and information are highly individualized and non-portfolio) even in the face of the very elegant and insightful projects that have shown how across a portfolio of decisions there are ways in which liability rules dominate. See, e.g., Ian Ayres, Optional Law (2005).
59 See supra notes 38-42, and accompanying text (discussing work by Demsetz).
60 See Kieff, Commercializing Inventions, supra note 14, at 717-18, 727-41 (emphasizing the coordination function and citing Demsetz, supra note 59). See also Kieff, Registering Patents, supra note 14, at 67-68.
61 Demsetz, Toward a Theory of Property Rights II, supra note 12, at S657.
62 Id. at S664-5, S656.
More specifically, he disavowed the extent of his earlier focus on internalizing externalities:

In retrospect, it now seems to me that the theory of property rights implicit in this explanation places too much weight on externalities (where, in the case discussed, the externality is the neglected impact of hunting today on the cost of hunting tomorrow). The “Toward” that begins the essay’s title, therefore, should be taken seriously. Externality here refers to an effect on the production transformation opportunities facing others, such effect being a result of actions taken by someone who does not bear the value consequences of this effect. Hunting today causes a change in the production opportunities facing hunters tomorrow. As circumstances make the externality more costly to bear, private rights adjust to reduce the seriousness of the externality. This is an important pattern of property right development. Nonetheless, private-ownership arrangements would exist even if there were no externality problems of the type being discussed.

Under the Demsetz new view, the key is “coordination in the sense of bringing forth control decisions that are consistent with each other but that emanate from different persons.” This is consistent with the approach that is more fully elaborated above, which shows how coordination is achieved by property through at two effects. It brings parties together (beacon effect) and it helps them interact with each other once brought together (bargain effect). Both of these effects have been explored in earlier drafts of the present paper and are confirmed very recently in the independent works of others, as discussed below.

Part of the beacon effect is discussed in recent work by the team of Antoine Bureth, Rachel Lévy, Julien Pénin, and Sandrine Wolff, which shows that firms elect to use patents as tools for coordinating with each other. This work confirms the analysis offered here by showing empirical data about the ways patentees, themselves, can and actually do use patents as tools for facilitating coordination. But such a focus on patentees does not explain how those other than patentees voluntarily act in a way that achieves an overall coordination effect for society. One important implication of the beacon view of property’s coordination function described here is that it makes it easier to see is why the transactions facilitated by coordination need not even be direct. That is, the many complementary users of the asset protected by the property right that are drawn towards the beacon may interact with each other only transitively. Each individual might not directly interact with each other in a pair-wise fashion, but each would still be interacting on the same broadly defined endeavor. Assuming individuals A through E are needed for commercialization to take place, individual A may not directly interact with each of the other individuals B through E, and individual B may not directly interact with individuals A and C through E, and so forth, but each of the individuals will be interacting with the same invention commercialization process and with a least a subset of the group comprising A through E. In effect each individual is interacting with each other at least by transitivity. As a result, the beacon effect can be achieved even if all the individuals are not drawn together at the same time or in the same place.

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63 Id. at S656.
64 Id. at S664.
67 Each of course would be brining a different asset to bear, such as capital, labor, management, advertising, marketing, complementary technologies, etc.
68 This is consistent with, albeit a more expansive version of, the view offered in Demsetz’s newer work. See supra note 64, and accompanying text.
Similarly, part of the bargain effect is discussed in recent work by Robert Merges on the interface among NIE, property, and IP.\textsuperscript{69} Merges shows how property rights can facilitate contracting in at least two ways: pre-contractual liability and enforcement flexibility. Merges first points out how property can serve as a tool for cracking the Arrow Information Paradox.\textsuperscript{70} Contrasting the different institutional frameworks associated with the types of rights provided by trade secrets and patents, Merges points out that patents can better achieve this effect because they offer in essence more property treatment.\textsuperscript{71} Merges second points out how property can mitigate the problems of asset specificity and opportunism that are associated with contractual interactions generally.\textsuperscript{72} As Merges explains, property rights provide several options for enforcement on top of contracts: suits before contract liability attaches, suits against third parties, a longer statute of limitations, increased damages, and injunctions.\textsuperscript{73}

Paul Heald makes a related point but adds important detail to the analysis.\textsuperscript{74} Borrowing from the asset portioning literature of corporate law, Heald’s core insight is that maintaining a distinction between patent and the underlying information that it protects also eases transactions at the level of practical commercial law by providing something having title that can be recorded so as to be good as against third parties, unlike contracts.\textsuperscript{75} This eases financing, long term planning, team building, etc. Financing is eased because a separately titled asset is now available to be used as collateral, protected by a recording statute. Long term planning is eased for both the firm and inventors working for it because asset specificity is decreased in that the option of a separate patent relieves a firm from having to keep track of the inventor. This also facilitates team building by avoiding the need for the firm to have the types of invasive practices over its employees’ lives that would be needed if trade secrecy were the only option.\textsuperscript{76} Finally, Heald points out that because it is easier for someone to take ownership of a patent than of a bundle of technical know how and the people who created it, patents increase the ability for the one owning the patent to be a mediating hierarch among those interested in the technology.\textsuperscript{77} This last point builds on the point Joseph Schumpeter made about the role of patents and their owners in controlling development.\textsuperscript{78}

The view explored here extends the analysis by highlighting the difference between coordination and control. The focus here is on the incentives for each of the diverse individuals associated with each input to come together and negotiate with each other, but it is agnostic about which individual ends of controlling the negotiations. Control is left to be decided by the individuals involved in each case based on various factors including importance of different resources, including bargaining skills. The key is that the more it is easy and predictable for each individual to come to and extract value from the trade (the greater the residual claim), the more easy and attractive it will be for that person to do so.

\begin{itemize}
\item \textsuperscript{69} Robert P. Merges, A Transactional View of Property Right (March 10, 2005), (available on-line at http://ssrn.com/abstract=707202).
\item \textsuperscript{70} As pointed out by Kenneth Arrow, the “fundamental paradox” of information is that “its value for the purchaser is not known until he has the information, but then he has in effect acquired it without cost.” \textit{Kenneth Arrow, Essays in the Theory of Risk-Bearing}, at 152 (1971).
\item \textsuperscript{71} Merges \textit{supra} note 69, at 28-30.
\item \textsuperscript{72} \textit{Id.} at 31 (highlighting temporal benefits of the option of enforcing with property remedies in addition to contract remedies).
\item \textsuperscript{73} \textit{Id.}
\item \textsuperscript{74} Paul J. Heald, \textit{A Transaction Costs Theory of Patent Law} 66 Ohio St. L.J. 473 (2005).
\item \textsuperscript{75} \textit{Id.} at 480-84.
\item \textsuperscript{76} Heald, \textit{supra} note 74, at 487-89.
\item \textsuperscript{77} \textit{Id.} at 491-99.
\item \textsuperscript{78} \textbf{Joseph A. Schumpeter}, \textit{Capitalism, Socialism, and Democracy}, 100-02 (discussing control of a monopolist).
\end{itemize}
One implication of the coordination view explored here,\(^{79}\) is that property rights backed up by property rules increase access, rather than decrease it. This is explored in greater depth \textit{infra} in Part III.B.

A second implication of the focus on this type of coordination is that when considering the alternative tools available for facilitating it, as discussed immediately below in Part II.B, it is important to recognize that the alternatives to property are more closely associated with large, established market actors, while property rights will be at least also associated with smaller market entrants. More particularly, the alternative of norm communities and firms are closed to outsiders, by definition, while the alternative of government organizations is more responsive to public choice pressures from existing larger firms. In this way, the choice to rely on these other alternatives for coordination instead of property rights has the impact of increasing anticompetitive effect.

A third implication is that coordination, like all things, can be both good and bad. While facilitating coordination among complementary users of under-deployed assets increases access and competition by easing market entry and commercialization, coordination among large, existing firms will facilitate anticompetitive effects. Regrettably, as discussed \textit{infra} in Part III.A.3, there are several aspects of the modern IP regimes that are having this bad coordination effect.

B. Contrasting Property with Other Tools for Facilitating Coordination

Because the other tools that often get used in place of property – such as firms, norm communities like open source projects, and government – also can facilitate coordination of the type needed to increase access, it is important to consider how property compares to these other tools. The below discussions elucidate how property provides a unique mix of some particular benefits and costs associated with each of these other options. This unique mix, in and of itself, is generally a useful option to have. What is more, because these other options are each less accessible to outsiders and market entrants than is property, relying on them to the exclusion of property is expected to have the particular impact of increasing anticompetitive effect.

1. Norm Communities like Open Source Projects

Coordination also may occur among individuals who are linked to each other through some social group such as family, friendship, ethnic or religious identity, or some other norm community such as an open source software project. The NIE literature looks at the different approaches to informal rules, often called norms, because, as Williamson argues, what otherwise would be a focus on positive law regimes would reflect a type of “legal centrism” that fails to account adequately for dispute resolution and enforcement activities that occur without the formal legal system.\(^ {80}\) Indeed, the first significant connection between the literatures of NIE and IP centered on the role of norms.\(^ {81}\) Norms can be thought of in at least two ways: as “prescriptive norms,” also called “normative norms,” which refer to beliefs about what people should do, and as “descriptive norms,” or “regularities,” which refer to how people tend to behave.\(^ {82}\)

\(^{79}\) See also, Kieff, \textit{Commercializing Inventions}, supra note 14.


\(^{82}\) For a recent discussion of these two types of norms within the context of IP, see, e.g, F Scott Kieff, \textit{Facilitating Scientific Research: Intellectual Property Rights and the Norms of Science - A Response to Rai & Eisenberg}, 95 NW. U. L. REV. 691, 693, 696 (2001).
Much of the NIE literature on informal, or non-legal ordering has focused on enforcement and dispute resolution. One recent example is the work by Lisa Bernstein on relational contracting within homogeneous communities, which has focused on what it calls “private ordering” as a mechanism by which individuals in the market can interact with lower administrative costs than with formal legal institutions through the use of more informal institutions for enforcement and dispute resolution such as norms, reputation, etc.\textsuperscript{83} Similarly, recent work by Barak Richman comes closer to the theory of the firm literature and focuses on the importance of the private enforcement and dispute resolution techniques as means for ensuring not just lower administrative costs, but also better contractual enforcement, and enhanced transaction certainty.\textsuperscript{84}

The view of property rights offered in this paper differs from both of these perspectives by seeing private ordering in the more general sense than simply private enforcement.\textsuperscript{85} Instead, private ordering is seen as the set of interactions among individuals that are more reliable because they are enforced in some way, whether by private informal institutions, such as norms, or by formal legal institutions, such as the coercive power of the state. This view is consistent with traditional liberal views of the rule of law and role of government as the monopoly over the coercive powers – such as force – to back property rights and contractual arrangements because such backing enhances the overall market economy by enhancing individual liberty to elect to deploy one’s resources in whatever way best suits that individual.\textsuperscript{86}

\textsuperscript{83} See, e.g., Lisa Bernstein, \textit{Opting out of the Legal System: Extralegal Contractual Relations in the Diamond Industry}, 21 J. LEGAL STUD. 115 (1992) (showing how some communities opt for informal private enforcement mechanisms for contractual relationships instead of formal legal approaches because the administrative costs can be lower). \textit{See also}, Lisa Bernstein, \textit{Private Commercial Law In The Cotton Industry: Creating Cooperation Through Rules, Norms, And Institutions}, 99 Mich. L. Rev. 1724 (2001). Bernstein’s use of the term “private ordering” to refer to private enforcement is consistent with the use by Williamson, which is narrower than the use in this paper, which encompasses all private interactions voluntarily entered. \textit{See infra} note 93 (contrasting Williamson’s use of the term “private ordering”). \textit{See also} Steven L. Schwarz, \textit{Private Ordering}, 97 Nw. U. L. Rev. 319 (2002) (also using the term “private ordering” to refer to private enforcement or regulation).


\textsuperscript{85} \textit{See infra} note 93 (discussing this more general use of the term “private ordering”).

While recent work by Richman has shown that private enforcement mechanisms may, under appropriate conditions such as small and homogeneous communities, provide even more transactional security at a lower administrative cost than public enforcement, the point here is that having the option of public enforcement is a benefit to those under other more generalized or diverse conditions than such homogenous communities. Put differently, one disadvantage of such closed markets is that they are closed to outsiders. As Troy Paredes explains within the context of corporate and securities laws: “when laws are in place, parties can rely less on personal and family relationships when transacting, allowing them to engage in transactions with strangers.”

Keeping transactions entirely within a particular organization like a firm or norm community also raises the disadvantages that Stephen Haber calls the problems of “crony capitalism.” The enforcement benefits within closed organizations are due to the specificity of investments the community’s members must make in it, which in turn bring along the inevitable concerns about opportunism. What is more, the attributes that underlie the unique connection to the community typically are non-fungible – such as family, religious, or ethnic affiliation, or a close relationship with the community leadership.

The development of software like Linux within a community that adheres to an open source philosophy can be seen as one example of a coordinated activity that occurred within a norm community around a coordinating device akin to fame rather than around more formal property like patents. Under this view, the fame of Linus Torvalds allows him to control development of the Linux kernel to ensure that it occurs in a coordinated fashion. The ability for fame or other focal points to achieve coordination is consistent with the beacon view of property discussed earlier.

While open participation would seem to be a touchstone promise of open source, several empirical studies of several different open source software projects have shown that this openness is not experienced in reality, in that changes to the actual projects in these cases actually are limited to a very small number of individuals in a different cohesive control group for each case studied. While it makes sense as a practical matter of information processing needs for there to be a small control group, this stark difference from the rhetoric of the legend matters a great deal. Unlike the formal property rights in something like patents, the fame that is the key to open source type of centralized coordination is less easily transferred, divided, or bundled. It also is specific to that community. In addition, fame can be more difficult to obtain in general than property. And its exclusivity makes it more

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88 Paredes, supra note 82, at 1064 (also noting that “Strong legal protections for shareholders expand the available pool of capital for businesses and entrepreneurs and facilitate contracting by shoring up shareholder rights.”).

89 STEPHEN HABER, CRONY CAPITALISM AND ECONOMIC GROWTH IN LATIN AMERICA: THEORY AND EVIDENCE (2002) [hereinafter “HABER, CRONY CAPITALISM”].

90 See also, Randy Calvert, The Rational Choice Theory of Social Institutions: Cooperation, Coordination, and Communication, in MODERN POLITICAL ECONOMY: OLD TOPICS, NEW DIRECTIONS 216, 244 (J.S. Banks and E.A Hanushek eds., 1995) (“[r]ecognizing or creating focal points is one important way in which the players can successfully coordinate.”).


92 The smaller the control group the more intense can be the information content of the communications among them. As Henry Smith has pointed out there is a fundamental informational tradeoff:

As audience size increases, the marginal benefits of intensive communication are likely to decrease and the marginal costs are likely to increase. Thus, to minimize the sum of communication costs, any communication system faces a tradeoff between information intensiveness on the one hand and information extensiveness on the other.

difficult for diverse individuals to obtain. At bottom, the element that allows control by the leader within a norm community, whether it be fame or some other special community attribute, is only available to those who are insiders – in the case of Linux, that includes only Torvalds and his chief lieutenants – not those wanting to enter. Simply put, the above discussion elucidates some reasons why relying on norm communities like open source projects to the exclusion of property would have the effect of generally biasing against new entrants and in favor of those who are members of the establishment.

2. Firms

The NIE literature on the theory of the firm contributes much to the understanding of the way property rights facilitate coordination by exploring the tension between collective action among those within a hierarchy such as a firm on the one hand and collective action among those interacting across an open market on the other hand. These two types of collective action – the one within firms and the other using contracts across an open market – can be seen as two polar examples of modes of private ordering, bracketing the two other examples already discussed – one using the set of arrangements that constitute a norm community and the other using contracts formed around a property right like a patent. The below discussion contrasting the firm with the open market (absent the addition of any set of property rights or another), is designed to highlight the ways in which the addition of property rights can make available a unique mix of attributes.

As Williamson notes when describing what Hayek referred to as the “marvel of the market,” “[o]f special importance to Hayek was the proposition that the price system, as compared with central planning, is an extraordinarily efficient mechanism for communicating information and inducing change.” But he also noted that this requires spontaneous cooperation and coordination, in contrast with the “kind of cooperation among men that is conscious, deliberate, purposeful,” which he referred to as the “marvel of internal organization.” In sum, Williamson noted that markets are characterized by “high powered incentives” and hierarchy only weaker incentives and greater bureaucratic costs, but increased coordination. As Coase elaborated, “[t]he main reason why it is profitable to establish a firm would seem to be that there is a cost of using the price mechanism.” But as Williamson points out, such transaction cost market failures are only failures to the extent “that they involve transaction costs

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93 Furubotn & Richter, supra note 23, at 24 (emphasizing the relative “adaptive capabilities of markets or hierarchies”) (citing Friedrich von Hayek, The Use of Knowledge in Society, 35 AM. ECON. REV. 519 (markets)) and (Chester I. Barnard, The Functions of the Executive, 30th Anniversary Edition (1968) (hierarchies)).

94 The term “private ordering” is used more broadly in this paper than it is in some of the NIE literature. Williamson, for example, often uses the term “private ordering” to refer to the various informal mechanisms to privately enforce contractual relationships as compared with formal legal process. See, e.g., Williamon, The Economic Institutions of Capitalism, supra note 80, at 163-68 (suggesting that repeat play and reputation can serve as “private ordering” tools for enforcement). Here, the term is used to refer to all private interactions entered into voluntarily by individuals as compared to those coerced by a hierarch, such as cooperation directed by management among different divisions within a firm or tax transfers directed by law among members of a state. For uses of the term private ordering as it is used here see, e.g., Henry E. Smith, Exclusion and Property Rules in the Law of Nuisance, 90 VA. L. REV. 965, 983 (2004) (using the term “private ordering” to refer to private voluntary exchanges, not to private enforcement); Thomas W. Merrill & Henry E. Smith, Optimal Standardization in the Law of Property: The Numerus Clausus Principle, 110 YALE L.J. 1, 8 (2000) (using the term “private ordering” in the context of individual choice and freedom of contract); Richard A. Epstein, All Quiet on the Eastern Front, 58 U. CHI. L. REV. 555, 569 (1991) (“Within the context of Eastern Europe, property and economic protections are critical to the ability to turn nations and economies around from central planning to private ordering”).


96 Id. (citing Chester Barnard, The Functions of the Executive, 4 (1938)).

97 Williamson, supra note at 95, at 49.

98 Ronald Coase, The Nature of the Firms, 4 ECONOMICA 390 (1937).
that can be attenuated by substituting internal organization for market exchange.” Indeed, in recognition that not everything can be done as well inside a firm, Williamson asked: “Why can’t a large firm do everything a collection of small firms can do, and more?”

The central answer is that hierarchy inevitably entails “agency costs,” a term that generally refers to all the costs associated with the inevitable divergences in the interests among two individuals in situations in which one individual (known as an agent) acts on behalf of the other (known as a principal). As summarized by Michael Jensen and William Meckling:

The principal can limit divergences from his interest by establishing appropriate incentives for the agent and by incurring monitoring costs designed to limit the aberrant activities of the agent. In addition in some situations it will pay the agent to expend resources (bonding costs) to guarantee that he will not take certain actions which would hard the principal or insure that the principal will be compensated if he does take such actions . . . . In most agency relationships the principal and the agent will incur positive monitoring and bonding costs (non-pecuniary as well as pecuniary). And in all there will be some divergence between the agent’s decisions and those decisions which would maximize the welfare of the principal.

Thus, agency costs can be seen to include the costs of the agent’s looting, shirking, other inadvertent deviations from instructions, and bonding, and the costs of the principal’s unmet reasonable expectations, monitoring, and enforcing.

Integration within a firm or other hierarchy also brings with it some problems of asset specificity and opportunism. Although integration within a firm has been seen by some within the NIE literature as decreasing certain problems of asset specificity and opportunism, it is not clear that this is correct. What is more, property rights as an alternative to a firm may decrease other problems of asset specificity and opportunism – for example, it can be easier for an inventor to walk away from a patent license with a firm than also to have to surrender a basic employment relationship with the firm. It also may be easier for the firm to walk away.

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100 WILLIAMSON, THE ECONOMIC INSTITUTIONS OF CAPITALISM, supra note 93, at 131. This problem is sometimes cited as the “Williamson Puzzle.” See JEAN TIROLE, THE THEORY OF INDUSTRIAL ORGANIZATION (1988). The problem is also explored in Coase, supra note 98, at 394 (“Why is not all production carried on by one big firm?”) (citing Frank Knight, Risk, Uncertainty, and Profit, Preface to the Re-Issue, London School of Economics Series of Reprints, No. 16 (1933)).


102 Williamson explains that asset specificity refers to the problem that arises when an asset cannot be re-deployed from its present use to some alternative use without a decline in value. WILLIAMSON, THE ECONOMIC INSTITUTIONS OF CAPITALISM, supra note 80, at 52-56 (reviewing history of scholarship on asset specificity, collecting sources, and pointing out that “[a]lmost all four types of asset specificity are usually distinguished: site specificity, physical asset specificity, human asset specificity, and dedicated assets… [and that there] the importance of asset specificity to transaction costs economics is difficult to exaggerate.”). He defines ex post opportunism to be “[w]hat self-interest seeking with glee, [including] calculated efforts to mislead, deceive, obfuscate, and otherwise confuse.” OLIVER E. WILLIAMSON, THE MECHANISMS OF GOVERNANCE, 378 (1996). See also WILLIAMSON, THE ECONOMIC INSTITUTIONS OF CAPITALISM, supra note 80, at 47-52, 64-67 (exploring in detail various types of opportunism within the context transaction cost economics and collecting sources).

103 Compare Robert F. Freeland, Creating Holdup through Vertical Integration: Fisher Body Re-visited, 43 J. L. & ECON. 33, 34 (2000) (“The GM-Fisher case is . . . . the most widely cited example of vertical integration reducing problems of physical and human asset specificity, and it serves as an empirical cornerstone for hold-up explanations of unified ownership . . . . but] while holdup was not an issue prior to integration, the Fisher brothers successfully held up GM after they became employees; far from reducing opportunistic behavior, vertical integration increased GM’s vulnerability to rent-seeking behavior.”) with R.H. Coase, The Acquisition of Fisher Body by General Motors, 43 J. L. & ECON. 15, 21-27 (reviewing facts of the GM-Fisher integration and pointing out that there is no evidence that hold-ups occurred prior to integration).

104 See Freeland supra note 103 at 34.
Finally, hierarchy raises particular problems for innovation both because the process of innovation is itself particularly fraught with uncertainty and because information about an innovator’s efforts is likely to be especially asymmetrical as between a technologically trained innovator and a non-technologically trained manager. According to Williamson,

selective integration, whereby integration realizes adaptive gains but experiences no losses, is not feasible. Instead, the transfer of a transaction out of the market into the firm is regularly attended by an impairment of incentives, and this type of difficulty will tend to be particularly severe where innovations are important.

Models of both the private and academic sectors show the impairment of incentives to innovate within a firm. Relational contracting like that among individuals within a hierarchy is just one typical form of incomplete contracting for which there are well studied strategies to mitigate agency costs. Yet, the general uncertainty of allocating credit for innovation within a hierarchy combined with the problem of potential expropriation by control groups of the reward associated with innovation operate synergistically to particularly impair incentives for innovation within a hierarchy.

In sum, the while firms provide coordination among those within their hierarchy, they do so using the strong form of control associated with hierarchy. In contrast, property rights can facilitate coordination with a much weaker form of control simply by serving as a beacon around which diverse and complementary users of an asset can gather. In addition, while the contracts over property rights of course trigger problems of agency costs, asset specificity, and opportunism, like all contracts, the degree to which an individual must get mired in these problems when dealing only with a property right can be significantly less than when having to be brought within the hierarchy of a firm.

One impact of these tradeoffs is that when property rights are not available, those activities that would be a better match for the set of attributes associated with property rights either will occur less often or occur using the remaining alternative modes of private ordering – open market, norm communities, or firms. Indeed, recent work by Oren Bar-Gill and Gideon Parchomovsky exploring the case of the coordination needed to facilitate an invention’s commercialization, concludes that absent IP rights, there will be either an inefficiently high level of integration, or not enough invention commercialization. The availability of patents facilitates the business model under which one individual can do research, another development, and another management. Separating these jobs out facilitates divisions of labor that are efficient. This leads to improved commercialization, which in turn generates access. It also allows for the option of the commercialization to be done outside of the large firm setting, which increases competition.

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105 Williamson, The Economic Institutions of Capitalism, supra note 80, at 161. (included in the problems he identifies is the decrease incentive to innovate because of sharing with other divisions within the new merged firm).

106 See, Bengt Holmstrom, Agency Costs and Innovation, 12 J. Econ. Behav. & Org. 305 (1989) (modeling agency costs in innovation and identifying attributes that make it comparatively more difficult as a production activity in which to solve ordinary principal/agent problems compared to ordinary production processes because of greater ex ante uncertainty, and asymmetric information about the innovator’s efforts). See also, Wallace Huffman & Richard E. Just, Setting Incentives for Agricultural Research: Lessons from Principal-Agent Theory, 82 Am. J. Ag. Econ. 828 (2000) (applying principal agent theory to model different funding approaches for basic scientific research in the field of agriculture).

107 Williamson notes the general importance of repeat play, reputation effects, and other private enforcement techniques he collectively calls “private ordering” as tools for mitigating problems such as agency costs and asset specificity. See, e.g., Williamson, The Economic Institutions of Capitalism, supra note 80, at 163-68).

108 Furubotn & Richter, supra note 23, at 336-37 (highlighting Williamson’s discussion of the problems of “causal ambiguity” and “general office instruction” (expropriation) leading to impaired incentives to innovate and citing Williamson, The Economic Institutions of Capitalism, supra note 80, at 141-42)).

109 See Bar-Gill & Parchomovsky, supra note 11.
3. Government

There are various ways in which government can facilitate coordination. For example, an executive branch agency can achieve the coordinated effort entirely on its own by serving as a type of hierarchy, just like a firm, but where the agenda is set through the political market rather than through the market for corporate control. As a second example, the legislative branch can provide additional entitlements or change the existing regimes governing entitlements in ways that shift the landscape more towards either property rules or liability rules. As a third example, an executive branch agency, such as the Department of Justice Antitrust Division or the Federal Trade Commission, can act to enforce antitrust laws in a way that leaves standing the contract and property arrangements of private parties to varying degrees. As a fourth example, the judicial branch can mediate disputes over entitlements in a way that ends up treating them more like liability rules or more like property rules.

Each of these types of government action is premised on underlying decisions to act, and the study of these types of decisions within the government setting is associated with the area of the literature known generally as “public choice,” or “collective choice.” As noted by Richard Epstein, “modern public choice literature postulates self-interest to all political players, and asks how they respond to the incentives created by the rules of the political game.”

Public choice problems begin with the particular difficulties government actors – executives, legislators, regulators, and judges – have in determining exactly what the public really wants the government to do. While the focus of this literature was initially on understanding the behavior of legislatures and agencies, the field is recognized now to focus also on courts, and the term “public choice” is used in this paper in its broad sense, to encompass legislatures, agencies and courts.

One common view of the of government is for it to step in to provide services the market would fail to provide efficiently because of economies of scale or scope, or because of collective action problems, or positive externalities. Some paradigmatic examples of such services are national defense, policing, and dispute resolution. Others see government as also providing tools for achieving important distributive social justice goals. Along these lines, for example, work by Amartya Sen elaborates...
methods for aggregating values across different individuals and offers important hope for improving welfare distributions through social choice.\textsuperscript{115}

But regardless of what goal government is trying to achieve, like the market, it has both strengths and weaknesses. And just like for markets, each of the problems explored in the sections above can be, and often is, viewed as a type of government failure. For example, just as the transaction costs of the market include the costs of bargaining over property rights and striking and enforcing contracts, as well as the costs of professional lawyers and accountants to help with these processes, the transaction costs of the political process include the costs of striking and enforcing political deals, as well as the costs of professional lobbyists, and political parties to help with these processes.\textsuperscript{116} In addition, it often is overlooked that the transaction costs of government also include administrative costs, or the costs of administering particular government processes.\textsuperscript{117} As another example, while behavioralism problems can plague those negotiating over property rights and contracts, they also can plague legislators, administrators, and judges.\textsuperscript{118} As a third example, just like the market, government must bear the costs of obtaining and processing the information needed to make decisions and the agency costs of ensuring its decisions are carried out.\textsuperscript{119}

But the information and transaction cost problems facing individuals in government may be even greater than those facing individuals in the market.\textsuperscript{120} As North points out, referring to one type of information costs – the information needed to engage in exchanges – the intuition behind this lesson is that in government it is “extraordinarily difficult to measure what is being exchanged – promises for votes.”\textsuperscript{121} Government also faces a problem in obtaining the information needed to make a decision in the first instance. As Haddock points out, “[o]ne crippling bureaucratic disadvantage is that many external costs and benefits are subjective and thus knowable only to the demander or supplier, while [for government] the links from production to consumption skirt formal markets where objective proxies might be observed.”\textsuperscript{122} Although the government can simply ask individuals what they want and feel in collecting sources). \textit{See also} Nancy C. Staudt, \textit{The Hidden Costs of the Progressivity Debate}, 50 VAND. L. REV. 919 (1997) (elucidating tax policy implications of various theories of government and pointing out that any theory of government must provide for its funding). The NIE literature’s take on these perspectives is to elucidate the problems of rent seeking and collective choice.


\textsuperscript{116} \textit{See generally, Furubotn & Richter, supra note 23, at 47-49} (summarizing political transaction costs) (citing Mancur Olson, Jr., \textit{The Logic of Collective Action: Public Goods and the Theory of Groups} 46 (1965)).

\textsuperscript{117} These costs include the costs of obtaining the information needed to carry out these processes, the costs of behavioralism by those charged with carrying out these processes, as well as the transactions that occur when they are attempted to be carried out. In addition, just as transaction costs of the market include the costs of transactions that are efficient but that fail, the transaction costs of government administration include the costs of failed processes that should have been successful.


\textsuperscript{119} Furubotn & Richter, supra note 23, at 47.

\textsuperscript{120} Furubotn & Richter, supra note 23, at 22 (“transaction costs associated with political markets are high, and for this reason institutional inefficiency tends to persist”) (citing North, \textit{Institutions, Institutional Change, and Economic Performance}, supra note 86, at 52).

\textsuperscript{121} Douglass C. North, \textit{Institutions and Credible Commitment}, 149 J. INSTITUTIONAL & THEORETICAL ECON., 18 (1993). \textit{See also}, North, \textit{Institutions, Institutional Change, and Economic Performance}, supra note 86 at 51 (“[efficient] markets are scarce enough in the economic world and even scarcer in the political world.”).

the hope they will reveal such subjective information accurately, as Haddock notes: “survey respondents
do not put their money where their mouths are, and often return either zero or unrealistically high
valuations with little variation across a wide range of amenities, in addition to cross-amenity comparisons
that are inconsistent, intransitive, or sensitive to query order and wording.”

Two initial problems involve the general difficulties in assessing the information content of
votes due to their limited ability to fully reflect intensity of preferences, and relative preferences.
Concerning intensity of preferences, while in a market the mechanism of price provides a finely grained
medium for expressing intensity of preferences, votes in a political system do not convey similarly fine-
tuned expressions of intensity of preferences. In the U.S., for example, when an individual casts a vote
in a national election, the individual is only able to elect for each ballot item whether to cast a single vote,
or not. The individual cannot cast a smaller or larger vote. Indeed, this is why the technique of
cumulative voting is offered as alternative voting system mitigating this effect. Concerning relative
preferences, while in the market the fungibility of money and many other resources allows them
temporally to be spent on various competing uses, votes within the political system can only be spent on
the few items on the ballot at any given time and indeed efforts to make them more fungible by, for
example, offering them for sale, are strongly discouraged. The increased fungibility of price over
voting helps price develop greater information about a wider range of relative preferences.

Even when it might be known, or surmised, what the public in general would like, the public
choice literature has elucidated at least two additional problems facing the processing of voter input –
interest group politics and agency capture. Where minorities cares a great deal about an issue but
the majority cares little, George Stigler pointed out that such “small minorities achieve their effectiveness
primarily because it is uneconomic for the majority to oppose them.” When this effect is consistently
targeted to one particular part of the government, it has the effect of leaving that part captured by that
interest group.

AM. ECON. REV. 529 (1945)).

123 Id. at 10, (citing Matthew D. Adler & Eric A. Posner, Implementing Cost-Benefit Analysis When Preferences Are Distorted, 29
J. LEGAL STUD. 1105 (2000))

124 Lani Guinier, The Tyranny of the Majority: Fundamental Fairness in Representative Democracy 14-

markets to price markets).

126 Of course, also price is not a perfect vehicle for information. For example, one shortcoming of price is that
marginal consumers can have a disproportionate impact on decision making, and Michael Spence has shown that on issues like
quality, the preferences of those within the margin may be ignored. See A. Michael Spence, Monopoly Quality, and Regulation, 6
Bell J. Econ. 417 (1975) (noting benefits of rate of return regulation to concerns about of quality).

127 For more on interest group politics see Gary S. Becker, Public Policies, Pressure Groups, and Deadweight Costs, in The
Essence of Becker, supra note 43, at 544 (presenting model of competition among interest groups and showing that “an
increase in the deadweight cost of taxation encourages pressure by taxpayers, while an increase in the deadweight costs of
subsidies discourages pressure by recipients”).

128 For more on agency capture see Thomas W. Merrill, Capture Theory and the Courts: 1967-1983, 72 CHI.-KENT L. REV.
1039, 1050-52 (1997).

129 George J. Stigler, Economic Competition and Political Competition, 117, 125 in The Essence of Stigler (Kurt R. Leube
and Thomas Gale Moore, eds. 1986) (citing George J. Stigler, The Theory of Economic Regulation, 2 Bell J. Econ. & MGMT. SCI. 3
(1971)); Press Release: The Sveriges Riksbank (Bank of Sweden) Prize in Economic Sciences in Memory of Alfred Nobel for
1982, available on line at http://www.nobel.se/economics/laureates/1982/press.html. See also, David B. Spence & Frank
Cross, A Public Choice Case for the Administrative State, 89 GEO. L.J. 97, 105 n.37 (2000) (collecting sources and describing two
variants of capture: one they attribute to the formation of “subgovernments” along the lines outlined by Stigler and another
that is slightly different in which the general public is seen to lose “interest in agency policymaking, leaving only regulated
interest groups to participate in the process”).
But this problem is exacerbated by the rent dissipation it triggers in those seeking such
government benefits. Indeed, this link between what is essentially lobbying and rent dissipation was first
elaborated in work by James Buchanan and Gordon Tullock. The basic concept is that the
“competition for government favors … involves a wastage of resources in (unproductive) lobbying
activities, bribes, legal fees, and so on.”

The problem is then further worsened when the government actors themselves realize they, too,
can benefit from the process. As explored in work by both Fred McChesney and Hernando de Soto,
where the beneficiaries include the government actors themselves, who might for example, enjoy
enhanced political contributions or political power (depending in part on whether they are elected or
appointed), the problem can also be seen as one form of the principal agent problem in which the
official is the agent of the public and is pursing its own goals instead of those of the public. Under
this view, “the problem then, is how principals in the form of … taxpayers can protect themselves
against opportunist behavior on the part of their agents (the policy authorities).

This problem is worsened when government actors compete to extract this benefit, giving rise to
what is called the tollbooth problem in work by Simeon Djankov, Rafael La Porta, Florencio Lopez-De-
Silanes, and Andrei Shleifer. The tollbooth problem is itself worsened by a mission creep problem as
other actors in the government are drawn to shift towards the operating tollbooths and to erect their
own in addition. That is, even when those within an agency experience periods of underuse, there will
be a tendency for the agency to take on additional missions in the same area as the successful
tollbooths. Recent empirical study of entry regulation in 85 countries including the United States by
Simeon Djankov, Rafael La Porta, Florencio Lopez-De-Silanes, and Andrei Shleifer confirms both the
extent and nature of the capture problem and tollbooth problems. In concluding their report of the
data showing decreased public benefits and competition and increased corruption, they note that “[t]his
evidence is difficult to reconcile with public interest theories of regulation but supports the public choice
approach, especially the tollbooth theory that emphasizes rent extraction by politicians.”

Such rent extraction implicates both the cost of rent-seeking caused by the option of a particular legal result, as well as any improper restrictions on freedom of contract and exchange imposed by such a law. At

At bottom, the public choice literature shows a set of parameters that limit the ability for
government to achieve the goals of the governed: the information content of votes compared to price,

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130 See, e.g., JAMES M. BUCHANAN & GORDON TULLOCK, CALCULUS OF CONSENT (1962); TOWARDS A THEORY OF A
RENT-SEEKING SOCIETY (James M. Buchanan, Robert D. Tollison & Gordon Tullock eds., 1980); See also, Press Release: The
Sveriges Riksbank (Bank of Sweden) Prize in Economic Sciences in Memory of Alfred Nobel for 1986, available on line at

131 FURUBOTN & RICHTER, supra note 23, at 479.

132 See, Fred S. McChesney, Rent Extraction and Rent Creation in the Economic Theory of Regulation,” 16 J. LEGAL. STUD. 101
(1987) (elucidating that politicians and bureaucrats use legislation, regulation, and their threat both to create rents and to extract
them through campaign contributions, votes, political favors, or even bribes). See also, FRED S. McCHESNEY, MONEY FOR
NOTHING: POLITICIANS, RENT EXTRACTION, AND POLITICAL EXTORTION (1997) (same, and collecting sources); HERNANDO

133 FURUBOTN & RICHTER, supra note 23, at 23.

134 Simeon Djankov, et al., 117 Q. J. ECON. 1, 3 (2002 (empirical data showing existence and extent of the problem).

135 Milton Friedman, Why Government is the Problem, Hoover Institution Essays on Public Policy (1993), 9 (“If the initial
reason for undertaking the activity disappears, [that part of the government has] a strong incentive to find another justification
for its continued existence”).

136 Djankov, et al., supra note 134, at 35.

137 James M. Buchanan, Rent Seeking and Profit Seeking, in JAMES M. BUCHANAN ET AL., TOWARD A THEORY OF A RENT-

effects of reduced economic freedom).
the general dominance of narrow interest groups compared to the broad public, the ways in which that affect gets particularly targeted to certain parts of the government leaving them captured, the way groups will dissipate rents associated with capture when competing to achieve, and the way different parts of the government will erect toolbooths in an effort to be captured. These effects are seen within the context of legislatures and agencies through models of these actors being able to extract some very tangible benefit, such as votes and money. But these same effects also impact judges. Even judges with lifetime tenure act strategically within some institutional constraints – including formal affirmances and reversals, critiques by academia, the bar, and the media, and informal social pressure at all levels, etc. – and they do so in response to their own individualized preferences for procedural and substantive policies, for prestige, for fame, to stand out or to fit in, etc. The objects of these preferences in the judicial setting still drive actual behavior, even through they are less tangible than the votes and money that are emblematic of the legislative and agency models. For all of these reasons, the greater discretion that is given to judicial actors, which leaves them greater room to act, the greater will be the opportunity for them to exhibit these public choice problems. These problems, in turn, leave the government most exposed to being co-opted by large, entrenched interests to the detriment of market entrants, and to the detriment of the increased commercialization and resulting access these new business models would have generated.

4. Overview of Coordinating Options

Property rights backed up by property rules can be seen as offering a type of middle ground among several other alternative institutional and organizational arrangements for facilitating coordination: atomized individuals in the free market without property rights, norm communities like open source projects, firms, and government. Each has its own costs and benefits, which are summarized for convenience in Table 1 of the Appendix. The option of having something that brings the unique mix of attributes associated with property is not only helpful, generally, it is particularly helpful for market entrants than because the other options are each less accessible to outsiders. Relying exclusively on these other options to the exclusion of property rights in IP, therefore, should be expected to shift towards an increase in anticompetitive effect and a decrease in overall downstream access to the subject matter that IP rights protect.

C. Mitigating the Problems of Property Rights

The above discussions explored the benefits of property. Coordination was explored as a goal that property rights can achieve. So, too, were the ways in which property rights can achieve this goal differently than alternatives. Like all things, through, property has both benefits and costs. The discussions that follow unpack some of the leading criticisms of property rights that have been offered in the NIE literature, along with some of the tools that have emerged for mitigating these problems. The discussions also show how these tools actually are being put to use in present IP regimes.

1. Rent Dissipation

One of the first problems that arises when property rights are made available to individuals within a community – or indeed when any government benefit is made available – is the problem of rent dissipation. Rent can be thought of as the benefit that is gained by engaging in a certain activity. Private rents are those accruing to the individual. Public rents are those accruing to society as a whole. Private and public rents may be different. The potential differences in both magnitude and sign between public and private rents my cause private incentives to engage in a given rent-generating activity to be either too
little or too big than would be socially optimal. Where the availability of private rents provides incentives for an individual to engage in efforts designed to gain those private rents that are too strong, the resulting efforts may turn out ultimately to dissipate the social rents. This is the problem of rent dissipation.

Rent dissipation itself can take at least two forms. One type of rent dissipation involves over investment in the race to obtain the rent. Another type of rent dissipation involves investment in alternative but socially undesirable techniques to win that race. One way to conceptualize the over investment type of rent dissipation is in the context of a race towards a common prize. If the community is characterized by a prize having a known value and an uncoordinated group of individuals who are each seeking the prize, then each individual rationally might elect to spend up to just less than the value of the prize to get it, which would mean that as a group they are spending more in aggregate than the value of the prize. In the context of innovation, the effect has been demonstrated by economic models of multiple firms seeking the same invention in a race to patent, which show that investment overall may be too great. A way to conceptualize the improper alternative investment type of rent dissipation is also in the context of a race towards a common prize, but this time where some types of racing are viewed by society as good and others are viewed as bad. In the context of sports, for example, the use of practice sessions is often viewed as good while the use of performance-enhancing drugs is often viewed as bad. In the context of regulated markets, the use of innovation is generally considered to be a good form of

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139 It also may be possible for the private rents to be too small compared to the social rents. For example, what an inventor gets for herself often is less than what her invention generates for society. See STEVEN SHAVELL AND TANGUY VAN YPERSELE, REWARDS VERSUS INTELLECTUAL PROPERTY RIGHTS (National Bureau of Econ. Research Working Paper No. 6956, 1999) (suggesting a system of government-sponsored cash rewards instead of or in addition to a system of patents as a tool for improving the match between the private and public rents associated with an invention). The rent the invention generates for society takes into account a wide range of benefits. The rent something like a patent generates for society properly accounts for a narrower range of benefits tied to the contribution that patent made towards bringing the underlying invention to society more broadly or earlier than what would have occurred absent the patent. As another example, an inventor may develop something only slightly better than available options in a way that turns out to cause waste overall. A.K. Dixit & Joseph E. Stiglitz, Monopolistic Competition and Optimum Product Diversity, 67 AM. ECON. REV. 297 (1977) (showing how it may be profitable for the one firm to come to market to get the customers but yet total industry profits can decline by more than consumer welfare increases). Recent work by Brett Frischmann and Mark Lemley has explored the way both of these examples also can be thought of as the problem of externalities, or what they call “spillovers.” Brett M. Frischmann & Mark A. Lemley, Spillovers (working paper, 2005).

140 If the value of the prize is X and the group of individuals is Y in number then each individual might rationally elect to spend up to just less than X to obtain the prize, say some amount equal to X minus a small discount, say ε or (X-ε). Yet, if all individuals spend that amount, then the community has spent the amount equal to [(X-ε) x Y] to obtain something worth only X. The rub is that the expression [(X-ε) x Y] will be greater than X itself as long as X and Y are positive numbers greater than one and ε is a positive number less than one. Put simply, the amount spent in that community as a whole to obtain the prize is greater than the amount the community as a whole got by obtaining the prize, which would be a waste of resources. Of course, there are a number of reasons to think that even an uncoordinated set of individuals might also choose to compete for the common prize in a way that avoids or mitigates the extent of rent dissipation or even fails to achieve the common prize. If each individual knows of the others, then each individual may discount the expected value of the prize to reflect the chance that one of the others will win. Facing such a decreased prize after adjusting for risk each individual may spend less. This may lead to a decrease in aggregate spending that in turn leads either to mitigation of the amount wasted or perhaps even failure to achieve the common prize. Alternatively, the uncertainty each individual has in this low risk-adjusted payoff may not cause individuals to sufficiently decrease spending to mitigate overall rent dissipation effect. The large profits state-run lotteries earn from individual participants paying far more than risk-adjusted payouts would advise is evidence of this type of rent dissipation behavior in practice despite obviously low-risk-adjusted payouts. See Kieff, Commercializing Inventions supra note 14 at 711, n.68.

141 See, e.g., Yoram Barzel, Optimal Timing of Innovations, 50 REV. ECON. & STAT. 348 (1968) (showing how overinvestment can lead to invention occurring too early); Glenn C. Loury, Market Structure and Innovation, 93 Q. J. ECON. 395 (1979) (model showing overinvestment under appropriate conditions); P. Dasgupta & Joseph E. Stiglitz, Industrial Structure and the Nature of Innovative Activity, 90 ECON. J. 266 (1980) (same).
competition (making better products or services) while the use of agency capture is generally considered to be a bad form of competition (getting the government to differentially regulate a competitor). This type of rent dissipation was discussed earlier within the context of public choice problems.

Importantly, the NIE literature does suggest ways that rent dissipation can be mitigated. Anderson & Hill have shown that rent dissipation problems associated with the creation of property rights can be mitigated if the potential owners of the rights are able to tailor them at the time of creation. The intuition underlying this result is that this approach allows the owners to shape the right based on the best information available at the time about its value, including the different parameters that will impact the value in different ways – for example, its precise contours. The greater the wedge between the definition of the right and its actual creation, the greater the chance there will be a mismatch against actual needs. Anderson & Hill point out that the two central public choice problems will both contribute to the size of this wedge. A simple “land-grab” approach will lead to overinvestment in racing to grab and over-grabbing of actual parcels, simply because the opportunity to claim later will be forgone. In this regard, nobody is able to claim the residual that would be left behind by waiting until an actual need were developed – there is no “residual claimant.” In addition, once government actors see the private interest in obtaining the rights, the bureaucracy will have an incentive to withhold the rights unless they determine a particular claimant is “worthy,” which will in turn provide a convenient excuse for the bureaucracy to amass the resources it claims are needed to judge “worthiness.”

At bottom, the more the regime allows those who ultimately hold the rights to craft the rights at the time of creations, other things being equal, the more likely rent dissipation effects will be mitigated. Even a quick comparison of different IP regimes reveals a stark difference in this regard. For example, patent applicants shape their own property rights through the drafting of the claim. Similarly, the

142 See supra notes 129-130 and accompanying text.
144 Id. at 442.
145 Anderson & Hill attribute the term “residual claimant” to the work by Armen Alchian and Harold Demsetz on the theory of the firm. Id. at 439 (citing Armen Alchian & Harold Demsetz, Production, Information Costs, and Economic Organization, 62 AM. ECON. REV. 777 (1972)).
146 Anderson & Hill, supra note 143, at 443.
147 Indeed, because patentees are the ones who are lowest cost processors of the information needed to assess validity information costs are mitigated when property the owners themselves are given such strong incentives to make these determinations, and recent empirical models suggest these incentives do work. See AMALIA YIANNAKA & MURRAY FULTON, PRIVATELY OPTIMAL PATENT BREADTH UNDER THE THREAT OF PATENT VALIDITY CHALLENGES, presented to the 8th International Consortium on Agricultural Biotechnology Research (ICABR): International Trade and Domestic Production, held in Ravello (Italy), July 8-11, 2004 (available on-line at http://www.economia.uniroma2.it/conferenze/icabr2004/papers/Yiannaka.A.pdf) (showing how patentees integrate concerns about validity challenges into their own decision-making ex ante). At the same time, the rules for patentability over the prior art protect third parties’ reasonable investment backed expectations by preventing valid patents from issuing where there have been any verifiably prior investments. See Kieff Registering Patents supra note 14, at 76-99. Importantly, these patentability rules are all enforced with rules biased in such a way that they involve remarkably low administrative, public choice, and both Type I and Type II error costs. See, F. Scott Kieff, How Ordinary Judges and Juries Decide the Seemingly Complex Technological Questions of Patentability over the Prior Art, in F. SCOTT KIEFF, PERSPECTIVES ON PROPERTIES OF THE HUMAN GENOME PROJECT 125 (2003).

In addition, the disclosure rules of patent validity may also help protect third parties’ reasonable investment backed expectations by helping these third parties to avoid inadvertent trespass. Id. at 99-105. But it is not clear that these rules are working as well as they could be for at least two important reasons. First, the uncertainty governing the process of patent claim construction may be frustrating the patent system’s important ex ante incentives for private ordering by both patentees and infringers. For an excellent collection of recent empirical work on claim construction by R. Polk Wagner, see www.claimconstruction.com. Importantly, the uncertainty here is not the individualized uncertainty associated with what some see as high reversal rates on appeal but rather the lack of coherence, or predictability, that the entire body of claim construction law seems to be generating. Ironically, the empirical work by Wagner suggests that although the body of legal rubrics that are available for claim construction may not yield predictability, simply knowing the identities of the members of
the contours of the rights staked out by trademarks are largely set by the rights-holders themselves through actual use.\textsuperscript{148} In contrast, the contours of a copyright are set as immutable rules (not even default rules) through the central regime rather than by the individual claimants.

Two general conclusions are suggested. First, the rent dissipation effect would be expected to be greater in this regard for copyright than for patent and trademark because of the difference in the way the rights are staked out. Second, this effect is something that cuts against changing any of the regimes – patent, trademark, or copyright – in a way that would have the effect of fixing the contours of the rights where they otherwise could be staked out by claimants at the time of creation.

2. Transaction Costs

Property rights, just like any other type of entitlement, raise the problem of transaction costs, because to work well they must be able to be sold and licensed to those who value them most at any given time. The term “transaction costs” plays a central role in the literature on property rights in general and IP in particular; but it is a term that often is misunderstood. Transaction costs are particularly important to the field of NIE because “transaction-costs economics is the original centerpiece of what Williamson … called the New Institutional Economics.”\textsuperscript{149} There has since been substantial empirical support for the validity of the transaction costs implications of NIE, as studied by Paul Joskow and others.\textsuperscript{150}

\textsuperscript{148} And as with patents the rules on validity for trademarks help protect third party investments to at least some extent through the limited scope of trademark rights in the first instance by, for example, the doctrine that prevents trademark rights from covering functional elements. See, e.g., In re Morton-Norwich Products, Inc., 671 F.2d 1332, 1339 (C.C.P.A. 1982) (Rich, J.) (reviewing functionality doctrine and collecting sources). In addition, ex ante investments by third parties are protected through rule giving a cause of action to a prior user of a mark that is made famous by a subsequent user. See, e.g., Big O Tire Dealers, Inc. v. Goodyear Tire & Rubber Co., 561 F.2d 1365 (10th Cir. 1977) (protecting small prior user's mark using theory sometimes called “reverse confusion” because the public is lead to confuse the first-user's mark with the more famous second-user's mark and think that the first is the second rather than the more typical confusion case in which a second user's mark is confused with that of a first user). In some cases, both users may be allowed to operate in different markets. See, e.g., Burger King of Florida, Inc. v. Hoots, 403 F.2d 904 (7th Cir.1968) (holding that the national chain Burger King is allowed exclusive use the mark throughout the nation except in the town of Matoon, Ill, where a prior user in that particular location is allowed to continue exclusive use). The rules for enforcing and determining validity of trademarks facilitate ex ante private ordering because, as with patents, they turn on facts equally knowable to all market actors in advance. Key evidence on trademark validity typically takes the form of survey data from ordinary customers.

\textsuperscript{149} See also Howard A. Shelanski and Peter G. Klein, Empirical Research in Transaction Cost Economics: A Review and Assessment, 11 J.L. & ECON. & ORG., 335 (1995) (survey of empirical evidence on transaction-costs economics assessing roughly 100 references on empirical research in transaction-cost economics published before 1993).
The term “transaction cost” generally refers to all the costs associated with contracting among individuals, including the hassle those parties experience in finding and dealing with each other, the costs of lawyers and other professionals to arrange the deals, and the bargaining process itself. Transaction costs also can be thought of as including information costs because information must be gathered and processed before those individuals decide to interact with each other. The term encompasses the costs of successful transactions – such as time and money – as well as the costs of failed transactions – such as lost opportunities – to the extent those failed transactions are good things that would have occurred but for the costs of transacting.

The comparative analysis of NIE reminds us that there is both a good and bad side to transactions and that as a result the costs of transactions may be worth bearing. For example, while on the bad side, transactions impose costs, on the good side, they are associated with the very specialization and division of labor that generally are thought to be good things. That is, the availability of transactions to obtain from others the goods and services beyond those an individual is most interested in or most adept at providing, itself facilitates each individual’s ability both to have and to hone those specialized skills and tastes, as well as to bear individualized distributions. The link between specialization and transactions allows even large numbers of individuals to achieve complex tasks by coordinating with each other directly or indirectly.

In addition, given such individualism in the form of diverse skills and preferences, transactions, and thus their concomitant costs, have other important beneficial side effects that often are overlooked. First, transactions are associated with the privately beneficial exchanges among individuals that are essential for achieving private gains from trade. Second, transactions are associated with the publicly beneficial socialization that occurs as individuals come to interact with each other. This socialization effect occurs because for transactions to achieve gains from trade it must be the case that individuals having diverse resources and preferences learn enough about each other’s resources and preferences to exploit them. This process of learning about each others’ values is part of socialization. Third, the bargaining process – for both consummated transactions and for failed ones – inherently elicits

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151 Furubotn & Richter, supra note 23, at 291.
153 John J. Wallis & Douglass C. North, Measuring the Transaction Sector in the American Economy, 1870 –1970, in LONG-TERM FACTORS IN AMERICAN ECONOMIC GROWTH, 95 (Stanley I. Engerman & Robert E. Gallmann, eds.) (Studies in Income and Wealth, No. 51, 1986). The connection between division of labor and transaction costs, including the inevitable limit that transaction costs place on the extent of the division of labor, was articulated earlier by Adam Smith. See Harold Demsetz, The Cost of Transacting, 82 Q. J. ECON. 33, 35 (1968) (empirical evidence of transaction costs in the market of the New York Stock Exchange and quoting Adam Smith: “As it is the power of exchanging that gives occasion to the division of labor, so the extent of this division must always be limited by the extent of that power, or, in other words, by the extent of the market.”).
154 See, Robert Ellickson, ORDER WITHOUT LAW: HOW NEIGHBORS SETTLE DISPUTES 184 (1991) (pointing out that societies tend to develop institutions – such as norms in the case he is studying – that “minimize the members’ objective sum of (1) transaction costs and (2) deadweight losses arising from failures to exploit potential gains from trade.”). See also, Coase The Problem of Social Cost, supra note 31, at 10. (noting that the principal condition that must be satisfied for individuals to maximize wealth by engaging in an exchange is that the transaction costs of the exchange must not exceed the gains from trade.); Terry L. Anderson & Donald R. Leal, Free Market Environmentalism: Hindight and Foresight, 8 CORNELL J.L. & PUB. POL’Y 111 113 (1998) (“[H]umans interact to capture potential gains from trade – the knowledge for this interaction is bounded by transaction costs. The gains from trade (a positive-sum game) result because people place different values on goods and services and because people have different abilities to produce those goods and services. Because of these differences, trade has the potential to make the parties exchanging goods and services – of lower value to each respectively – better off.”)
155 See, e.g., Milton Friedman, Value Judgments in Economics, in THE ESSENCE OF FRIEDMAN 3, 3-8 (Kurt R. Leube, ed., 1987) (discussing the “role of the market as a device for the voluntary cooperation of many individuals in the establishing of common values” and concluding that “[i]n many ways, this is the basic role of the free market in both goods and ideas – to enable mankind to cooperate in this process of searching for and developing values.”).
important information about not only the particular transaction being negotiated, including intensity of preferences and budget constraints, but also relative values compared to other available transactions. That is, transactions can mitigate information costs.

It would be great if transactions could achieve their benefits without their costs. It also would make sense to strive both to increase their benefits and decrease their costs. But to the extent efforts to eliminate the transaction costs associated with direct exchanges between individuals in the market are by replacing them with court or agency mandated exchanges – such as by replacing property rules with liability rules – they will decrease some of the benefits of having those transactions occur directly between individuals. For example, the availability of court or agency mandated exchange may decrease the incentives, opportunities, and abilities for individuals to directly interact with each other.

What is more, reliance on court or agency mandated exchanges triggers its own set of costs. These costs include the transaction costs and public choice costs associated with these organizations, as well as their comparatively increased costs of obtaining and processing certain types of information. Also included is the general tendency of such government actors to err on the side of setting price too low, and the potential negative impact they can have on ex ante incentives and private ordering by injecting general uncertainty and overall instability with respect to non-price terms.

Indeed, just as transactions themselves can have positive and negative effects, so too can those employed to facilitate transactions, such as lawyers and other professionals. On the one hand, these professionals often are portrayed as a large component of the negative side of transaction costs. On the other hand, because they help the transactions occur, they also can be seen as part of the positive side of transactions to the extent that the transactions are a good thing. Therefore, a decision to replace lawyer mediated transactions with court or agency mediated transactions would require a comparison of the net costs associated with each. But because both are likely to require professional expenses (some mix of lawyers and lobbyists) at roughly comparable levels, it is difficult to imagine a savings of this cost associated with a shift towards government-mediated transactions.

What is more, the likelihood and extent of the pernicious impact of most transaction costs is recognized to be, all-in, generally worse in political markets than in economic markets. The intuition behind this view is that for political markets, the assets being traded – such as promises to vote a certain way for example – are both harder to evaluate and harder to enforce in that they are less certain at the time of negotiation, less predictable, less fungible, less dividable, and less bundle-able.  

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156 See, e.g., Ronald J. Gilson, Seeking Competitive Bids Versus Pure Passivity in Tender Offer Defense, 35 STAN. L. REV. 51, 62-63 (1982) (“Let me start with two important elements of transaction costs in the acquisition setting: information costs necessary to identify the opportunity; and mechanical costs – for example, lawyers’, accountants’, and investment bankers’ fees – necessary to effect the transaction and cope with regulatory or other barriers (including defensive tactics by the target).”).


159 Id. See also, North, Institutions and Credible Commitment, supra note 121, at 11, 18 (“Political markets are far more prone to inefficiency”). While North explains why the net effect of a shift from economic market to political market is expected to
An additional impact of NIE’s comparative analysis is that it reveals why, all-in, the likelihood and extent of the pernicious impact of many types of transaction costs generally is worse in what are known as thinner markets as compared with thicker markets, where thinner and thicker refer to the amount and diversity of resources and participants, including their diverse evaluative techniques and preferences. There are two basic intuitions behind this lesson. The first is that thickness increases the chance some individual in the market will find it profitable to arbitrage what otherwise would be a gap in information flow by finding and acting on that information, to offer an attractive option for what otherwise might be a hold-up problem, etc. The second is that the increase in bargaining associated with a thicker market mitigates information costs.

There is reason to think that some types of transaction costs may be worse in markets that are thicker, in at least some sense. For example, the behavioralism logic behind the problem of groupthink suggests that as the group gets bigger the problem gets worse. But, to the extent that thicker is taken to mean not only bigger but more diverse, then even the problem of groupthink may also decrease with market thickness.

The transaction costs effects of patents in the field of basic biotechnology research are instructive. While there of course is some pernicious impact of the transaction costs associated with a state of affairs that includes patents, the degree of that impact must be compared against the similar problems that arise without patents. Prior work by the present author explores in some depth why the addition of patents to what otherwise was a market characterized only by academic kudos should be expected to make the market thicker, not thinner, and thereby decrease overall transaction costs.

While it is easy to imagine the difficulty facing a scientist who just wants to gain access to a patented technology but does not want to spend the time and money to hire a team of expensive lawyers, the patentees figure this out for themselves. Remarkably low transaction cost business models are devised and implemented. For example, in the “freezer program” business model that has long been in common use, the patent is assigned to a business that arranges for the patented biological material to be regularly brought fresh and frozen direct to the scientist’s university department or even lab and then by charges the scientist’s research account for those quantities actually used.

The transaction costs that the scientist experiences for such a model are even less than typically associated with buying a can of soda from a soda machine. In contrast with this type of direct billing, the typical soda machine requires the buyer to use coins or low denomination bills – a higher transaction cost that is nonetheless well

be an increase in transaction costs there are of course some ways in which some aspects of transaction costs may be lower. For example, to the extent political markets are constrained by norms, political markets can to some extent function like small norm communities and as explored later in the discussion of norm communities, enforcing deals in small norm communities may be in some ways less expensive and more effective than across an open market.

160 The so-called efficient market hypothesis (also known as “EMH”) is based on the view that in a perfectly thick market, assets will be perfectly priced. The basic theoretical foundation for the EMH was laid by Paul Samuelson and Benoit Mandelbrot. See Paul A. Samuelson, Proof That Properly Anticipated Prices Fluctuate Randomly, 6 INDUS. MGMT. REV. 41, 48 (1965); Benoit Mandelbrot, Forecasts of Future Prices, Unbiased Markets, and Martingale Models, 39 J. BUS. 242, 248 (1966). Empirical support was added by Eugene Fama. See Eugene Fama, Efficient Capital Markets: A Review of Theory and Empirical Work, 25 J. FIN. 383, 392 (1970).

161 For more on groupthink see infra note 187, and accompanying text.

162 See Kieff, supra note 82.

163 One on-line shopping guide for basic scientists provides this description:
Vendor Freezer and Cabinet programs offer a freezer or cabinet with a customized inventory of the products you use. Companies may provide a complimentary cabinet, freezer, or refrigerator, stock it, and often apply discounts to the host lab.

www.biocompare.com/freezer.asp (web site advertised as “The Buyer’s Guide for Life Scientists”, which lists the details of several companies’ programs and provides links). See also, www.bio.umass.edu/biology/genomics/freezer.phtml. (advertising interdepartmental freezer program at the University of Massachusetts); www.narf.vcu.edu/abi.html (Virginia Commonwealth University).
tolerated by society. Indeed, the freezer programs may provide a host of additional benefits. They save the scientist from having to spend the time and other resources needed to obtain the material herself. They also help the scientific community at large by providing a uniform source of inputs that decreases variability across scientific experiments.

A related point about transaction costs is that they are borne, at least in part, by both the party wanting to buy or license and the party wanting to sell or license—both the infringer and the owner. This is important because it helps explains why many property owners elect not to aggressively enforce the property rights against certain users by granting broad licenses rather than suing to exclude. Indeed, recent empirical data shows that far from being subject to endless holdups and blockades, in both industry and universities, researchers have beaten whatever problems patents in this area might have imposed by adopting strategies of “licensing, inventing around patents, going offshore, the development and use of public databases and research tools, court challenges and simply using the technology without a license (i.e., infringement)” to achieve their particular goals.

And the law correctly makes sure that property owners can’t avoid their share of these transaction costs. When property owners are not willing to incur the transaction costs associated with policing their own rights, the law exposes them to the risk of varying degrees of forfeiture. For example, if a patentee sits back for too long while letting others infringe, then later actions for infringement may be barred by laches. And, if the patentee, instead of sitting back, actually leads the infringer to infringe, then an action for infringement may be barred by equitable estoppel. Importantly, however, neither laches, nor estoppel fundamentally threatens the IP system because each leaves it within the power of the IP owner to avoid the loss.

What is more, certain features inherent in the commercial law system impose much higher costs on property owners than might at first be apparent. Put differently, in the real world perfectly strong property rule protection for IP is not possible in the context of the existing system of commercial law for several reasons. First, as Ayres and Klemperer point out, uncertainty in how the rights will be enforced in court functions the same as enforcing those rights with liability rules and largely because of the reward theories themselves there is substantial uncertainty in the rules governing the rules for obtaining IP rights, transacting over IP rights, and enforcing IP rights. Second, “the ability for an infringer to be kept effectively judgment proof through corporate and bankruptcy laws may also operate as a form of liability rule gloss on the present property rule regime.” Third, “[o]therwise infringing

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164 See id., at 705 (explaining why patentees rationally elect not to enforce aggressively).
165 JP Walsh et al., Working through the Patent Problem, 299 SCIENCE 1021 (2005). See also, JP. Walsh et al., View from the Bench: Patents and Material Transfers, 309 Science 2002 (2005) (reporting empirical results demonstrating that “access to patents on knowledge inputs rarely imposes a significant burden on academic biomedical research.”).
166 A.C. Aukerman Co. v. R.L. Chaides Constr. Co., 960 F.2d 1020 (Fed.Cir.1992) (en banc) (discussing laches). This does not mean that the patentee must go after every infringer right away. The laches effect may be put on hold with respect to some infringers where the patentee is kept busy tracking down others and bringing lawsuits against them. Accuscan v. Xerox Corp., 1998 WL 273074 (S.D.N.Y. May 26, 1998) (presumption of laches rebutted where patentee delayed filing infringement suit in order to avoid the burden of conducting two simultaneous infringement suits and to attempt to negotiate a license agreement with the defendant).
168 See Ayres & Klemperer, supra note 5.
169 See, e.g., Kieff, Registering Patents, supra note 14 (criticizing impact of reward theories on rules for obtaining patents).
171 See, e.g., Kieff, Commercializing Inventions, supra note 14 (criticizing impact of reward theories on rules for enforcing patents and elucidating the importance of property rights protected by property rules for enforcing patents).
uses that are by or for the federal government enjoy sovereign immunity protection that effectively results in a compulsory licensing regime.”

Therefore, total restriction on access under a property rule always can be avoided to some extent because at least some liability rule treatment always is available for IP.

3. Behavioralism

Related to the problem of transaction costs is the problem of “behavioralism,” which refers to all of the ways in which human beings are not perfectly rational in making decisions and instead are said to be only boundedly rational in that they suffer cognitive biases, framing effects, employ heuristics, etc. While some scholars, such as Posner, have suggested that decision-making under conditions of behavioralism can be thought of as same thing as perfectly rational decision making in a world of positive information costs, other scholars, such as Williamson, suggest behavioralism really refers to something more complex. As explained by Williamson, the problems of behavioralism include situations that simply are impossible to think through, the problems of misconception, like short-sightedness and incorrectly assessing probabilities, the problems of being rushed to make decisions, and the limitations of language. According to Williamson, an especially productive way to


173 Id. (citing 28 U.S.C. § 1498 (1994), under which the government provides a limited waiver of its sovereign immunity for acts of infringement by or for the federal government and instead allows suits against the government in the U.S. Court of Federal Claims for a reasonable royalty). State governments similarly enjoy immunity under the 11th Amendment. See Florida Prepaid Postsecondary Educ. Expense Bd. v. College Sav. Bank, 527 U.S. 627 (1999) (state immunity from patent infringement suits); College Sav. Bank v. Florida Prepaid Postsecondary Educ. Expense Bd., 527 U.S. 666 (1999) (state immunity from Lanham Act trademark infringement and unfair competition suits); Chavez v. Arte Publico Press, 204 F.3d 601 (5th Cir. 2000) (state immunity from copyright infringement suits). The point here is that anyone interested in achieving liability rule treatment for an IP right can achieve that result by prevailing on a government agency to arrange for the infringement.


175 Posner, NIE Meets L&E, supra note 9, at 80. This view of behavioralism is consistent with a view that sees information costs associated with obtaining and processing information, which traces its routes back to the work of Herbert Simon. See, e.g., Herbert A. Simon, A Behavioral Model of Rational Choice, Q. J. ECON., at 241 (1955) (“the task is to replace the global rationality of economic man with a kind of rational behavior that is compatible with the access to information and computational capacities that are actually possessed by ... man.”). See also, Press Release: The Sveriges Riksbank (Bank of Sweden) Prize in Economic Sciences in Memory of Alfred Nobel for 1978 (available on-line at http://www.nobel.se/economics/laureates/1978/press.html).

176 Williamson supra note 9, at 109-110.

177 Id. (citing Herbert Simon, Theories of Bounded Rationality, in DECISION AND ORGANIZATION, 161 (C.B. McGuire & R. Radner, eds., 1972)).

178 Id. (citing Oliver E. Williamson, Calculativeness, Trust, and Economic Organization, 36 J. LAW & ECON. 453 (1993) (problems of being rushed to make decisions)).

179 Id. (citing MICHAEL POLANYI, PERSONAL KNOWLEDGE: TOWARDS A POST-CRITICAL PHILOSOPHY (1962)).
conceptualize the set of problems associated with behavioralism is taught by Simon as the “idea of the mind as a scarce resource.”\textsuperscript{180}

Regardless of precise etiology, the problems of behavioralism have a number of manifestations. Decision-making processes reveal strategies that, using the terminology of Simon, seek to “satisfice” rather than “optimize,” or in the more modern parlance, employ “heuristics,” as explored more recently in the work by Amos Tversky, Daniel Kahneman, and Paul Slovic.\textsuperscript{181} Other manifestations include risk and loss aversions,\textsuperscript{182} and various cognitive biases such as primacy and recency,\textsuperscript{183} framing,\textsuperscript{184} anchoring,\textsuperscript{185} and overoptimism, overconfidence, and egocentrism.\textsuperscript{186}

Another component of the behavioralism problem is the problem known as “groupthink.”\textsuperscript{187} There are several components to the groupthink problem. One involves the heuristic individuals use to avoid having to re-think problems that they think already have been thought through sufficiently by trusted others, thereby creating what Cass Sunstein describes as an “information cascade.”\textsuperscript{188} Presumably, the opposite effect is also seen, whereby the heuristic is one of mistrust, not trust, and so the information content takes on the opposite sign.\textsuperscript{189} A related component, also explored by Sunstein, is that individuals may appear to change or even actually change their views and behaviors in response to perceived peer pressure.\textsuperscript{190} What is more, once group think has set in, there may be a lock-in effect, as pointed out by Arrow:

\textsuperscript{180} Id. (citing Herbert Simon, Rationality as Process and Product of Thought, 68 Am. Econ. Rev. 1, 12 (1978)).


\textsuperscript{182} For the basic exploration of methods for measuring risk aversion see Kenneth J. Arrow Aspects of the Theory of Risk-Bearing (1965); John W. Pratt, Risk Aversion in the Small and in the Large, 32 Econometrica, 122 (1964).

\textsuperscript{183} Jeffrey J. Rachlinski, The Uncertain Psychological Case for Paternalism, 97 NW. U. L. Rev. 1165, 1169-70 (2003) (“psychologists have found that when individuals are asked to memorize a long sequence of words, they are more likely to remember the first few words (the “primacy” effect) and the last few words (the “recency” effect) much better than the words in the middle of the list”) (citing Eugene B. Zechmeister & Stanley E. Nyberg, Human Memory: An Introduction to Research and Theory 60-71 (1982) (reviewing research on primacy and recency effects in memory)).


\textsuperscript{185} Rachlinski supra note 183 at 1171 (“When making numerical estimates, individuals will tend to rely heavily on reference points and then adjust from these reference points”) (citing Tversky & Kahneman supra note 184 1128-30 (explaining anchoring and the related process of adjustment)).

\textsuperscript{186} Rachlinski supra note 183 at 1172 (defining “overoptimism, which consists of overestimating one's capabilities; overconfidence, which consists of overestimating one's ability to predict outcomes; and egocentrism, which consists of overstating the role that one has played in events in which one has participated”). See also Paredes supra note 118, at 481 (“Some of the most well-known sources of these deviations from rationality include loss aversion, framing, the representativeness heuristic, the availability heuristic, overoptimism, and overconfidence.”)


\textsuperscript{188} See id., at 12 (citing Timur Kuran & Cass R. Sunstein, Availability Cascades and Risk Regulation, 51 Stan. L. Rev. 683, 683-691, 720-23 (1999) (describing the problem as one of “informational cascades” through which a view cascades through a pool of individuals as each individual adopts the view of those believed to be better informed); Cass R. Sunstein, Conformity and Dissent, U. Chicago Law & Economics, Olin Working Paper No. 164 (available on-line at http://ssrn.com/abstract=314880).

\textsuperscript{189} While this opposite component of the effect can be seen to be encompassed by the elucidation from Kuran and Sunstein, it is stated here separately to make sure it is not overlooked.

\textsuperscript{190} Kuran & Sunstein, supra note 188 at 723-725. See also, Paredes supra note 187, at 13.
Social and political agreements are typically harder to change than individual decisions. When you have committed not only yourself but many others to an enterprise, the difficulty of changing becomes considerable…

An additional component of the groupthink effect is tied to the phenomena of fashion. Sometimes a particular behavior, view, slogan, manner, or appearance is desired in its own right, as an affirmative expression of a discrete fashion preference – a fashion statement. And, as evidenced by the cyclical nature of changes over time in width of men’s neck ties, fashion is fickle and so the fashion effect may be either to conform to the groupthink or to deviate from it. That is, an individual might either adopt or eschew groupthink as an affirmative fashion statement. Sometimes the culture is in fashion and sometimes the counter-culture is in fashion.

The behavioralism literature does add a great deal to our understanding. But some of the policy prescriptions that might at first blush seem to follow from it may not be so prudent. Consider, for example, switching to liability rule treatment as a strategy for avoiding irrational hold ups. Several countervailing concerns must be addressed. First, if the ability to avoid the property rule treatment hinged upon the failure of a deal getting done, then there would be a markedly increased incentive for those wanting to obtain use through court-ordered terms to resist striking licensing deals. A legal test that rewards a failure to cooperate would lead to a decrease in cooperation, not an increase. Second, the legislators, administrators, or judges who would be asked to determine when this should take place are themselves individuals who also face their own behavioralism limitations. Third, because they are government actors they trigger the public choice concerns discussed earlier.

4. Monopoly Effects

Whenever property rights are used they trigger at least to some extent the problem of monopoly effects. But as with the problem of transaction costs, the problem of monopoly effects often is misunderstood. One consensus lesson of economics, NIE and otherwise, is that markets are not perfect and they do fail. Each of the problems explored in this paper can be, and often is, viewed as a type of “market failure.” Nevertheless, applying a theory of second-best, the mere identification of market failure does not in and of itself justify a call for resolution because it is the all-in comparative analysis among truly available options that should drive policy. Put differently:

Traditional economics ascribes departures of actual market organizations from the ideal type of perfect markets to monopolistic practices. The approach of [NIE], on the other hand, holds that because of transaction costs, and thus informational problems, such departures may serve economizing purposes.

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192 The desirability of a slogan as a fashion statement in and of itself is tied to a controversial issue in trademark law relating to marks that are desired in and of themselves, unconnected to a good or service.
194 FURUBOTN & RICHTER, supra note 23, at 291 (citing WILLIAMSON, THE ECONOMIC INSTITUTIONS OF CAPITALISM, supra note 80) and citing Coase, Industrial Organization: A Proposal for Research,” VICTOR R. FUCHS, POLICY ISSUES AND RESEARCH OPPORTUNITIES IN INDUSTRIAL ORGANIZATION 59 (NBER, 1972) (“One important result of this preoccupation with monopoly is that if an economist finds something – a business practice of one sort or other – that he does not understand, he looks for a monopoly explanation.”).
For example, rules limiting competition, such as those limiting access to the stock exchange can have many positive, or efficiency-promoting, effects: “The exchange organizes not only the conclusion of contracts but also all associated transaction activities (from search to enforcement)…”

This does not mean that all market failures should be embraced. Rather, the general point is that when thinking about market failures it is essential to keep track of the real costs and benefits of all available options. In addition, there are two more specific points that need to be kept in mind when thinking about the ways markets work or don’t work within the context of property rights in general and IP in particular. The first is the distinction between *ex ante* and *ex post*, or the distinction between dynamic and static efficiency. The second is the precise nature of the *inefficiency* (in contrast with what some see as *unfairness*) associated with monopolies.

While there is debate about exactly how rational or irrational individuals are when they make decisions about whether and how to act there is consensus that individuals do make such decisions and do plan. The term “*ex ante*” refers to the time period before a decision is made about a given action. The term “*ex post*” refers to any of the times afterwards. That is, the information and other resources an individual has *ex ante* will impact the decision-making process.

This includes not only what is known, but what is expected. As a result, there can be feedback between the *ex ante* and *ex post* worlds because individuals interpret events in the world around them as having some predictive value for the way events in the future will unfold. As studied in the work on rational expectations by Robert Lucas, individuals constantly update and reinterpret information presently available to make best estimates about the future. In game theory terminology, the point is that life is a multi-cycle game, not a single-cycle game, and individuals may use information from past cycles of the game when making decisions about how to play future cycles. Individuals may change their expectations about what may happen to a given state of affairs in the future based on what they perceive happening to similar states of affairs in the present and past. If individuals perceive that property rights and contracts are not being enforced, they may have less faith in property rights and contracts being enforced in the future, all other things being equal. As investment in such property rights and contracts becomes less attractive, ordinary incentive analysis suggests that individuals will shift investments towards other activities. Indeed, the literature on private ordering places great emphasis on the role of *ex ante* predictability and certainty in property and contract enforcement for facilitating efficient investment and other decision-making over time, or in the dynamic sense.

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195 Forubotn & Richter, supra note 23, at 302 (citing other examples such as “the evolution of ‘privately ordered’ medieval trade organizations as explored in [the following works]” Avner Grief, Reputation and Coalitions on Medieval Trade: Evidence on the Maghribi Traders, 49 J. Econ. Hist. 857 (1989) (among long-distance Jewish traders in the Mediterranean during 11th century called the Maghribi); Roger Milgrom, et al., The Role of Institutions in the Revival of Trade: The Law Merchant, Private Judges, and the Champaign Fairs, 2 Econ. & Pol. 1 (1990) (law merchant system of the Champaign Fairs of the twelfth and thirteenth centuries)). See also, Jonathan H. Adler, Conservation through Collusion: Antitrust as an Obstacle to Marine Resource Conservation, 61 Wash. & Lee L. Rev. 3 (2004) (elucidating how antitrust enforcement may interfere with environmental conservation and other goals).


198 Games that are not static are sometimes said to have multiple cycles, rounds, or iterations, or are said to repeat. For a general overview of game theory see, e.g., John von Neumann & Oskar Morgenstern, Theory of Games and Economic Behavior (1944) (first formal treatment of game theory as a part of economics); Douglas G. Baird, et al., Game Theory and the Law (1994) (more modern treatment of game theory with focus on legal implications).

199 See generally, Paredes, supra note 157, at 1133-34 (“Legal certainty, which is part and parcel of well-defined property rights, is a valuable asset that facilitates business and investing, aside from how the law actually allocates rights and responsibilities”)
This dynamic approach can be in tension with other more static approaches to efficiency, which may see resource distributions at any point in time as sub-optimal. For example, a promise to make my car available to you at a particular time if you elect to use it then may put us in a position when that time arrives in which the car is not in use by anyone.200 In the static sense, at that moment in time, it may indeed look as though the car is being allowed to go to waste, which would be inefficient.201 Yet, if I am allowed to deploy the car to other uses to avoid the risk that it might go unused, then your expectation that it will be available for your use if you so choose will be dashed. What is more, if you know this ex ante, then you may not even be willing to enter into the contract to reserve the car in exchange for some other compensation, such as money, or you will be willing to pay only a lesser amount. Thus, in the dynamic sense, the expected future abrogation of the contract to provide the car that presumably would make both you and me better off because we each would elect to enter into it in the first instance, may make the contract one that is less likely for us to consummate ex ante. As a result, over time we cannot engage in as many productive exchanges as otherwise. Put differently, there would be dynamic inefficiency.202

It is recognized that recent work by Ian Ayers and Eric Talley, and by Jason Scott Johnston shows how, due in large part to many of the behavioralism problems explored earlier, uncertainty in enforcement may in some cases improve the ability to negotiate over property rights and contracts by decreasing hold-out problems through a feed-back mechanism in which uncertainty makes more credible the threat of infringement or breach ex post, which may cycle back to decrease the incentive ex ante for the rights-holder to hold out in the first instance.203 Nevertheless, other recent empirical work by Rachel Croson and Johnston shows that in other cases uncertainty degrades the ability to reach dynamic efficiency.204 Indeed, other work by Ayres and Robert Gertner highlights the importance of at least some certainty through the use of what they term “penalty default rules” because they will have the impact of bringing to light information about potential negotiations and help avoid opportunism by one party attempting “to get a larger piece of the smaller contractual pie.”205 At bottom, at least in many cases private bargaining over property rights can be more efficient if the right is clearly defined ex ante according to a predictable rule, rather than made ex post by a judge applying a standard.206

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200 To be sure, this is a highly stylized example and in the real world every contract can have detailed insurance, futures, and options components. Indeed, the availability of these provisions provides justification for treating contracts among sophisticated parties as though they do indeed speak to these issues, even when silent on their face.


206 ROBERT COOTER & THOMAS ULEN, LAw AND ECONOMICS 100 (1988). For a discussion of the broader debate between legal systems based on rules and those based on standards, see generally MARK KELMAN, A GUIDE TO CRITICAL LEGAL STUDIES 15-63 (1987) (describing basic framework of the debate and collecting sources); Louis Kaplow, Rules Versus Standards: An Economic Analysis, 42 DUKE L.J. 557 (1992) (exploring the costs implicated by the choice between rules and standards and showing: rules typically are more costly than standards to create; standards typically are more costly for individuals to interpret, both by individuals deciding how to act under them and by government decisionmakers deciding how to apply them; and individuals are more likely to act in accordance with the goals of rules as long as the individuals can determine how they will be applied); Russell B. Korobkin, Behavioral Analysis and Legal Form: Rules vs. Standards Revisited, 79 OR. L. REV. 23 (2000) (reviewing more recent literature and collecting sources).
The difference between ex ante and ex post, or dynamic and static efficiency, also matters beyond the narrow setting of individual transactions discussed above—although that is not irrelevant—because in many ways change is desirable in and of itself. For example, as resources such as fossil fuels become depleted, we must change to make use of alternative energy sources. Innovation that occurs over time can improve the size of the pie for everyone by making available more options.207 Put simply, the distinction between dynamic and static efficiency is particularly important for IP because IP is focused on innovation over time.

The problem of monopolies is another specific point that must be kept in mind when thinking about the ways markets work or don’t work within the context of IP. Because monopolies can create important inefficiencies, they have been the subject of substantial attention by both lawyers and economists. Indeed, the core purpose of antitrust law is “to root out unreasonable restraints of trade and transactions that substantially lessen competition or tend to create monopoly.”208 The central inefficiency associated with monopolies is the creation of dead weight loss by the monopoly’s ability to set price above marginal cost, or to have power over price.209 But, NIE suggests several reasons why the extent of this inefficiency may not be the same in practice as it is in theory.

First, monopoly is a term that relates to a market, not to any particular good or service sold in that market.210 There often is a difference between a product or service market and an IP asset. Consumers often buy computers that essentially involve the licensing of hundreds of licensed IP rights—for hard drive, processors, DRAM, other chips, etc—without acting as direct customers with respect to any of the IP owners.

While in a certain sense every property right can be thought of as a monopoly, only those that convey effective control over an entire market can have the troubling economic inefficiencies associated with monopolies. For example, the owner of a hypothetical piece of real estate Blackacre can exclude use of that particular parcel, but must compete with other parcels of land in the market for land generally. Indeed, while the amount of real estate in the world actually is limited by the surface area of the planet, unless it turns out that the scope of human intellectual content is presently so close to the limit of its full potential there is no reason to think that for IP the long run monopoly impact of a given property right is likely to be any worse than for real property; and instead it is likely to be much less. Nevertheless, in the short run for at least some goods or services the broad scope of some IP rights may convey what at least some would see as market power with respect to consumers having a particularly dire need—such as medical patients in need of a particular patented drug.

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209 This dead weight loss represents a collective loss of societal wealth, in that it is not merely wealth that has been shifted from consumers to producers but rather wealth that is altogether lost from producers and consumers collectively. The dead weight loss inefficiency associated with power over price is depicted graphically, and its etiology is explained in a manner targeted for a lay audience, in CHISUM, ET AL., supra note 1, at 60-66. To be sure, there are other inefficiencies associated with monopolies, including, for example, the rent dissipating effects that competition for monopoly profits may generate. See generally, Gordon Tullock, The Welfare Costs of Tariiffs, Monopolies, and Theft, 5 W. ECON. J. 224 (1967) (studying rent-seeking costs of monopoly). Yet, the rent dissipating effects of monopolies, like other rent dissipation, depends on several factors.

210 See, Illinois Tool Works Inc. v. Independent Ink, Inc., --- S.Ct. ----, 2006 WL 468729 (2006) (patent does not give rise to presumption that patentee has market power). See also, Kenneth W. Dam, The Economic Underpinning of Patent Law, 23 J.L. STUD. 247, 249-250 (1994) (“the right to exclude another from ‘manufacture use and sale’ may give no significant market power, even when the patent covers a product that is sold in the market”).
Second, the economic inefficiency that is associated with a monopolist’s power over price is not inevitable. More specifically, the inefficiency is tied to the potential for a decrease in quantity (not an increase in price) as compared with the perfectly competitive model. If the monopolist is able to engage in perfect price discrimination, then the quantity produced will be the same as if there were competition and while the price charged at least some consumers will be higher, there will be no dead weight loss inefficiency. While perfect price discrimination, like perfect anything, is not possible in the real world, the extent to which the monopolist can engage in price discrimination may mitigate the practical extent of the theoretical static inefficiency associated with monopoly dead weight loss.


A final problem that some think arises when property rights are used, especially when property rights in IP are used, is the problem Michael Heller termed the “anticommons,” and others term a “patent thicket.” This paper suggests that the anticommons problem really is not a problem of property rights and instead is a problem associated with using other types of barriers. From this perspective, the new anticommons literature can be viewed as in a sense at best providing merely another term for what previously have been known the problems of “permit thickets” and “license Raj” and at worst both facilitating monopolization and frustrating those aspects of property rights that work well for the private ordering and coordination that help increase access.

Heller’s contribution to the property literature regarding anticommons was originally based on his study of real property in the post-socialist economies of Eastern Europe, but he has also applied it to IP. As described by Heller:

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211 For those who are familiar with the graphical representation of the monopolist's dead weight loss triangle, an example of which is depicted in Chisum, et al., supra note 1, at 65, price discrimination allows the monopolist to convert what otherwise would be that dead weight loss triangle into being producer surplus instead.

212 For a basic overview of the economics of price discrimination, see Jean Tirole, The Theory of Industrial Organization 133-68 (1997). It is also recognized that in certain cases efforts to engage in price discrimination may lead to decrease in efficiency. For example, recent work by Wendy Gordon, Glynn Lunney, and Michael Meurer has shown that while price discrimination by IP owners might lead in theory to more use in certain instances, in practice some price discrimination strategies can result in less output than if such price discrimination were prohibited, depending, in part, on the licensing arrangements employed to discriminate among users). Wendy J. Gordon, Intellectual Property as Price Discrimination: Implications for Contract, 73 CHI.-KENT L. REV. 1367 (1998); Glynn S. Lunney, Copyright and the Supposed Efficiency of First-Degree Price Discrimination (2002) (working paper); Michael J. Meurer, Copyright Law and Price Discrimination, 23 CARDOZO L. REV. 55 (2001). However, as summarized by Richard Posner:

- Perfect price discrimination would bring about the same output as under competition, because no customer willing to pay the seller's marginal cost would be turned away. But perfect price discrimination is infeasible, and imperfect price discrimination can result in a lower or higher output than under competition, or the same output. See F.M. Scherer & David Ross, Market Structure and Industrial Performance 494-96 (3d ed. 1990); Paul A. Samuelson, Foundations of Economic Analysis 42-45 (1947); John Robinson, The Economics of Imperfect Competition 188-95 (1933). Many economists believe that even crude discrimination is more likely to expand than to reduce output, see, e.g., Robinson, supra, at 201; Scherer & Ross, supra, at 494-96; Peter O. Steiner, Book Review, 44 U. CHI. L. REV. 873, 882 (1977), but there does not appear to be a firm basis for this belief. See Hal R. Varian, Price Discrimination, in Handbook of Industrial Organization, at 597, 629-33 (Richard Schmalensee & Robert D. Willig eds., 1989).


Consider new areas for property law, such as the problem of spurring private investment in biomedical research or creating well-functioning markets in post-socialist economies. By drawing the wrong property boundaries around resources, by fragmenting ownership too much, it turns out that privatization can destroy resource productivity in enduring ways. To capture these unexpected results from excessive privatization, I have proposed the idea of anticommons property, an image that goes beyond the old trilogy [private, commons, and state] and crystallizes emerging real-world property relations that had previously remained invisible. [A] resource is prone to underuse in a tragedy of the anticommons when multiple owners each have a right to exclude others from a scarce resource and no one has an effective privilege of use. In theory, in a world of costless transactions, people could always avoid common or anticommons tragedy by trading their rights. In practice, however, avoiding tragedy requires overcoming transaction costs, strategic behaviors, and cognitive biases of participants, with success more likely within close-knit communities than among hostile strangers. Once an anticommons emerges, collecting rights into usable private property is often brutal and slow. I developed the idea initially from closely observing privatization in post-socialist economies. One promise of transition to markets was that new entrepreneurs would fill stores that socialist rule had left bare. Yet after several years of reform, many privatized storefronts remained empty, while flimsy metal kiosks, stocked full of goods, mushroomed up on the streets. Why did the new merchants not come in from the cold? One reason was that transition governments often failed to endow any individual with a bundle of rights that represents full ownership. Instead, fragmented rights were distributed to various socialist-era stakeholders, including private or quasi-private enterprises, workers’ collectives, privatization agencies, and local, regional, and federal governments. No one could set up shop without first collecting rights from each of the other owners.

Heller seems to suggest that what he terms “fragmentation,” or excessive numbers of rights holders, is key to the anticommons effect because the transaction costs of dealing with so many claimants will dominate. But fragmentation itself is not the key to the anticommons effect that is observed in post-socialist economies. What really drives the problem is the lack of what Alchian and Demstez call a “residual claimant.” To provide a brief summary definition at the outset, in the context of the anticommons problem caused by many holders of a right to respond “no” to requests for permission, a residual claimant is essentially an individual who is able to extract private value from such a request by electing to respond with a “yes.” But to more fully understand the nature of the issue, further elaboration is required.

As Buchanan and Yoon explain, there actually exists “a formal symmetry between the overusage of a resource because of common (multiple) access and the underusage because of multiple exclusion rights.” In highlighting this symmetry, they then point out that in both cases (commons and anticommons) the heart of the problem can be tied to the nature of the holders of the right (to use or exclude, depending on whether the tragedy is one of commons or anticommons). More particularly, according to Buchanan and Yoon, the problem lies in whether the holders have “noneconomic motivations” in that they are those who cannot or may not desire to, capture directly pecuniary gains,


216 See, Heller supra note 39, at 624 (arguing that when too many owners hold rights of exclusion in a resource, the resource is prone to under use). See also, Heller & Eisenberg, Anticommons supra note 215, at 700; Michael A. Heller, The Boundaries of Private Property, 108 YALE L.J. 1163, 1174-75 (1999).

217 See supra note 145.

Indeed, Buchanan and Yoon warn of the potentially pernicious impact in either case (commons or anticommons) of the “genuine zealot...[who] may be insensitive to proffered compensations.” Therefore, the concern Buchanan and Yoon highlight is that the crux of the problem for both commons and anticommons relates to the ability of those engaged in the group activity to coordinate with each other, but when the individuals have noneconomic motivations they are unlikely to so coordinate unless they happen to share some other coordinating attribute, such as being close-knit.

In contrast, as discussed previously, coordination is a central problem studied by NIE and one general response to coordination problems can be property rights. While at first blush given the way Heller presents the anticommons problem it would seem that property rights are more a part of the problem than a part of the solution, it turns out this just is not so. Property rights provide individuals with the economic motivation to engage in trades with each other. Indeed, the easier it is for the holder of a property right to engage in such a trade and the greater the value that the individual can extract from the trade (the greater the residual claim), the greater the motivation and ability the individual has to engage in it.

What actually drives the anticommons problem in the post-socialist economies is both the lack of residual claim and the lack of clarity and certainty that are associated with the pertinent rights of exclusion. Richard Epstein and Bruce Kuhlik begin the discussion by pointing out in response to the perceived anticommons problem relating to IP that one distinguishing feature of the anticommons in the post-socialist economy is that efforts by the bureaucrats to engage in open trading of their permission for personal gain are likely to trigger various forms of criminal liability for graft, bribery, public corruption, etc. But the differences are even greater than they indicate. In such a sequential bribe situation there is a greater degree of uncertainty that each bribe will either be needed or effective. This is in part because those being bribed can’t openly coordinate. It is also because some of those whose permission would be needed might not even be open to being bribed. They might justifiably be steadfastly acting to prevent an activity they see as bad. Alternatively, they may derive more benefit – perhaps sense of control or power or even just some other kind of perhaps perverse pleasure – from simply being able to say “no” than from what otherwise might be obtained in exchange for saying “yes.”

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219 Id. Buchanan & Yoon (citing the example of an environmental regulator whose permission is needed to put an asset to use but whose permission should not be bought). To be sure, without being motivated by direct pecuniary gains, a regulator may be economically motivated along the lines of the political favors discussed in the public choice literature.

220 Id.

221 Heller suggests the coordination benefits of being “close knit.” See text accompanying note 215, supra. See also supra Part II.B.1 (discussing the coordination benefits of norm communities).


223 The importance of certainty for facilitating private ordering is explored supra notes 196-206, and accompanying text.

224 See, e.g., Richard Epstein & Bruce N. Kuhlik, Navigating the Anticommons for Pharmaceutical Patents: Steady the Course on Hatch-Waxman, Chicago John M. Olin Law & Economics Working Paper (2d Series) No. 209, at 4 (“But the state bureaucrat is not the owner of any asset whose value will remain unlocked unless he brings it to market”); Nevertheless, individual regulators have incentives to try to extract such value, which explains the results of the empirical study of the public choice “tollbooth” theory of regulation discussed in the text accompanying notes 132-136 supra.

225 This would be consistent with the public interest view of regulation. For more on the public interest theory of regulation see supra text accompanying note 136.

226 Consider for example the well known childhood tease, or prank, in which a peer is offered a lick of an ice cream cone and then after inducing anticipation, but before delivery, the cone is withdrawn to prevent the lick, while the offeror utters “Gotcha!” or some more colorful equivalent.
The anticommons problem in the post-socialist environment – indeed the anticommons problem, period – is tied to the inability of those who hold rights of exclusion to negotiate openly for a way to extract value from a decision to give reliable permission rather than withhold permission or give faulty permission. There may be no residual claimant who can openly sell a “yes.” There may be no clarity about who to even approach to buy a “yes” or what to give in order to get a “yes.” There may be no certainty about whether a “yes” will even be effective. Therefore, there is a huge difference between the openly tradable nature of property on the one hand and the anticommons on the other hand.

Simply put, the anticommons problem can be seen as just another label for what Epstein earlier referred to as a “permit thicket.”227 Earlier still the problem was labeled in India, after the removal of British rule, which was also called “Raj,” where it was said that Raj had been replaced by “License Raj” in the form of excessive and unpredictable requirements for permits and licenses from the many branches of the central government in order to conduct many important business activities.228 In essence, the anticommons problem can be seen as a coin having two poisonous sides: the pernicious “permit thicket” or “License Raj” implications for taxing and retarding development on the one hand; and the “tollbooth” implications of extortion by agencies on the other hand.229

Another version of the anticommons problem for IP appears to be what some call the problem of “patent trolls.”230 The argument seems to be that “patent trolls” hold their patents neither for development nor for prospective licensing, but solely to holdup others who accidentally stumble in their path. To the extent the concern about trolls reflects anxiety about the uncertainty of the scope and validity of patents, as well as the high cost of patent litigation – both of which would provide potential opportunities for “trolls” to exploit even weak or low-value patents – then the problem can be best addressed using various tools for policing bad patents.231

But the pernicious impact of the troll is limited to a large extent by very practical economic factors. First, all patents are wasting assets in that they have a life capped at less than 20 years, and are subject to defenses based on laches and estoppel. Second, a decision to lie in wait causes the troll to lose income that would have to be recouped in the future. But just like in the context of predatory pricing, the promise of that future gain is risky.232 Indeed, just like a fallow plot of land may attract offers for development, so a patent posted on the PTO web page and searchable for free, as all are, provides sufficient information to attract anyone seriously interested in practicing the covered technology. A patentee who is not looking to sell or license is not beyond reach of those who wish to buy or license. Those set of economic forces on both parties help explain why, once the court made clear an injunction was imminent, even the infamously bitter litigation over the BlackBerry® service

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228 I thank participants in the faculty workshop held at Wolfson College, Cambridge University, June 28, 2004, for pointing out this term to me. For more on the problem of License Raj in India see, e.g., Jagdish N. Bhagwati, INDIA IN TRANSITION: FREEING THE ECONOMY 49-51 (1993) (discussing the system of permits and licenses needed in India for both outside investment and for internal economic development). See also, Emran, M. Shahe, et al., After the “License Raj”: Economic Liberalization and Aggregate Private Investment in India (2003) (available on-line at http://ssrn.com/abstract=411080) (same); Sunita Parikh & Barry R. Weingast, A Comparative Theory of Federalism: India, 83 VA. L. REV. 1593, 1608 (1997) (“This system, known in India as License Raj, means that the center retains control over the distribution of permits and licenses for new areas of economic development through the relevant central ministry”).
229 See supra notes 132-136, and accompanying text (discussing “tollbooth” theory of regulation in the context of agency capture and public choice).
230 See Brenda Sandburg, You may not have a choice. Trolling for Dollars (July 30, 2001) (available on-line at www.phonetel.com/pdfs/LWTrolls.pdf) (attributing the origin of the term to Peter Detkin, who at the time was counsel at Intel).
231 See, e.g., Kieff, Registering Patents, supra note 14 (suggesting a decrease in the presumption of validity as a tool for achieving symmetry in fee shifting between patentees and infringers).
settled before any disruption of service took place. What is more, the settlement price in that case is both significantly below independent estimates that reflect the holdout risk, and even more significantly below the licensee’s reserves of cash and cash equivalents.233

Indeed, the raw numbers suggest that one underappreciated element of the delay in settlement in that case may have been restrictions on the market for corporate control, not the problems of anticommons, patent thickets, or patent trolls. The actual settlement price suggests that the infringer either was acting rationally in holding out because of the uncertainty that there was going to be an injunction (in keeping with the view that property rules can encourage deals and liability rules can frustrate them), or it was acting irrationally in not closing a deal at such an attractive price – a price in line with market estimates and lower than its own private estimates as evidenced by the size of its reserves of cash and cash equivalents. If the market for corporate control were working better, there might have been enough gains to be had by settling the case sooner that a raider would have done a takeover, fired the leadership, and struck a deal with the patentee.234 Earlier settlement also would have saved more goodwill for the infringer, RIM, maker of BlackBerry®, which now has more competition.

III. NIE AND THEORIES OF IP

Because the conventional normative theories of IP – reward and prospect or rent dissipation – fail to address the helpful coordination effect explored above, the policy prescriptions they generate fail to facilitate the downstream access that can be achieved through such good coordination. What is more, by generally weakening IP rights, the prescriptions that flow from conventional theories only serve to facilitate the bad coordination that increases anticompetitive effect. The focus on coordination offered here helps explain why particular features of the positive law IP regimes of patent, trademark, and copyright are working and why others are not. This coordination view thereby can inform policy debates about which aspects of these regimes are best candidates for change.

A. Conventional IP Theories

Conventional IP theories are focused either on providing direct incentives as a tool for increasing access, or on controlling rent dissipation. Prior work by the present author has shown how both of 

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233 See, Mark Heinzl & Amol Sharma, RIM to Pay NTP $612.5 Million to Settle Blackberry Patent Suit, Wall St. J., March 4, 2006, at A1 (noting that settlement estimates ranged to above $1 billion and that infringer’s reserves of cash and cash equivalents were about $1.8 billion).

234 A quick calculation is instructive. The infringer in that case, RIM, is a publicly traded company whose stock price fluctuated over the year from a low of about 52, to a typical price around 63, and a high of about 88, a high that it almost immediately regained by the next business day after the settlement. The majority of the outstanding shares (191 million) were in the public float (141 million). If the entire public float were purchased in a takeover by offering a $10 premium over the prevailing price of 63, it would require about $1.4 billion over that price. This new controlling shareholder could then fire management and settle the case. If the settlement were at the estimated high level of $1 billion dollars, then that takeover investor would have invested a total of $2.4 billion over the prevailing price, plus perhaps another $100 million in professional fees and other costs for a total investment of $2.5 billion. If the price then jumped back to its year high after the settlement – which did occur – then this investor would see an increase in book value of about $3.5 billion, leaving a net gain of about $1 billion. If the deal were done as a leverage buyout using the shares themselves as collateral for a loan then the return on investment would hinge on the valuation used to support the loan, which would determine the size of the loan. If the valuation were set at the generally prevailing price then return on investment would be measured as a $1 billion dollar gain over an investment of $2.5 billion dollars, which yields the attractive floor for the rate of return at about 40%. If the valuation were set higher, then the rate of return would be higher as well. Of course, Wall Street’s regular raiders likely did the same math. The point here is that the reasons they may have elected not to dive in likely included anti-takeover provisions in the corporate documents themselves, as well as various regulatory restrictions on the market for corporate control that are designed to decrease takeovers.
these approaches fail to explain the positive law rules for at least obtaining IP rights in the case of patents. But as discussed in more depth below, an additional problem with these approaches is that following them when shaping the detailed institutional framework of the positive law regimes would not facilitate the good coordination that is effective in increasing access and would facilitate the bad coordination that is effective in increasing monopoly effects.

1. Conventional Majority View on Rewards

The majority view in the conventional law and economics literature on IP regimes in this country sees the role of the government as both providing targeted incentives to specific creative individuals to solve the public goods problem associated with intellectual works while at the same time endeavoring to increase access by mitigating the monopoly and transaction costs associated with the IP right to exclude. The concern driving this perspective is that the subject matter protected by IP will be under-produced because it is characterized by the Arrow Information Paradox, which is to say it has public good qualities or has positive externalities. Under this view, incentives to produce are provided through specific rewards for specific creative work. For example, patents are offered as incentive to invent; and copyrights as incentive to generate creative expression. Importantly, the literature does not see rewards merely as some kind of ancillary effect of IP; it sees reward as IP’s central goal. What is more, under this view, the reward and its recipient must be regulated carefully to mitigate monopoly effects and transaction costs. As summarized by Jack Hirshleifer and John Riley when discussing patents, for example, “[t]he central problem considered by modern analysts has been the conflict between the social goals of achieving efficient use of information once produced versus providing ideal motivation for production of

235 Kieff, Registering Patents, supra note 14.
236 See, e.g., Long, supra note 11, at 466 ("The conventional theory of intellectual property rights posits that such rights exist to stimulate the creation and distribution of intellectual goods") (citing Mark A. Lemley, The Economics of Improvement in Intellectual Property, 75 Tex. L. Rev. 989, 993 (1997) ("Intellectual property [rights are] fundamentally about incentives to invent and create."). Although there are a number of incentive-based theories for IP that are mentioned in the literature – including "incentive to invent", "incentive to disclose" or "teach," "incentive to innovate," and "incentive to design around" – there are essentially three dominant theories today: (1) some version of the "incentive to invent" and "disclose" theories treated together under the rubric of "reward," (2) the "prospect" theory; and (3) the commercialization theory. For a recent review of the patent literature on incentive theories and a collection of sources see CHISUM, ET AL. supra note 1, at 58-90 (reviewing various incentive theories for the patent system). See also, Rebecca S. Eisenberg, Patents and the Progress of Science: Exclusive Rights and Experimental Use, 56 U. Chi. L. Rev. 1017, at 1024-46 (1989) (same); A. Samuel Oddi, Un-Unified Economic Theories Of Patents – The Nat-Unqit-Holy Grail, 71 Notre Dame L. Rev. 267 (1996) (same). For recent reviews of the copyright literature on incentive theories and a collection of sources, see Glynn S. Lunney, Jr., Rereexaming Copyright's Incentives-Access Paradigm, 49 Vand. L. Rev. 483 (1996) (reviewing and collecting sources and suggesting that incentives may draw efforts away from other productive activities); Michael Abramovitch, Copyright Redundancy, George Mason Law & Economics Research Paper No. 03-03 (2003) (available on line at http://ssrn.com/abstract=374580 (reviewing and collecting sources and highlighting the opportunity cost issues discussed by Lunney as well as showing how additional works on the margin may contribute little while at the same time causing rent dissipation).

237 See, e.g., Stanley M. Besen & Leo J. Raskind, An Introduction to the Law and Economics of Intellectual Property, 5 J. Econ. Persp. 3, 8 (1991) ("The patent offers the incentive of the statutory right to exclude as a means for inducing creative activity."). Several types of regulatory responses to IP rights are generally justified by this concern. Examples include liability rule treatment, misuse, fair use, etc.
information.”

Although the reward literature contributes much to our understanding of IP, it has a number of serious limitations. One perspective is to see these theories as focusing on the role of government in providing both subsidy and regulation rather than in providing less invasive forms of intervention, such as setting rules and resolving disputes. That is, the government is seen as needed on the one hand to prop up potential holders of IP and then on the other hand to keep them in check. Another perspective is to see the reward literature as paying too much attention to direct incentives for creators, to monopoly power, and to transaction costs, all on only some settings, while paying remarkably little attention to these same issues in other settings, as well as overlooking a host of other important issues including, for example, coordination problems and public choice problems. Simply put, both sides of the incentive access paradigm are inapt: the incentive side because designing an IP system to provide direct incentives is imprudent, and the access side because property rights facilitate access.

One problem with the incentive side of the paradigm is that direct incentives are very sloppy in their effect. They achieve some beneficial effect; but at high cost. Focusing on providing direct incentives with rewards has limited need, has limited effectiveness, can’t be targeted, and has bad side-effects. Rewards have limited need because much of the desired activity may occur without added incentive of the reward. Rewards have limited effectiveness because much of the desired activity is prop up potential holders of IP and then on the other hand to keep them in check. Another perspective is to see the reward literature as paying too much attention to direct incentives for creators, to monopoly power, and to transaction costs, all on only some settings, while paying remarkably little attention to these same issues in other settings, as well as overlooking a host of other important issues including, for example, coordination problems and public choice problems. Simply put, both sides of the incentive access paradigm are inapt: the incentive side because designing an IP system to provide direct incentives is imprudent, and the access side because property rights facilitate access.

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In the real world, many externalities turn out to be irrelevant to efficient allocation of resources. See, DAVID D. HADDOCK, IRRELEVANT EXTERNALITIES, IRRELEVANT EXTERNALITIES, AND IRRELEVANT ANXIETIES, Northwestern University School of Law, Law & Economics Research Paper Series Research Paper No. 03-16 (2003) (available on-line at http://papers.ssrn.com/abstract=437221) (providing examples and models and citing James M. Buchanan, & William Craig Stubblebine, Externality, 29 ECONOMICA 371 (1962). For example, in the case of positive externalities, such as the pleasure a visually aesthetic garden brings to many of those passersby who happen to see it regardless of whether they contributed to its upkeep, the keeper of the garden has managed to fund its creation and maintenance without reaping specific contributions from those passers by. For other examples of such irrelevant positive externalities see Bernstein & Nadiri, Interindustry R&D Spillovers, Rates of Return, and Production in High-Tech Industries, 78 AM. ECON. REV. 429 (1988) (finding that, in recent years, social rates of return significantly exceeded private rates of return in five high-tech industries). The positive externalities the passersby enjoy have not prevented the good from being produced. In economic terminology, these uses are said to be “inframarginal,” as opposed to “marginal,” HADDOCK, at 24 (“Transaction cost for collective goods—even those demonstrably enjoyed by millions—are chronically overestimated in policy discussions. Only one or a few strong demands often determine both actual and ideal provision, and even two million demands are irrelevant if inframarginal.”). While the possibility of capturing some benefit from these users of the garden may be a factor a garden planner might consider when making decisions about how to fund the garden creation and maintenance processes, those gains would have to be weighed against the costs of such metering techniques. Indeed, many such externalities are found in the real world effectively to be irrelevant to decision-making because a sufficiently small number of individuals having sufficiently great interest in the externalities are able to engage in sufficient private ordering for the appropriate amount of the desired activity to take place.


239 Glynn S. Lunney, Jr., Reexamining Copyright’s Incentive-Access Paradigm, 49 VAND. L. REV. 483 (1996) (reviewing the incentive access-paradigm and highlighting an additional cost of IP is the opportunity cost of deploying resources towards IP that could instead have been deployed elsewhere).

240 For example, individuals may be driven by self-satisfaction, search for knowledge, reputation, etc. Indeed, although the positive shift in 1980 to allow patents in basic biotechnology did lead to some increase in amount of inventive activity being done in the field, the amount before was still quite substantial. This is not surprising given that in a field with large number of people having sufficient creative ability working to solve a problem it is likely the solution will be found. See JACOB SCHMUCKLER, INVENTION AND ECONOMIC GROWTH 215 (1966). For more on the norms of science and the incentive they provide towards discovery see, e.g., Robert K. Merton, The Role of Genius in Scientific Advance, NEW SCIENTIST, Nov. 2, 1961, at 306.
not responsive to additional incentive.\footnote{Id., at 1-2 (citing Buchanan \& Stubblebine \textit{supra}). This means that in many cases things that generate positive externalities would be made anyway, whether that positive externality is fully internalized to the producer or not.} Even to the extent that rewards to have a beneficial effect, it is very hard to correlate the amount of reward and the merit of the awarded activity, especially in a way that is predictable to all players \textit{ex ante}.\footnote{This may be because the activity is only responsive to alternative inducements such as self-satisfaction, search for knowledge, reputation, etc. See, e.g., Besen \& Raskind note 237, at 6 ("Another critical element in deciding how to strike the balance between encouraging innovation and dissemination is the extent to which creative activity responds to economic rewards. The less that innovation depends on the resources invested and the potential economic rewards, the more limited is the case for granting substantial rights to creators.").} Most importantly, efforts to achieve even such sloppy reward effect have serious costs. One that is well recognized in the literature is that the social costs of investments made to get rewards may be greater than the social value of the activity rewarded.\footnote{On the one hand, for example, empirical works by Steven Shavell and Tanguy van Ypersele and by Michael Kremer have shown that at least for patents the patentee often does not receive the full social surplus created by the patented invention. See, e.g., \textit{Shavell \& van Ypersele, Rewards Versus Intellectual Property Rights, supra} note 139, at 1-8; See, e.g., \textit{Michael Kremer, Patent Buy-Outs: A Mechanism for Encouraging Innovation} 1-5 (National Bureau of Econ. Research Working Paper No. 6304, 1997). Social surplus is the amount of total social welfare generated by the invention minus the costs of making the invention, such as research by the inventor and the inventor's competitors. Social welfare is the aggregate value of all utility that individuals obtain from the invention. On the other hand, for example, there are important difficulties in developing a just deserts as a basis for government to allocate any reward among potential claimants, whether the reward is a patent or cash. See Kieff, \textit{Commercializing Inventions, supra} note 14, at 713-14, n. 77.} Indeed, this has spawned the minority view in the conventional law and economics literature on IP regimes in this country, which focuses on rent dissipation, as discussed below.\footnote{This may be because they may trigger rent dissipation. A related concern over the opportunity cost associated with the efforts made towards winning the reward. See Lunney \textit{supra} note 239 (discussing role of opportunity costs).} But one cost of rewards that is underappreciated in the literature is tied to the importance of understanding the relationship between the reward and the activity being rewarded. This matters because it would inform determinations about how to set the reward in practice. If set too low, then there may be insufficient positive response. If too great, the marginal excess may generate too little marginal positive response or may generate too many negative side effects.\footnote{For more on rent dissipation within the context of IP see \textit{infra} Part III.A.2.} While simple metrics such as too big or too small may turn out not to matter, at least some dimension of the reward will matter and yet the reward theories offer no guidance as to how to set the reward along that dimension, whatever it may be. This problem is described as "screening" in earlier work by the present author and its resolution is one of the strengths of any IP theory focused on coordination: such theories turn out to have great explanatory power for the positive law rules governing when valid IP rights are available.\footnote{For example, too little positive response might occur because those responding to the rewards might have decreasing marginal desire or ability to respond. Similarly, for example, too many negative side effects might occur if the opportunity costs of the resources being spent responding are too high or if their rent seeking costs are too great.} 

\textit{Commercializing common view in the literature as assuming a one-to-one correlation.} As a result, while on the one hand seeing the transaction costs of property rights as an obstacle to the cumulative nature of intellectual endeavors, the reward theories overlook that this very cumulative nature makes it remarkably difficult to allocate merit among various contributors to an intellectual endeavor. For example, in the model offered by Shavell and van Ypersele, the reward is determined by looking to market demand, \textit{Shavell \& Tanguy van Ypersele, supra} note 139, yet they do not suggest how to disaggregate demand for licenses to intermittent windshield wiper technology used in cars, for example, from the demand for cars. Put differently, "[e]very market having large demand would generate droves of reward claimants each asserting to have made some contribution." Kieff, \textit{Commercializing Inventions, supra} note 14, at 713. What is more, "no market participant would have an adequate incentive to provide the government with information relating to [the validity of the reward]." \textit{Id.} Only in the rare cases of two individuals claiming to have invented the
Some of the reward theorists suggest techniques for solving some of the problems of determining the reward while at the same time mitigating the monopoly power and transaction costs problems associated with the IP property right by suggesting as alternatives to IP rights various forms of cash reward, prize, buyout, or subsidy. These reward or prize proposals are each more ingenious than the other in developing methods for finding, at least on average and in theory, the “right” price for rewards. And while Michael Abamowicz provides extensive analyses of many of their shortcomings, for several of these he also provides potential solutions.

But there are at least two central problems with these approaches. First, they trigger their own high transaction costs. While their strength is in using market forces to generate better information with fewer public choice problems than the simple Pigouvian subsidies that were the target of criticism in the treatment by Coase and Demsetz of the externality problem, they rely on their own extensive government-mediated collateral markets for IP auctions, buy backs, etc., which themselves will be costly to operate. Second, even the best case for these proposals sees them only as adjuncts to the IP system, not as complete replacements, precisely because they are all premised on IP acting first as a coordination tool to some extent.

Therefore, the most serious cost of rewards, which is almost totally overlooked in the literature, is that rewards themselves fail to facilitate coordination of the type needed to increase downstream development and access. Reward systems assume, but do nothing to facilitate, this type of coordination.

What is more, the reliance of even reward systems on some initial coordination is instructive because it highlights the reason why the access side of the incentive-access paradigm is similarly inapt. The access problems associated with property can be mitigated more effectively than the access problems associated with avoiding property.

The reward literature places great emphasis on the risk that the right to exclude associated with property rights in IP will lead to insufficient access to the subject matter protected by IP essentially because of the potential monopoly distortion and transaction costs associated with the IP right to exclude. But, as explored below in the discussion of the commercialization theory and its implications for these and other social costs in the context of IP, the reward theory concerns about these costs are in a sense both overstated in that the costs are not as great a feared and understated in that property rights can be essential for mitigating them. In addition, any approach that avoids property rights, whether or

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247 For an excellent review of these proposals including in-depth critiques see Michael Abamowicz, Perfecting Patent Prizes, 56 VAND. L. REV. 115 (2003). For convenience, these proposals can be summarized in very brief form as follows: (1) patents are bought out by the government with prices informed by test marketing (Robert C. Guell & Marvin Fischbaum, Toward Allocative Efficiency in the Prescription Drug Industry, 73 MILBANK Q., June 1995, at 213); (2) awards are given in the place of patents with the amount of reward set by later developed data from actual demand (Shavell & Tang & van Ypersele, supra note 139); (3) patents are bought out with prices informed by probabilistic auctions (Kremer, supra note 242); (4) subsidizing purchases of subject matter covered by patents as a tool for improving effectiveness of price discrimination by patentees (Douglas Gary Lichtman, Pricing Prizes: Why the Government Should Subsidize the Purchase of Patented Pharmaceuticals, 11 HARV. J.L. & TECH. 123 (1997)); and (5) the use of retrospective prizes in exchange for efforts to decrease monopoly effects of patents (Abamowicz, Perfecting Patent Prizes).

248 See Abamowicz, Perfecting Patent Prizes, supra note 247.

249 See, e.g., Id., at 115 (ultimately concluding that its proposal “would complement rather than replace the patent system”).
not such an approach includes rewards, triggers its own access problems that are tied to a lack of coordination.

2. Conventional Minority View on Rent Dissipation

The minority view in the conventional law and economics literature on IP regimes in this country, which focuses on rent dissipation, also fails to facilitate access while potentially increasing anticompetitive effect. The rent dissipation view of IP is premised on the concern about excessive and improper rent seeking on the part of those seeking a government-provided benefit like a patent. The theory was first explored by Edmund Kitch in his 1977 piece on what he called the prospect theory of the patent system, which builds upon work by Yoram Barzel and others, and argues that the use of property rights in the form of IP rights like patents could avoid or mitigate the rent dissipating effect otherwise associated with those rewards.250 A similar view of IP called the rent dissipation theory was offered by Mark Grady and Jay Alexander in 1992, which focused on harnessing the IP owner's control power over downstream users to coordinate what otherwise would be competing efforts.251 The thrust of the prospect or rent dissipation approach is premised on the view that that property rights can facilitate coordination among competing users of a target asset so as to avoid overuse of other assets in the race to obtain the target.252 Kitch suggests that patents operate similarly as a tool to decrease both pre-patent and post-patent rent-seeking.253 The prospect and rent dissipation theories of IP make important contributions by elucidating the ways that property rights can facilitate coordination among competing users of an asset so as to avoid over use of other resources. It seems from the literature that patents may indeed have this net beneficial impact in the real world to some extent.

Nevertheless, prior works by the present author and Michael Abramowicz have explored in some depth several serious shortcomings of the prospect and rent dissipation approaches to IP.254 By way of summary these include: that a number of factors mitigate rent dissipation effects in practice; that rent seeking for prizes has countervailing positive effects in the case of innovation because there is not a single or even a practically limited number of prizes.

But most importantly, the prospect and rent dissipation theories fail to provide a way to use the social cost lessons of prospecting to design legal rules for obtaining patents that can operate ex ante to mitigate the social costs of prospecting.255 This final problem is so important because ex ante predictability is essential both for facilitating the private ordering of the property owner and those with whom it contracts, and for mitigating the information costs of third parties.256 In addition, leaving these

251 Mark F. Grady & Jay I. Alexander, Patent Law and Rent Dissipation, 78 VA. L. REV. 305, 305-310, 316-322 (1992) (going further than the building upon the prospect theory by suggesting that the particular contours of the positive law rules for obtaining and enforcing patents are and should be adapted to minimize rent dissipation both pre patent and post patent).
252 Kitch supra note at 256 (citing Barzel supra note 141).
253 Id. See also Grady & Alexander supra note 251.
254 Kieff, Registering Patents, supra note 14, at 63-66 (pointing out limitations in prospect and rent dissipation theories and citing, among other sources, Michael Abramowicz, Copyright Redundancy, supra note 236, at 10-18 (collecting sources and showing how each of these factors may operate to mitigate rent dissipation effects)).
256 See id. at 67-68 (discussing importance for facilitating private ordering). In addition, as Henry Smith has pointed out, property rights can be and should be structured so that they impose sufficiently modest information processing costs on third parties who must evaluate and understand them enough to respect them by avoiding infringement. Henry F. Smith, The Language of Property: Form, Context, and Audience, 55 STAN. L. REV. 1105, 1108, 1114-15 (2003) (“If everyone in the world is expected to respect an owner's right to Blackacre, the content of that right cannot be too complicated or idiosyncratic without placing a large burden on many third parties.”) (“the correlation between extensiveness of the audience and mandated unintensiveness of legally significant communication holds in a variety of areas beyond land law, including patent law,
decisions to *ex post* determination within the broad discretion of government agencies or courts will inevitably favor the large established players over market entrants. Although the capture problem is tied to agencies, a related problem arises before courts where the outcome of such a broad discretionary inquiry so often, as it has in the past for IP, leads simply to most victories being won by the large established players who are better able to finance protected litigation than market entrants. Finally, as explored earlier, the work by Anderson & Hill in the NIE literature itself has taught that an effective way to avoid rent dissipation effects is to allow the residual claimants of a property right to define it when staking it out, a technique that at least the present patent and trademark systems presently follow.

3. Conventional Views on Anticommons, Anticompetitive Effects, and Public Choice

What is perhaps most disturbing about the conventional literature on IP is that it seems to get the anticommons, anticompetitive effects, and public choice concerns essentially backwards. That is, through public choice problems the government responses generated by these concerns of liability rule treatment and regulation are themselves likely to generate true problems of anticommons and anticompetitive effects. Indeed, the anticompetitive effects are achieved because the bad type of coordination is facilitated – coordination among existing players not among those interested in forming market entrants. Public choice problems have, at least until recently, almost entirely escaped attention in the IP literature. Nevertheless, public choice problems do matter and should be considered because they are linked inextricably to government action, and so must be weighed as countervailing considerations to the extent regulation is offered as an alternative to IP.

To begin the public choice analysis of IP it is may help to begin with the legislative origins of the present positive law IP regimes, which at least hint at reasons to think the public choice problems may be greater in some areas than in others. Through what may have been mere historical happenstance, the basic framework of the present patent and trademark regimes both grew out of a concerted effort about
the same time, the 1940’s, by the same bar association, the New York Patent Law Association.261 Focused not on any particular set of clients, owners or infringers, because the drafters typically represented both, but rather on drafting a coherent system, these efforts produced institutional frameworks that generally cohere and as a result are effective and efficient at achieving their core goal, which is commercialization.262 This seeming purity in the drafting of these regimes has not persisted. For example, the overhaul to the statutory regime governing the interaction between patent law and Food and Drug law called the Hatch-Waxman Act263 was very much a collective bargaining process that raises a host of public choice, administrative, and market power problems.264 Similarly, the basic statutory scheme for the present copyright regime grew out of a classic public choice bargain among large interest groups. These groups have regularly returned to the legislative process to re-shape the framework and reach new compromises each time technology or other factors sufficiently have changed the interests of those groups.265 While such an approach does do a reasonable job integrating into the statute many of the collective preferences of those present in the negotiations at that time, it does less well integrating concerns of others, or even of the same parties at later times.266 Further research might compare the operative legislative histories of these different regimes to determine the reasons why they seemed to have taken such different approaches and led to such different results.

A related public choice problem with IP – and indeed with the creation of any types of property rights or other benefits available from the government – is the rent dissipation problem studied by


\[\text{\footnotesize{262 The point here is not that these statutes are perfect. The drafters of these statutes, like all human beings, are characterized by human foibles including, for example, behavioralism. Rather, the point is that because of the way they were organized during the drafting process, the individual incentives they each faced happened to be more consistent with their efforts being directed towards drafting a statute that coherently achieved the coordination function to which they had subscribed than with their efforts being directed towards helping any one class of client. At a minimum, they were largely isolated from public choice pressures.}}\]


\[\text{\footnotesize{264 See, e.g., FTC report entitled “Generic Drug Entry Prior to Patent Expiration” (July 2002) (describing problems with Hatch-Waxman Act and collecting sources). While getting interested constituencies together to negotiate a statute sounds attractive, as the basic economics of the drafting constituencies' businesses change over time due to changing technologies, norms, etc., it should not be surprising that each iteration of the legislative bargain often will be too intensely focused on responding to prior allocations. That is, there is a lag between the change in technology and the change in economics and a subsequent lag between the change in economics and efforts to renegotiate the legislative bargain.}}\]

\[\text{\footnotesize{265 See generally, Jessica Litman, Digital Copyright, 23, 135-63 (2001) (reviewing “unique” public choice history of copyright and explaining how since 1909 all but two of the frequent revisions to copyright law were essentially written by collective bargaining among some of the impacted industries and citing the following as the only two exceptions: (1) The Computer Software Copyright Act of 1980, Sec. 10, Pub. L. No. 96-517, 94 Stat. 3015, which revised Section 117 to expressly extend copyright protection to computer programs on the recommendation of the Commission on New Technological Uses of Copyrighted Works (CONTU), a committee of experts focused on copyrights in computer software; and (2) The Fairness in Music Licensing Act of 1998, Sonny Bono Copyright Term Extension Act, Pub. L. 105-298, 112 Stat. 2827, which amended Section 110(5) to limit the number of institutions required to pay performance royalties for nondramatic musical works)). See also, Niels Schaumann, Intellectual Property Symposium: The Impact of the United States Supreme Court on Intellectual Property This Millennium, 30 WM. MITCHELL L. REV. 1617, 1619, n.8 (citing same two exceptions). Even these two revisions that putatively did not emerge directly from interest group pressures may themselves have been driven by concerns for interest groups. For example, I thank Mike Meurer for pointing out the interest Congress may have had in appearing to be sensitive to the needs of small restaurants and coffee shops when passing The Fairness in Music Licensing Act of 1998. See also, David Nimmer, Codifying Copyright Comprehensively, 51 UCLA L. REV. 1233, 1281 (arguing that the statute “smacks of special interest legislation for the benefit of a defined class”).}}\]

\[\text{\footnotesize{266 In part this is a race to the bottom story and so does not argue that such a process will always yield this bad result but rather it explains how one contributing factor may have played a role in this case.}}\]
Anderson & Hill that can come when each particular right is created.\(^{267}\) As they point out, this problem can be mitigated if the potential owners of the rights are able to tailor them at the time of creation.\(^{268}\)

But the public choice problems in IP have extended beyond the legislatures to the agencies and the courts. For example, when decisional frameworks in IP have been left open to \textit{sui generis} determination, as opposed to being guided by applicable statutory framework, courts and agencies have acted swiftly to eviscerate IP.\(^{269}\) Even if any of market power, transaction costs, anticommons, or behavioralism is a concern that ought to drive regulation of IP, the central problem that public choice adds to the mix, and one which is often overlooked by the literature, is that too often these concerns have been invoked in particular cases to restructure particular arrangements \textit{ex post} for the benefit of one particular constituency or set of constituencies.\(^{270}\) For example, the recent trend by the Federal Trade Commission and Department of Justice Antitrust Division to pursue actions against patentees on so-called “upstream” technologies in the name of mitigating problems of market power, transaction costs, and anticommons problems, may be evidence of agency capture that both frustrate market entry and upset private ordering overall, as all players in the market realize over time that terms like “upstream” and “downstream” are so relative that they simply may be synonyms for “things to be bought” and “things to be sold” by any private party able to gain the agency’s attention.\(^{271}\) Only if the government actions called for in the literature were to eliminate IP or to regulate it through revisions to statutory or regulatory decisional frameworks that were sufficiently predictable, would these types of public choice problems be potentially mitigated, including their negative impact on \textit{ex ante} incentives and private ordering.

If in any given case a party may invoke concerns about market power, transaction costs, anticommons, or behavioralism as a justification for avoiding IP, then we should not be surprised to see many cases in which parties make precisely such charges, successfully. These concerns are of course important, and prior work by the present author has shown how that can be used to inform a set of positive law rules for determining validity that can operate in a relatively predictable manner based on facts knowable to both plaintiffs and defendants \textit{ex ante}, thereby facilitating private ordering.\(^{272}\) But the rub is that having used those concerns to shape the positive law regimes that guide decisions going forward, they should not then be available for use in a one-off basis to re-work decisions \textit{ex post}.\(^{273}\)

\(^{267}\) See Anderson & Hill, \textit{supra} note 143, at 443 (showing how less centralization in the definition and enforcement property rights helps to improve efficiency by avoiding rent dissipation).

\(^{268}\) Id.

\(^{269}\) Examples in the patent context include the agency and court decisions to prohibit patents in software and modern biotechnology, which were finally reversed by later court decisions. See, Diamond v. Diehr, 450 U.S. 175, 187 (1981) (“A claim drawn to subject matter otherwise statutory does not become nonstatutory simply because it uses a mathematical formula, computer program, or digital computer.”) and Diamond v. Chakrabarty, 447 U.S. 303, 309–18 (1980) (holding living organisms not \textit{per se} unpatentable).

\(^{270}\) For at least the computer software example, the public choice story has been infamously demonstrated on two occasions. The first involved the decision in Gottschalk v. Benson, 409 U.S. 63 (1972) (holding software to be not eligible for patent protection). The second involved the decision in In re Alappat, 33 F.3d 1526 (1994) (en banc) (reversing Patent Office decision to re-constitute its internal Board of Appeals to hold a rehearing before a specially-packed Board designed to reject the patent on a type of software). Some suggest the problems of agency capture and improper political influence may be playing out in the most recent iteration of the Blackberry® dispute – the reexamination of the patents in that suit. See, e.g., Patents/Reexamination: NTP Charges Misconduct in PTO’s Review of Patents in Blackberry Dispute, 72 PTCJ 52 (May 19, 2006).


\(^{272}\) See Kieff, \textit{Registering Patents}, \textit{supra} note 14.

\(^{273}\) See Kieff & Paredes \textit{supra} note 271.
What is most troubling about the concerns expressed in the literature about market power, transaction costs, anticommons, or behavioralism, is that no attempt is made to suggest a decisional framework for determining *ex ante* when these concerns will be enough to trigger government action. This leaves open the possibility of a return to the time when the decisional framework by courts was so obtuse that either no IP right could satisfy them,274 or so unpredictably able to be satisfied that the effective value of all impacted IP rights simply collapsed towards zero.275

What may be worse than effective elimination of IP,276 is that the nature of IP may be changed through this public choice mechanism so that it entirely favors established big players in the industry who are able to bring best public choice pressure and at the same time actually hinders competition and market entry. There is at least some evidence this is already happening.

Consider what might be called a “keiretsu” strategy for dealing with IP. The term “keiretsu” refers to the large conglomerates in Japan,277 where patent system is well known to be replete with large numbers of essentially weak patents and devoid of strong patents.278 Fears about transactions costs of litigation and conflict aside, the keiretsu might actually prefer to have a system like this exactly because it makes it easy to have large numbers of skirmish battles while avoiding the threat of death blows. While large numbers of skirmish battles do have high transaction costs, they also buy a great deal. First, they allow the battling keiretsu to communicate with each other in a way that may be more forthright than a direct conversation, they solve a trust problem. Seeing where an opponent will spend resources to fight can communicate more than can a direct conversation about what territory is most coveted. Second, they allow the battling keiretsu to communicate with each other in a way that may be more protected from antitrust review than a direct conversation, they solve an antitrust problem. The taking of one territory while yielding up another through a set of court battles will more easily escape antitrust scrutiny – and also would more easily mitigate the damages awarded if any antitrust action were brought and won – than would a direct conversation to divide these territories. Third, having large numbers of patents can be a simple tool for extracting a higher price after regulatory interventions because in the large antitrust actions brought against large patentees, like the IBM litigation,279 the amount the regulators allow the companies to charge is often based in part on the simple total of the number of patents in its portfolio. But what is essential to this keiretsu model is that only weak patents be available. The

274 For example, the test for patentability has at different times become so rigid for some courts that no patents were held valid within their jurisdiction. The standard had become so vague and yet so difficult to satisfy throughout the U.S. by the early 1940’s that Justice Jackson remarked “[T]he only patent that is valid is one which this court has not been able to get its hands on.” Jurgensen v. Ostby & Barton Co., 335 U.S. 560, 572 (1949) (Jackson, J., dissenting). Even after the statute was amended in response to these cases, the problem persisted in the Second Circuit as late as the 1960’s. See Gerald J. Mossinghoff, *Side Bar: The Creation of the Federal Circuit*, in *Chisum et al. supra* note 1, at 30, 30-31 (former Patent Office Commissioner Mossinghoff recounting that during the confirmation hearings for then-Second Circuit Judge Thurgood Marshall’s nomination to the Supreme Court, Judge Marshall responded to a question about patents by saying “I haven’t given patents much thought, Senator, because I’m from the Second Circuit and as you know we don’t uphold patents in the Second Circuit”).

275 This is in effect the “permit thicket,” “License Raj,” or true anticommons problem discussed earlier. See supra Part II.C.5.

276 Elimination of IP may not even be bad. The commercialization theory would embrace a decision to eliminate IP if it turned out that the commercialization benefits were outweighed by the costs of the system. The analysis offered here suggests reasons why that is not expected to be the case but the ultimate question is an empirical one not answered here.


278 The terms weak and strong are somewhat vague but the general idea is that the patents are either given very narrow scope and so are easily avoided or they are enforced with what amounts to liability rule treatment. For a general overview of the Japanese patent system see Toshiko Takenaka, *The Role of the Japanese Patent System in Japanese Industry*, 13 UCLA Pac. Basin L.J. 25 (1994) (collecting sources).

availability of a strong patent would be great for market entrants – it would give a David Co. an effective slingshot against a Goliath Inc.\textsuperscript{280}

This keiretsu strategy is at least consistent with the recent explosion of antitrust regulation for IP. In October, 2003, after conducting a year of joint hearings with the Department of Justice’s (“DOJ”) Antitrust Division “to develop a better understanding of how to manage the issues that arise at the intersection of antitrust and intellectual property law and policy,”\textsuperscript{281} the Federal Trade Commission (“FTC”) issued a report of over 300 pages that appears to represent only the patent portion of only its own (not the DOJ’s) conclusions and recommendations.\textsuperscript{282} Many of the important recommendations of the report would make it so the present U.S. patent system would only have weak patents.\textsuperscript{283} Interestingly, the recommendations in the FTC Report closely correlate to data recently gathered and reported by Iain M. Cockburn of the Boston University School of Management and the National Bureau of Economic Research and Rebecca Henderson of the Massachusetts Institute of Technology’s Sloan School and also of the National Bureau of Economic Research.\textsuperscript{284} This information was gathered from a survey conducted in the late summer of 2002 of senior intellectual property managers at large companies and was sponsored by the Intellectual Property Owners Association. This close correlation between the recommendations in the FTC Report and the results of the survey is consistent with the view that some leaders in the field think the agency “got it right.” But this data does not speak to whether the agency “got it right” in the view of the same people at a different time or other people situated differently, such as those who work in small and medium-sized businesses, or those who endeavor to approach the issue without any specific client with a present specific agenda in mind. Indeed, the close correlation between the views of large patent holders and the FTC Report is totally consistent with a public choice agency capture story and only support the perception that the recommendations of the FTC Report will lead to a more keiretsu-like approach for the U.S. patent

\textsuperscript{280} See infra note 441 and accompanying text.


\textsuperscript{283} For example, the proposed changes on nonobviousness, utility, subject matter, economic impact, more involved examination, and deference, would expose small and medium-sized patentees to the concentrated public choice pressures that have repeatedly injected these pernicious judge-made and agency-made laws into our system over the past 100 years. For more on the FTC report see FTC Report, supra note 282, at 10–17 (Recommendations 3–6, 8–10). But see, Kieff, Registering Patents, supra note 14 at 122, n.291 (discussing FTC Report). Similarly, the proposed changes on increased funding would at worst raise the same objections and at best simply lead to waste because the information needed to determine validity over the prior art is more inexpensively provided by private parties in litigation. Id. at 74–98. The proposed change to give prior user rights for parties who infringe claims that are disclosed in a published application but not actually added to the claims portion of a patent application until after publication should be avoided because they would totally pervert the nuanced and smooth interaction between patent law’s disclosure rules and the notice function of patents. Lastly, the proposed requirement for written notice or deliberate copying before a patentee could win enhanced damages for willful infringement should be avoided because they would make the patent right more like a liability rule and less like a property rule in ways that particularly favor bigger parties.

\textsuperscript{284} The author is grateful to Iain and Rebecca for generously sharing the results of their data. Interview with Iain M. Cockburn, Professor of Finance and Economics, Boston University School of Management, in Boston, Mass. (Nov. 11, 2003).
system than ever before, in which large players could regularly trade large numbers of weak patents with each other while market entry is frustrated.

At bottom, public choice problems are an important countervailing consideration to the regulatory proposals suggested throughout the reward literature in response to concerns about IP, including concerns relating to power over price, transaction costs, anticommons, or behavioralism. In the comparative institutional analysis, the question to always consider is not merely whether a particular problem can be fixed, but rather, all things considered, the state of affairs in general is improved by following the particular prescription to fixing that particular problem.

B. Commercialization Theory, Coordination and Social Costs

The commercialization theory and its component registration theory are explored at some length within the context of patents in earlier works by the present author, and so only an overview is provided here, along with a discussion of newer implications and applications. The commercialization theory of IP views IP rights backed by property rules as important tools for facilitating the downstream commercialization of the subject matter that is protected by IP rights, after that subject matter has been made. This downstream commercialization requires coordination among the many complementary users of the IP subject matter including developers, manufacturers, laborers, managers, investors, advertisers, marketers, etc. Providing a focal point, or beacon, the publicly recorded IP right helps each of these individuals to find each other and then by cracking the Arrow Information Paradox otherwise facing them, helps them negotiate with each other. At the same time, therefore, IP rights facilitate the creation and maintenance of both diversity and socialization among individuals within the market by providing these diverse individuals with incentive and means for coordinating with each other. In addition, as studied by the registration component of the commercialization theory, the positive law rules for determining when a valid IP right may be obtained protect reasonable investment-backed expectations (and thereby decrease the risk of asset specific investments and opportunism) by making sure that the right to exclude does not block activities individuals otherwise are doing, and they do so with relatively low administrative and public choice costs. In this regard, the commercialization and registration theories are essentially two components of the coordination view explored here.

What is perhaps most striking about the commercialization theory given that it is not either the majority or the minority views within the conventional literature on the law and economics of IP, is that as a matter of historical fact, it was the central motivation behind the framing of at least the present patent system, the 1952 Patent Act, as well as part of the motivation behind the present trademark system, the 1946 Lanham Act. Moreover, while the commercialization theory is discussed by the

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286 See, Kieff, Commercializing Inventions, supra note 14, at 707-712 (discussing commercialization role of patents).
287 Id. (discussing these many players and their incentives to interact).
288 See Kieff, Registering Patents, supra note 14, at 99-100 (pointing out that the publicly recorded patent documents help coordinate commercialization by giving notice of the property right over wish bargaining or avoidance can occur). Compare, Richard A. Epstein, Notice and Freedom of Contract in the Law of Servitudes, 55 S. Cal. L. Rev. 1353 (1982) (proposing “that under a unified theory of servitudes, the only need for public regulation, either judicial or legislative, is to provide notice by recordation of the interests privately created”).
289 See, Kieff, Commercializing Inventions, supra note 14, at 710 (discussing importance of property right for encouraging “holder of the invention and the other players in this market to come together and incur all costs necessary to facilitate commercialization of the patented invention.”).
290 See Kieff, Registering Patents, supra note 14, at 76-98 (pointing out that the prior art rules for patents protect investments by third parties with low administrative and public choice costs).
291 Id., at 736-747 (reviewing the central role of the commercialization theory in the history of the framing of the 1952 Patent Act, which provided what essentially remains as our present patent system, by the same group that had only soon before framed the Lanham Act, which essentially remains as our present trademark system).
conventional literature, it is often misperceived in at least two ways. First, the theory is often misperceived on its own terms. Second, the solutions it offers for many of the problems generally identified with IP rights often are overlooked. Both types of misperceptions are discussed below.

1. Correcting Conventional Takes on Commercialization

The focus of the commercialization theory is on the incentives for diffuse individuals to decide individually to act in a way that ends up being coordinated. While rewards may provide an incentive to act to the individual reward recipient, rewards do little compared to property rights to bring that individual together with all other complementary users to engage successfully in the complex commercialization process. Regrettably, this simple mechanism of the commercialization theory’s coordination function is often misunderstood in the literature in several respects.

First, the link between the commercialization theory and the prospect or rent dissipation theories often is confused. Put simply, the commercialization theory focuses on the ability for IP to coordinate efforts among complementary users of the asset to increase (or avoid insufficient) use of resources, whereas prospect theory focuses on the ability for IP to coordinate efforts among competing users of an asset to decrease (or avoid excessive) use of resources. Therefore, efforts to respond to the prospect and rent dissipation theories’ concerns about overuse (rent dissipation) are inapposite to commercialization theory.

Second, the link between the commercialization theory for IP and the theory of property rights, generally, is often overlooked. That is, much of the conventional literature overlooks the coordination function in its entirety and simply lumps the property rights aspects of the prospect theory by Kitch with the property rights aspects of the work by Demsetz on internalizing externalities. But as

292 Kieff, Commercializing Inventions, supra note 14, at 707-712 (discussing role of patents in coordinating complementary users of an invention so as to facilitate inventions commercialization).

293 Id. Compare the focus on providing direct incentives to the holder of the IP rights under the reward theories. See, e.g., Lemley, supra note 11, at 130 (discussing role of IP as an “incentive the right gives the owner”). For more on reward theories, which focus on such direct incentives, see supra Part III.A.

294 See, e.g., Lemley supra note 11, at 141, n. 42 (referring to commercialization theory as “elaboration” of “prospect” theory). In addition, unlike the prospect and reward theories, the commercialization theory, and its companion registration theory, has explanatory power for the positive law rules of the of the IP legal institutions.

295 See supra note 287, and accompanying text (elucidating the basic coordination function of the commercialization theory). See also Kieff, Registering Patents supra note 14, at 62-66 (discussing prospect and rent dissipation theories in relation to commercialization theory). For game theory examples of the formal link between the role property rights can have in these two different settings – described in that paper as racing games and mating games – see Dale T. Mortensen, Property Rights and Efficiency in Mating, Racing, and Related Games, 72 AM. ECON. REV. 968 (1982). One additional point about rent dissipation that bears mentioning is that it also teaches something about the coordination theory of property. More specifically, what is often overlooked in the view of property rights as tools for internalizing externalities is that the free rider, tragedy of the commons, and positive externalities problems each can be thought of essentially as an inverse of the problem of rent dissipation. The problems of free riding, commons, and positive externalities refer to cases in which individuals within a group decide not to invest in a given activity for fear that others will benefit but not compensate and as a result too little of the activity is produced. The problem of rent dissipation refers to a case in which individuals within a group decide to invest in a given activity for fear that others will do the same and win the race for the common prize and as a result too much of the activity is produced. In both sets of cases, the failure to coordinate leads to inappropriate amounts of the given activity being conducted.

discussed in Part II.A, property acts as a tool for facilitating coordination among complementary users of the assets protected by IP in a way that is not explored in the early Demsetz work or in the work by Kitch but is explored in the work by the present author on the commercialization theory.\(^{297}\)

Third, the commercialization theory also has been confused erroneously with the work of Schumpeter in being focused on the IP holder’s assertion of control.\(^{298}\) While the commercialization theory is focused on who will have an incentive and ability to negotiate with whom, it is agnostic on the question of who will end up controlling those negotiations. In fact, control will be a function of a great many factors other than who owns the patent. For example, the parties’ relative wealth effects, bargaining positions, negotiating skills, other resources, holdout prices, alternative options, etc., will each impact the bottom line issue of control. In a world in which each market player may bring its own skill sets, patent sets, technology sets, and other assets and opportunities to bear on development of a particular patented subject matter, the end result of who will control subsequent development and use of that subject matter is unclear, and indeed is left to the market and private bargains. For this reason, for example, the concern raised by Robert Merges and Richard Nelson about control by the owner of an IP right that they consider to be too broad is also overstated.\(^{299}\) The mere fact that a particular IP right is broad does not mean that its owner will control negotiations with others in that same technology. In this regard, the coordination function of IP is distinct from the two extremes of open competition on the one hand and control on the other hand. The IP right facilitates coordination among both competing and complementary users of the asset without determining who will control in any given case. The commercialization view of IP focuses on the importance of IP backed by a property right as a tool for facilitating such a division of labor and other forms of specialization.

Fourth, the importance the commercialization theory places on the distinction between \textit{ex ante} and \textit{ex post} may be confused by the different use of those terms recently by Mark Lemley.\(^{300}\) Under the commercialization theory, for IP to serve the commercialization function, the rules about how IP can be obtained and enforced must be knowable to all market actors \textit{ex ante}, in advance of their decisions about whether to act. This means that regulation and liability rule treatment may be suspect to the extent they have the effect of re-writing agreements or changing rules \textit{ex post}.\(^{301}\) When used in this context, the terms “\textit{ex ante}” and “\textit{ex post}” are used in their general sense, which is different than how they are used in the recent work by Mark Lemley.\(^{302}\) Lemley uses the term “\textit{ex ante}” in a special narrow sense to refer to the time period before any specific creative work is made.\(^{303}\) Similarly, he uses the term “\textit{ex post}” in a special narrow sense to refer to a time period after any specific creative work is made.\(^{304}\) The commercialization theory relies on the term “\textit{ex ante}” in the more general sense to refer to a time period before any given act occurs, with a focus on the importance of predictability. For example, this view of \textit{ex ante} would focus on the period before the textured contracting needed to facilitate commercialization

\(^{297}\) See Kieff, \textit{Commercializing Inventions supra} note 14.

\(^{298}\) See, e.g., Lemley \textit{supra} note 11, at 139, n. 35 (discussing role of patentee as coordinator due to the control exerted through the patent and citing Kieff \textit{supra} note 14 and \textit{Schumpeter}, \textit{supra} note 78). See also Lemley at 140 (suggesting that when the government assigns the IP right it is effectively selecting who will have “control over an area of research and development rather than trusting the market to pick the best researcher”).


\(^{300}\) See Lemley, \textit{supra} note 11.

\(^{301}\) For a discussion of a number of such \textit{ex post} changes and the problems they present see Kieff & Paredes, \textit{supra} note 273.

\(^{302}\) See Lemley, \textit{supra} note 11.

\(^{303}\) Id. at 130.

\(^{304}\) Id.
takes place. Similarly, it relies on the term “ex post” in the more general sense to refer to a time period after any given act occurs, again with a focus on predictability. For example, this view of ex post would focus on the period after the contracting has taken place. That is, as these terms are used for purposes of the commercialization theory, the focus is on the ability for private actors to predict a legal result before deciding whether, or how, to act on any specific issue. Under the commercialization view of IP, predictability ex ante is essential in facilitating private ordering.

Fifth, some have suggested that “if patent law’s concern is to ensure commercialization of inventions, then it is both overinclusive and underinclusive.” The point is well taken, as far as it goes; but it may not account for the full reach of the commercialization theory. On the question of overinclusiveness, Abramowicz points out that “sometimes first-mover advantages will outweigh second-mover advantages.” This is correct. But only where a sufficient number of the complementary users of the asset believes ex ante that this is the case with sufficient conviction to take on the coordinating role will coordination so easily take place without the property right. This can and likely does happen. But the point of the commercialization theory is that IP rights can make it easier for this to happen in many more settings. On the question of underinclusiveness, Abramowicz points out the need for commercialization of subject matter that does not meet the positive law rules for IP protection. But point of the registration component of the commercialization theory of IP is that the positive law rules for obtaining IP are normatively important for protecting the reasonable investment backed expectations of potential commercialization efforts by third parties. Put simply, these positive law rules about IP validity are essential for making the IP system work well. The extent to which they leave behind some subject matter is a reason to explore the use of other tools to help coordination in those areas, such as perhaps the firm, or maybe the government. IP does not solve all problems and it is only offered as an additional tool for helping to solve some.

2. Commercialization’s Overlooked Solutions

The commercialization theory also provides several overlooked solutions for the underlying problems often associated with IP. These include the problems of transaction costs, anticompetitive effect, and access.

The commercialization theory sees the IP right backed by the credible threat of an injunction as playing an essential coordinating role for all the players in the commercialization process. Those wishing to buy title to or permission under the IP right must negotiate with the IP holder. As long as the existence of the IP right and the identity of the IP holder are readily discernible, each of the putative
participants in the commercialization process will have an individual incentive to seek out and negotiate with that person, and through that person with each of the others.\textsuperscript{311}

While the reward literature in particular has emphasized the concerns about output restrictions, or problems of access, the below discussion points out why such concerns are significantly less severe than perceived and indeed why in some cases property rights may be essential for mitigating them. It also shows why the concerns about government and public choice must not be overlooked as well as the ways in which these problems either can be magnified or mitigated by particular aspects of positive law IP regimes. As a result, it shows several aspects of the present positive law regimes that are candidate for change because they only exacerbate the problems of anticompetitive effect and access. As discussed above in the context of reward theories, much of the literature on IP rights is consumed with concerns about limiting the potential monopoly power associated with property rights in IP.\textsuperscript{312} But actual empirical data is inconclusive on whether, for example, patents have been used to facilitate cartel behavior.\textsuperscript{313} Although a dominant concern of the reward literature on IP is that IP rights can confer power over price of the type generally associated with monopolies, the connection this literature draws between IP and monopolies in essence is backwards in several respects. That is, as discussed below, IP rights often just do not confer monopoly power; and yet they can be essential anti-monopoly weapons – their availability can serve as an effective anti-monopoly vaccine for a market.

IP rights often do not confer monopoly power in large part because there is rarely a one-to-one correlation between any particular IP asset and a market.\textsuperscript{314} In addition, IP rights face competition from alternative technologies, extant and potential.\textsuperscript{315} At bottom, for example, even a patent on the better mousetrap faces competition from existing spring and glue traps, the threat of future traps, and, of course, cats.\textsuperscript{316}

What is more, IP rights can facilitate market entry, at least so long as they are backed by property rules. As a result, they can be powerful anti-monopoly weapons.\textsuperscript{317}

For example, the commercialization theory suggests that if meaningful IP rights had been available in the computer software industry in the 1970’s and 80’s,\textsuperscript{318} by the time of the Microsoft antitrust suit the industry likely would have been characterized by a medium number of medium-sized players rather than a single large player.\textsuperscript{319} “According to Judge Frank, in this context the David Co. v. Goliath, Inc., competition is dependant upon investment in David Co., which will not occur unless it is armed with the patent slingshot.”\textsuperscript{320}

As another example, consider the impact on competition of the 1980 shift in positive patent law that opened patents to the field of modern biotechnology. Only in the U.S. and only since 1980 have patents been available in modern biotechnology.\textsuperscript{321} While the U.S., Europe, and Japan each had large

\textsuperscript{311} See supra notes 67-68, and accompanying text (discussing transitive nature of these interactions).
\textsuperscript{312} See supra Part III.A.
\textsuperscript{313} See, C.D. Hall, Patents, Licensing, and Antitrust, 8 RES. L. & ECON. 59 (1986).
\textsuperscript{314} See Kieff, Commercializing Inventions, supra note 14 at 729-731 (reviewing reasons why IP rights confer insufficient market power to be monopolies and collecting sources).
\textsuperscript{315} Id.
\textsuperscript{316} See CHISUM, ET AL., supra note 1, at 61 (providing an overview).
\textsuperscript{317} Kieff, Commercializing Inventions, supra note 14 at 744 (discussing role of IP rights as anti-monopoly weapons).
\textsuperscript{318} Patents were not available because of judge-made exceptions to patent law that had crept into the law in the late 1960’s. The utilitarian nature of the industry made it an unlikely candidate for benefiting in the anti-monopoly sense from copyright and trademark protection.
\textsuperscript{319} Id. (giving example of computer software industry as one in which the putative monopoly power of Microsoft was correlated with a time of no meaningful IP protection in that industry).
\textsuperscript{320} Id. (citing Picard v. United Aircraft Corp., 128 F.2d 632, 643-44 (2d Cir. 1942) (Frank, J. concurring)).
biotechnology companies often collectively called “Big Pharma” before 1980 and still have them after 1980, only in the U.S. and only since 1980 has the biotechnology industry also included a steady pool of roughly 1,400 small and medium-sized companies that is also consistently turning over.

In addition, the gains IP rights offer for competition and market entry across markets at any one time as well as across time offset the potential for individual dead weight loss in cases where an IP right truly conveys a monopoly in some point in time for some market. In part, this point here is tied to the distinction between dynamic and static efficiency, which is to say that the static inefficiency associated with monopoly dead weight loss may be outweighed by the dynamic efficiency gains associated with innovation and entry.

What more, IP rights can and often do operate to facilitate price discrimination, which can mitigate the dead weight loss efficiency considerations of monopolies. That is, the use of property rights in IP is also consistent with another basic work by Demsetz in which he demonstrated that (1) private producers can produce public goods efficiently given the ability to exclude nonpurchasers and (2) price discrimination is consistent with competitive equilibrium for such public goods. Indeed, because of the doctrines of indirect infringement, IP rights facilitate price discrimination through tying in a great many more cases than otherwise, including for example where tying is not facilitated by technological constraints.

At bottom, while IP rights do give some power over price and therefore are associated with some dead-weight loss in theory, the actual monopoly effects of IP are overstated and the anti-monopoly

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323 Id. at 47. At the same time, both Europe and Japan have demonstrated technological capacities in this industry that are comparable to the U.S. In addition, both Europe and Japan have comparably developed capital markets and even if they didn’t businesses could operate in Europe and Japan while still having access to the capital markets in the U.S.

324 See supra note 207, and accompany text (pointing out the importance of exercising restraint for certain forms of antitrust enforcement designed to protect static efficiency so as to facilitate innovation and promote dynamic efficiency).

325 See supra note 212, and accompanying text (discussing role of price discrimination in mitigating output-restricting effects of monopolies).

326 Kieff, Commercializing Inventions, supra note 14, at 727 (citing Harold Demsetz, The Private Production of Public Goods, 13 J.L. & ECON. 293 (1970)). See also supra notes 211-212, and accompany text (discussing price discrimination as limit on monopoly power).

327 Id., at 727-730 (exploring use of IP rights as tools for facilitating price discrimination). See also Kieff & Paredes, supra note 273 at 9-11 (pointing out that the diverse contracting that is allowed facilitates both price discrimination and coordination among complementary users). There are several aspects of the positive law IP regimes that facilitate complex and contacting of the type that can both facilitate coordination and decrease output distortions of a property right. For example, the work for hire doctrine in copyright law helps concentrate ownership in the result of a complex production process. As another example, the provisions of Section 271 of the Patent Act insulate patentees from fear of liability for misuse which allows patentees to elect to sue or license anyone would otherwise be liable for direct infringement, induced infringement, or contributory infringement. See 35 U.S.C. § 271(a)-(d). See also Kieff, Commercializing Inventions, supra note 14, at 736-38. Before the 1952 Act, courts had used the misuse doctrine to erode the ability for intellectual property owners to price discriminate or engage in restricting licensing. Section 271(d) expressly states that such conduct shall not be misuse. See also Dawson Chem. v. Rohm and Haas Co., 448 U.S. 176 (1980) (recognizing impact of Section 271(d) and its reason for inclusion in the 1952 Patent Act). To be certain this was clear, Congress acted again in 1988 by adding subparts 4 and 5 to Section 271(d) of the Patent Act to expressly provide that neither a refusal to license nor a tying arrangement in the absence of market power is patent misuse. See 35 U.S.C. § 271(d)(4-5) (added by Pub. L. No. 100-703, 201, 102 Stat. 4676 (1988)). The trademark regime allows similar contracting but because the need to make commercial use of the subject matter protected by trademarks is less compelling than for patents – since functionality is a bar to trademark protection – the impact of any remaining distortion caused by market power is less severe. That is, there is still the potential for static economic dead weight loss, but the alternative moral claims about output effects are mitigated.
benefits of IP are overlooked. In the real world, the benefits of this type of market power for capital formation and dynamic competition must be weighed against its theoretical cost in the form of static dead-weight loss. Indeed, the lessons of the literature on second-best and the basic comparative institutional analysis of NIE are that there are many reasons why it may be prudent to avoid letting anti-monopoly concerns drive us to respond too aggressively to every occasion of power over price. In this sense, for example, the reward literature’s concern over mitigating monopoly effect of IP can be seen as unduly exalting static efficiency over dynamic efficiency.\(^{328}\)

While the commercialization theory sees the nature of IP as a right backed by the credible threat of an injunction to be the core benefit of IP in providing coordination, it recognizes that this coordination requires transactions. But transactions have both good and bad components to them, and as do their realistic alternatives, and one lesson of NIE is to engage in comparative institutional analyses.

One of the central focuses of the reward theories is on the transaction costs associated with IP compared to a commons.\(^{329}\) Thus, it is appropriate to compare the transaction costs of exchanges over property rights in IP against the transaction costs of exchanges over what otherwise would be the subject matter of IP but instead were within a realistic commons, such as the putative commons of basic academic knowledge.\(^{330}\) Prior work by the present author has shown that even this so-called “commons” is riddled with its own form of less commercial but nonetheless important property rights known informally as “kudos,” which include more personal and less fungible assets generally associated with academic and public sectors such as reputational benefits, fame, promotions, awards, titles, etc.\(^{331}\) A comparative institutional analysis reveals why for exchanges in that setting of a putative commons compared with the same setting having added IP rights, the transaction costs of exchanges are likely to be worse without IP than with IP because IP brings increased wealth and diversity to that market.\(^{332}\) One of the lessons of NIE explored earlier is that transaction costs are likely to be more pernicious in thinner markets than in thicker markets,\(^{333}\) and the use of IP thickens the market.\(^{334}\) As also discussed earlier, recent work by Buchanan and Yoon adds to this analysis by pointing out that exchanges in such a commons also are more likely to fail because of what they call the “non-economic motivations” associated with such assets.\(^{335}\) Put simply, there are reasons to think that transaction costs are likely to be higher for a commons compared to for IP, and recent empirical work by John Walsh, Charlene Cho, and Wesley Cohen did not find transaction costs problems associated with patents in basic science, essentially

\(^{328}\) See, e.g., Stan J. Liebowitz & Stephen E. Margolis, WINNERS, LOSERS & MICROSOFT: COMPETITION AND ANTITRUST IN HIGH TECHNOLOGY (1999) (showing that truly inefficient outcomes are extremely rare instead that even situations of serial monopoly may be the best available in reality).

\(^{329}\) See supra Part III.A (discussing reward theories and their incentive-access paradigm).

\(^{330}\) See supra note 81 (arguing that IP rights impose greater transaction costs than the basic scientific norms in the open “commons” of academics); Rebecca S. Eisenberg, Proprietary Rights and the Norms of Science in Biotechnology Research, 97 YALE L.J. 177 (1987) (exploring the potential negative impact of patent rights on scientific norms in the field of basic biological research); see also, e.g., Rebecca S. Eisenberg, Patents and the Progress of Science: Exclusive Rights and Experimental Use, 56 U. CHI. L. REV. 1017 (1989) (exploring an experimental use exemption from patent infringement as a device for alleviating potential negative impact of patent rights on scientific norms in the field of basic biological research); Rebecca S. Eisenberg, Public Research and Private Development: Patents and Technology Transfer in Government-Sponsored Research, 82 VA. L. REV. 1663 (1996) (offering preliminary observations about the empirical record of the use of patents in the field of basic biological research and recommending a retreat from present government policies of promoting patents in that field); Heller & Eisenberg, Anticommons, supra note 215 (arguing that patents can deter innovation in the field of basic biological research).

\(^{331}\) Kieff, supra note 82.

\(^{332}\) Id.

\(^{333}\) See supra notes 160-161, and accompanying text.

\(^{334}\) Kieff, supra note 82, at 703-4.

\(^{335}\) See supra note 219, and accompanying text.
because potential infringers engaging in low value uses were simply being allowed to infringe with approval, albeit tacit, from patentees.\textsuperscript{336}

Somewhat related to the concerns over transaction costs in the reward literature are similar concerns about behavioralism. More specifically, in response to concerns about behavioralism leading to failures in transactions over IP rights, commentators have called for regulation of IP rights through the imposition of liability rule treatment and greater antitrust enforcement.\textsuperscript{337} To be sure, like all actors in the real world, IP owners are not perfectly rational. That is, people are only boundedly rational in that they suffer cognitive biases, framing effects, employ heuristics, etc.\textsuperscript{338} On the one hand, identification of behavioralism concerns does suggest reasons to be skeptical about the ability for individuals actually to achieve for themselves what is in their own best interest, and behavioralism has justified resort to liability rules, regulation, immutable contract terms, etc. On the other hand, the individuals the government will use to affect these responses – legislators, regulators, and judges – are, of course, human beings, too, and so will also suffer the limits of behavioralism.\textsuperscript{339} What is more, to the extent these government decisions will be to occur \textit{ex post}, they will interfere with \textit{ex ante} incentives. Finally, regulation brings with it the inevitable costs of government, including the tollbooth and rent-dissipation problems of agency capture, as well as the real concomitant problems of permit thickets, License Raj, or anticommons; and as discussed below these indeed can be real problems within the context of IP.

Ironically, much of the recent literature advocating enhanced regulation of IP rights is tied to anticommons concerns.\textsuperscript{340} But these concerns are misplaced for several reasons.

In contrast to the real anticommons problem of the post socialist economy discussed earlier, an IP owner extracts private value from the IP right to exclude use by openly trading permission for use in exchange for money or other consideration.\textsuperscript{341} As discussed earlier the economic motivations associated with such “residual claims” are precisely what mitigate anticommons concerns.\textsuperscript{342} While an IP owner may have some incentive to suppress the subject matter protected by IP, this incentive is countered by the uncertainty that higher untapped value may lie in wait.\textsuperscript{343} Put simply, the resulting social value of IP rights is that they encourage their owners and others with whom the owners can coordinate to discover and market methods for pushing use towards the full competitive level so the IP rights will not create anticommons problems, in biotechnology, software technology, or even for more mundane technologies like nails and screws.\textsuperscript{344} Indeed, recent empirical work by Ronald Mann has found that even in the controversial area of business method patents, there turns out not to be any serious “patent thicket” problem.\textsuperscript{345}

\textsuperscript{336} John P Walsh, et al. \textit{View from the Bench: Patents and Material Transfers,} 309 \textit{Science} 2002 (2005). Based on the reasoning explored here and in prior work by the present author, this result was expected. Kieff, supra note 82 at 704-05.


\textsuperscript{338} \textit{See supra} Part II.C.3 (reviewing behavioralism problems).

\textsuperscript{339} \textit{See} Paredes, \textit{supra} note 174 (pointing out countervailing behavioralism problems for government actors, as well as public choice problems, and collecting sources).

\textsuperscript{340} \textit{See}, e.g., Heller & Eisenberg, \textit{Anticommons,} supra note 330 (initiating literature on anticommons for IP); Kieff, \textit{supra} note 118.

\textsuperscript{341} That is, the IP owner may either actively license the IP to someone else who will in turn sell the subject matter protected by the IP, or the IP owner itself may sell the subject matter protected by the IP, which sale would include an implied license to the IP for its buyers. \textit{See} Kieff \textit{supra} note 321.

\textsuperscript{342} \textit{See supra} notes 217-222, and accompanying text.

\textsuperscript{343} \textit{See} Kieff \textit{supra} note 14 at 726 (commercialization risk and potential for future development provides incentives to license broadly).

\textsuperscript{344} \textit{See} Kieff, \textit{Pursuing Property Rights in DNA,} supra note 341.

Interestingly, the realization that IP rights do not trigger anticommons concerns does suggest that it is worth pushing on the analogy to real and personal property rights and ask whether it makes sense for IP to be time-limited.\footnote{I thank Bruce Owen at the Stanford Institute for Economic Policy Research for suggesting this exploration. Conversation with Bruce Owen February 25, 2004. Lemley seems to suggest this notion offhandedly but does not explore it, and indeed seems critical of it. See Lemley supra note 11, at 131 (suggesting commercialization view may support “perhaps unlimited duration” for IP rights).} Patents, copyrights, and trademarks are each time-limited to some extent,\footnote{By statute, patents expire after 17 years, on average (20 years from filing, and examination takes three years, on average). For a brief discussion of the change from a 17 to 20 year patent term, see CHISUM, ET AL. supra note 1, at 898-900. Also by statute, copyrights expire after a time certain. 17 U.S.C. § 302 (2000) (life of the author plus 70 years for works by individual authors, or the shorter of 95 years after publication or 120 years after creation for works made for hire, anonymous works, and pseudonymous works). Trademarks last only so long as the mark is used in commerce in a consistent fashion.} but property rights in real and personal property do not simply expire. Recent work by William Landes and Richard Posner has suggested a regime in which IP rights might be infinitely renewable; under their proposal the default for failure by the IP owner to act is that the IP passes into the commons.\footnote{William M. Landes and Richard A. Posner, Indefinitely Renewable Copyright, 70 U. CHI. L. REV. 471 (2003).} The commercialization benefits of IP suggest that it might be worth considering why the default position is commons, rather than continuing status as property. When owners of personal and real property are negligent custodians of their assets, the default position is not that they fall into the public domain, but rather that they remain the subject of private ownership. To be sure, the original owner typically loses title, but ownership itself is not destroyed and indeed is most often essentially put up for auction.\footnote{Foreclosure sales, and tax sales are the most common type, but even adverse possession can be thought of as a type of auction open for bidding by the first to become adverse possessor. See supra notes 307-308 and accompanying text.} Perhaps IP, too, should be left the subject of private ownership and merely put up for auction if left sufficiently fallow. Indeed, perpetual ownership in IP would help solve the problem noted earlier that the commercialization view otherwise is underinclusive by not encompassing works that are old, but not commercialized.\footnote{Indeed, trademark rights already are potentially unlimited in duration, so long as they remain in consistent use. See In re DC Comics, Inc., 689 F.2d, 1042, 1046–55 (CCPA 1982) (opinions by Judges Rich and Nies concurring in result and reviewing the life-cycle of a trademark – beginning with initial use and ending only with abandonment or genericness); see also Daphne Leeds, Trademarks – The Rationale of Registrability, 26 GEO. WASH. L. REV. 653, 666 (1958). For patents and copyrights, the term may be limited by the language of the constitutional grant of power under which these regimes are presently promulgated, wherein Congress is given the power 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. U.S. Const., Art. I, Sec. 8, Cl. 8. In contrast the trademark laws are promulgated under the general Commerce Clause power of Article 1 that is now recognized to be quite expansive. Compare In re Trade-Mark Cases, 100 U.S. 82, 95 (1879) (holding trademark laws to be improper exercise of Commerce Clause power because they regulate activity that is not sufficiently interstate) with Wickard v. Filburn, 317 U.S. 111 (1942) (holding that even growing wheat for personal consumption in one’s own back yard has sufficient nexus to interstate commerce that it may be regulated by Congress using Commerce Clause power). Thus, the patent and copyright could be similarly viewed as at least within Constitutional power if passed pursuant to the same commerce clause power. For an interesting recent treatment of this option see Thomas B. Nachbar, Intellectual Property and Constitutional Norms, 104 COLUM. L. REV. 272 (2004).} Implementing perpetual IP would not be conceptually difficult.\footnote{Some may suggest that surrender also should occur if the IP owner fails to either practice the subject matter covered by the IP or license the IP for someone else to practice. But it is not clear that such an approach would be good. The relative restrictive power of a property right in real or personal property is not commensurate with the relative restrictiveness of a property right in IP. The relative restrictive power of a property right in real or personal property is not commensurate with the relative restrictiveness of a property right in IP. See supra notes 307-308 and accompanying text.} IP owners could be required to maintain updated records in a central filing office so anyone thinking they can put the IP to higher and better use will be able to initiate negotiations at low cost. If the records are not kept (and perhaps a fee to cover their maintenance at a central office not paid), then the IP would be condemned and put up for auction. Some may suggest that surrender also should occur if the IP owner fails to either practice the subject matter covered by the IP or license the IP for someone else to practice. But it is not clear that such an approach would be good. The relative restrictive power of a property right in real or personal property is not commensurate with the relative restrictiveness of a property right in IP. See supra notes 307-308 and accompanying text.
property is greater than that in IP (at least in the long run) because the total subject matter protectable by real and personal property is limited – there is only so much stuff and real estate available in the world – while the total subject matter protectable by IP rights has a limit that is not even known. Only to the extent we think we are approaching the limit of knowable IP subject matter – inventions, creations, and symbols – is the restrictive power of IP potentially as great in the long term dynamic sense as it is for real and personal property. Importantly, perpetual property rights in real and personal property is the norm precisely because we think that best allows for private actors to consistently evaluate and shift real and personal properties towards their highest and best use. Just as an empty plot of land is not automatically transferred into a commons for lack of use, perhaps neither should IP be left to the commons. And just as concerns about transaction costs or anticommons do not allow the user of a plot of land to elect not to treat the claims of labor and suppliers as undue and thereby avoidable when building on that plot, such concerns perhaps should not worry those wishing to use subject matter covered by IP.

One reason why extended term for IP may be problematic has nothing to do with transaction costs and anticommons but rather with coordination and commons. The concern is that over time there may become fragmentation of ownership. This is less of a problem for real and personal property than it is for IP. Real and personal property may have private value to co-owners absent cooperation by other co-owners, as long as there is not too much interference by the co-owners. For example, one owner may still play baseball on a co-owned empty lot without active cooperation from the other co-owners. Because IP only includes the right to exclude, not the right to use, a co-owner may not sue to enforce that right without joining in the lawsuit all other co-owners. Inaction by a co-owner is tantamount to a free license to the world.

In the end, the idea of perpetual ownership for IP certainly requires further consideration before adoption. The point of raising it here is because it is helpful in elucidating the implications of the commercialization theory in operation. The focus of commercialization is making sure that all of the different complementary users of the IP subject matter can coordinate with each other. It sees the role of IP as the focal point, or beacon, that brings these diverse actors together. At bottom, what provides them with incentives to indeed come together is the identification of this beacon as a right to exclude combined with its exchange attributes: residual claim, tradability, enforceability, and private information.

3. Example: Introducing a Case against Copyright

To provide one example of how the coordination approach offered here could inform practical policy discussions about how positive law rules could be shaped going forward, the below sketch provides a coordination-focused review of one IP regime, the copyright system. Even to the extent the copyright system does provide benefits in the form of direct incentives, or otherwise, the analysis explored in this paper suggests some reasons to question whether the system could do significantly

The prior work by the present author incorrectly agreed with concerns in the reward literature about transaction costs and anticommons concerns. Kieff supra note 14, at 734-735 (expanded term may exacerbate anticommons problems). But it also suggested that increasing term might trigger commons problems of the very type IP and commercialization are designed to avoid:

Indeed, the possibility of fragmented ownership presents a particular problem for [IP]. The [IP] right is only a right to exclude, not a right to use. In addition, each co-owner of a patent can decide not to exclude third parties, by giving a partial assignment or license, without accounting to any other coowner. As a result, an assignment by a co-owner will dissipate the entire value of the patent for all other owners. For this reason, it is well recognized that co-ownership in patents can create a tragedy of the commons.

Id. at 735 (citing ROBERT PATRICK MERGES, PATENT LAW AND POLICY 1228-36 (2d ed. 1997)).

See, Schering Corp. v. Roussel–UCLAF SA, 104 F.3d 341, 345 (Fed.Cir.1997) (“one co-owner has the right to impede the other co-owner’s ability to sue infringers by refusing to voluntarily join in such a suit.”)
better. More particularly, as discussed in more detail below, several elements of the system fail to facilitate coordination of the type helpful for market entry. As a result, even if these elements of the copyright system have benefits, the extent to which they frustrate coordination for entry is a factor that cuts against changing the system further in their direction.

The below outline is designed to point out ways in which coordination of the type helpful to market entrants is frustrated by elements of the copyright system. The system’s prevalence of uncertainty and of liability rule treatment frustrate private ordering. Its reliance on immutable rules create for market entrants extremely high transaction costs in the form of either contracts that courts won’t enforce or in the form of antitrust liability. The combination of these effects leaves consumers frustrated over lack of access and the threat of criminal liability. The discussion also points out that the beneficial coordination that a copyright system might provide, can at least to some extent be provided in other ways.

One reason for copyright’s problems, as mentioned previously, is that the basic statutory scheme for copyrights grew out of a classic public choice bargain among large interest groups and these groups have regularly returned to the legislative process to re-shape the framework and reach new compromises each time technology or other factors sufficiently have changed the interests of those groups.\(^\text{354}\) The central problem with such an approach is that as the basic economics of the drafting constituencies’ businesses change over time due to changing technologies, norms, etc., each iteration of the legislative bargain often will be too intensely focused on responding to prior allocations. That is, there is a lag between the change in technology and the change in economics and a subsequent lag between the change in economics and efforts to renegotiate the legislative bargain.

A second reason is that copyright is famously difficult to understand, even for business actors within the system.\(^\text{355}\) Even though copyright involves assets over which private parties are more informed than government actors (and so property rules dominate liability rules) the system employs a host of liability rules, as well as exceptions to infringement (such as fair use and home recording for self use and for distribution to friends and family) and exceptions to those exceptions (such as the \(^\text{Napster}\) case holding liability for sharing with peers where done over the internet).\(^\text{356}\) Even the rules on validity and scope of copyright itself are comparatively murky.\(^\text{357}\) What is more, unlike for patents and trademarks, they essentially are set through the central regime rather than by the individual claimants, and therefore are most likely to be associated with rent-dissipation.

A third reason is that evolved rules on preemption and misuse leave property owners at least unclear as to what coordinating deals can be struck, if not certain that important deals cannot be struck.\(^\text{358}\) That is, taking the strong form of the preemption arguments at face value would suggest that efforts to sell songs through services like i-Tunes® under contracts limiting subsequent distribution may be trying to impose acceptance of restrictive contract terms that are as a matter of law preempted and

\(^{354}\) See supra note 265 and accompanying text.

\(^{355}\) According to Rob Glaser, Chairman of the company MusicNet, “It’s as if Franz Kafka designed this system and employed Rube Goldberg as architect.” Amy Harmon, Copyright Hurdles Confront Selling of Music on the Internet, N.Y. TIMES, Sept. 23, 2002, at C1.

\(^{356}\) Consider compulsory licensing at positive rates in many areas like re-transmissions (Sections 114, 115, 116, 118, 119, 122) and jukeboxes (Section 116). Also consider compulsory licensing for free for those uses determined to be fair (Section 107 on Fair Use and Section 122 on copies for the blind).

\(^{357}\) Consider, for example, the murky rules about what constitutes a derivative work or an adaptation. Also consider the basic question of whether putative copyright subject matter is protectable expression or unprotectable idea. On the difficulty with the so-called idea/expression dichotomy, see Gregory Aharonian, Problems with Copyright and Trade Dress, available online at http://www.patenting-art.com/copyprob/cpytst-e.htm (quoting F. Scott Kieff at the conferences “Promoting Markets in Creativity: Copyright in the Internet Age” held June 10, 2003 in Washington, D.C. (“The ‘idea/expression’ dichotomy is so ill-defined that lawyers have no idea how to express it”)).

\(^{358}\) See Kieff supra note 265, at 5-7 (discussing preemption); Kieff & Paredes supra note 273 (discussing misuse).
therefore void as against public policy.\textsuperscript{359} Then, taking the strong form of the misuse arguments at face value such an effort to impose illegal terms in a contract over material that relates to copyright would constitute misuse of a type that would at a minimum make any otherwise valid IP rights involved in the transaction unenforceable and at a maximum subject the one imposing the contract terms to antitrust liability including, potentially, treble damages and attorney fees.\textsuperscript{360} In effect, the legislative bargains that were struck have led to a set of immutable rules (not even default rules) about what types of contracting is allowed, which in turn prevents new types of industrial organization approaches from entering the market.

Cases like \textit{Napster}, \textit{Aimster}, and \textit{Grokster} can be seen as evidence that the regime is failing to allow sufficient private ordering to occur to meet new customer needs.\textsuperscript{361} Cases like this can be seen as evidence of large numbers of consumers manifesting some willingness to pay some positive price by going through the hassle costs of participating in the services but electing instead to pay no monetary price because no effective sales venue was provided. Put differently, these cases can be seen as evidence of producers being motivated not to sell in these markets at least in part by the fear that such business models would not be afforded legal protection, and instead might generate legal liability under doctrines of misuse or antitrust.\textsuperscript{362} Indeed, for some time the fear of rampant copying by consumers has driven producers to seek and obtain statutory changes providing criminal liability for copyright infringement in certain circumstances. The fear of this criminal liability imposes an added cost on consumers.

In addition to the limitations on the copyright system’s ability to facilitate coordination, the affirmative need for enhanced coordination may be significantly decreased in the modern entertainment industry, such as publishing, film, and television, at least against the backdrop of certain patent and trademark rights.

This suggests considering how this industry might operate without copyright. The intuition behind such suggestion is the realization that commercialization problems today in the entertainment industry are largely those associated with advertising, reputation, and business networks. Due to technological changes, physical plant costs of distributing in this industry need not be as large as before.\textsuperscript{363} Yet, trademark law allows some coordination and some pricing above marginal cost of the type necessary to facilitate commercialization of goods and services facing such reputation and network costs. Thus, as discussed below, a model approach might be suggested under which the industry would rely essentially on trademarks (and to some extent patents) rather than copyrights. Put differently, the model begins the conversation of a modest proposal: for the entertainment industry to rely on trademarks and patents instead of copyrights.

Implementing effective coordination in the entertainment industry absent copyright may be conceivable. First, major advances in these industries, although likely rare, would be eligible for patent protection (a new projector, a new chord, etc).\textsuperscript{364} Second, while non-commercial infringements may not

\textsuperscript{359} See Kieff \textit{supra} note 265, at 5-7 (discussing preemption).

\textsuperscript{360} See Kieff & Paredes \textit{supra} note 271 (discussing misuse).

\textsuperscript{361} See A & M Records, Inc. v. Napster, Inc., 239 F.3d 1004, 1020 (9th Cir. 2001) (suit against service that facilitated peer to peer sharing of copyrighted music); In re: Aimster Copyright Litigation, 334 F.3d 643 (7th Cir. 2003) (same); Metro-Goldwyn-Mayer Studios v. Grokster, Ltd., 125 S.Ct. 2764, __ US __ (2005) (same).

\textsuperscript{362} To be sure, other motivations such as fear of copying also operate here. Therefore, an important area of further research would include a determination of which motivations are operating and to what extent, such as through the gathering of empirical evidence of legal positions explored by players in this industry. Gathering such data is likely to face several obstacles, however, because it seeks to elucidate information that would be both protected by the attorney-client privilege and potentially very damaging.

\textsuperscript{363} An internet server of sufficient bandwidth will be sufficient if advertising and other network costs have been effectively deployed.

\textsuperscript{364} See CHISUM, ET AL. \textit{supra} note 1, at 728-828 (discussing statutory subject matter).
be actionable under trademark law, content providers can adapt to nevertheless make coordination and commercialization profitable against the backdrop of effective trademark protections. For example, trademark suits would be viable against commercial infringers. To the extent needed, these rights can be strengthened by re-instating dilution law, or by reversing *Moseley.*

Content providers may be able to take several different steps that in concert with consumer prescriptive norms and preferences may yield a landscape of descriptive norms in which coordination and commercialization are profitable. First, as Demsetz pointed out, private producers can produce public goods efficiently given the ability to exclude non-purchasers, and price discrimination is consistent with competitive equilibrium for such public goods. That is, content providers can establish networks that sell, or even give away, content along with other bundled goods and services, such as updates, replacements, library management tools and services, etc. By effectively educating consumers on such practical, commercial, benefits of purchasing through licensed sources, content providers may be able to maintain profitable networks. Indeed, further strengthening of the content provider’s position – and further protection of consumers – may be obtained by reversing *Dastar’s* elimination of certain false advertising suits.

Second, the role of consumer norms must not be overlooked. If artists and publishers make clear which works are “authorized” and therefore associated with some pay-back to the originators of the work, then the customers may be willing to pay more for those works. Again, at the very least, false advertising suits under 43(a) would be available against commercial competitors, even when there is only falsity, as opposed to confusion as to source. In much the same way that cult followings like to support their object of allegiance, general consumer norms may – at least at the right prices – be willing to pay simply to support their preferred performers and distributors. Indeed, much of the direct income generation that already occurs in the entertainment industry is based on marketing of products and services that are only linked to core content, a strategy known as “merchandizing.” The ability to capture revenues though such tying, however, requires the availability of suits for false advertising and dilution, as well complex contractual arrangements. Importantly, transaction costs are lower when tying is done through merchandizing or through advertising (as is done with broadcast television content that is itself provided for “free” when tied to the sale of advertising time). Instead of the content provider having to transact directly with each user, the transaction can be with the tied merchandisers or advertisers.

At bottom, the analysis offered here is designed to explore a hypothetical industrial organization model under which coordination may be achieved for entertainment industry by using the regimes of trademark and perhaps patent; but not copyright. To the extent the model yields lower social costs than the present copyright system with the same or higher access and entry benefits, both the producers and the consumers in this industry would be getting more, at lower cost, by eschewing, or perhaps even

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365 That is, file sharing will still likely occur.
366 *Moseley v. V Secret Catalogue, Inc.,* 123 S. Ct. 115 (2003) (interpreting statute to be limited to causes of action for only actual dilution, not likelihood of dilution, which is in contrast to the causes of action available for confusion that include both those for likelihood of confusion and actual confusion).
367 See *Kieff* *supra* note 14, at 727 (citing Harold Demsetz, *The Private Production of Public Goods,* 13 J.L. & ECON. 293 (1970)).
368 This method is used frequently for software.
369 Apple i-Tunes® is one approach to selling. The Wallmart® approach is more like bundling since they are (supposedly) selling below cost and so are essentially bundling with advertising in much the same way that Demsetz suggested that television signals could be bundled with advertising.
jettisoning, copyright.  The idea is not totally without basis in reality. Recent work by Kal Raustiala and Chris Sprigman studying the fashion design industry, which is a very strong user of trademark rights, shows that the industry operates successfully in the face of rampant copying.

To be sure, the model offered here is only a model, and only of most relevance for an industry where the commercialization costs are largely those associated with advertising, reputation, and networks, such as the entertainment industry. As a result, a number of areas of further study must be considered before the model could even be tested seriously. For example, a comparative study of the relative importance of trademark and false advertising rights as compared with copyright rights to established networks in the real world would provide some insight as to the model’s practical appeal.

In addition, objections to the model may include pointing out that even on its own terms it does little to address the copyright needs of low volume industries, such as sculptors and painters. While reputational effects help in those sectors, absent copyright, they may not be sufficient to drive trademark and false advertising issues, particularly with regard to the type of factual data about overall consumer behavior that are needed to mount a successful case using those causes of action. Nevertheless, reputational effects may be sufficient to drive other methods through which income can be extracted such as the selling of authentic signatures on mementos or authentic artifacts associated with the works of art. For example, both of these techniques have been employed by the artists Christo and Jeanne-Claude, whose works themselves – such as the wrapping of the Reichstag, which culminated in a public display in 1995 – simply are not able to be sold.

Before the model could be implemented in a working legal system a number of additional obstacles would also need to be overcome. For example, as indicated in the model itself, the trademark system would need to be rolled back to the way it was before Dastar and Mosley – both false advertising and dilution would be needed. In addition, a number of administrative and public choice costs are raised by the need to determine the carve-out from copyright that the model proposes for certain industries.

Most importantly, the model is not so much offered as the beginning of the end of copyright; but rather as a tool for showing how the coordination approach offered here can explain how many aspects of the existing copyright system that are the products of efforts to increase access and market entry can have the counterintuitive effect of limiting access and increasing anticompetitive effect. In this regard, the present study elucidates the tie between social costs and conventional reward theories.

IV. Conclusion

Although many different useful perspectives have been offered in the literature about the goals society should have in mind before deciding to create property rights in general and IP rights in particular, too often an overlooked goal is coordination. This paper suggests that coordination of the type needed to facilitate commercialization is a goal that can be achieved by property rights in general

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372 Jettisoning may be needed to avoid the effect of the immutable rules imposed by the preemption and misuse issues discussed earlier. See supra notes 358-360, and accompanying text.


374 See The Art of Christo and Jeanne-Claude, available on-line at http://www.christojeanneclaude.net/ (web site authorized by the artists).

and IP rights in particular. Coordination of this type is useful in helping diverse members of society remain diverse from each other in terms of skills, assets, and preferences, etc. while at the same time interacting with each other as complementary users of assets in a way that helps bring those assets to market. Focus on coordination is offered as an alternative to focus on other goals that have been suggested in the literature including internalizing externalities, avoiding rent dissipation, and providing direct incentives. And property rights are offered as tool for achieving this goal that is an alternative to other institutions and organizations including norm communities like open source projects, firms, and government. Recognizing that each institution and organization will have benefits and costs the paper also highlights strategies for helping to ensure that the benefits of property rights are enhanced while the costs of property rights are mitigated or otherwise structured to be easily borne. The paper also shows ways in which the liability rule prescriptions that dominate the literature can have the counter-productive effect of facilitating the type of coordination that frustrates competition. The paper then sketches some reasoning to explain why particular features of the present IP regimes may be working well and why other may be good candidates for change. The paper elucidates why institutional choices for IP regimes that have been motivated by conventional approaches toward IP that have not focused on coordination have turned out to be both less effective and less efficient. It is hoped the approaches offered here help frame debates over choices about both studying and shaping these regimes in the future.
V. APPENDIX – TABLE 1

Table 1: Property Rights Offer a Mix of Some of the Costs and Benefits of Various Other Institutional and Organizational Options for Coordination

<table>
<thead>
<tr>
<th>Institution or Organization</th>
<th>Benefits</th>
<th>Costs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contracts across an open market without property rights</td>
<td>• Strong incentives of an economic market</td>
<td>• Coordination problems</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Transaction cost of economic market</td>
</tr>
<tr>
<td>Property rights</td>
<td>• Strong incentives of an economic market</td>
<td>• Transaction costs of economic market</td>
</tr>
<tr>
<td></td>
<td>• Publicly recorded ownership serves as beacon to facilitate coordination</td>
<td>• Information costs when allocating</td>
</tr>
<tr>
<td></td>
<td>• Property rules facilitate negotiations (Crack Arrow Information Paradox)</td>
<td>• Asset specificity and opportunism</td>
</tr>
<tr>
<td></td>
<td>• Facilitates both diversity and socialization</td>
<td>• Rent dissipation</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Power over price and monopoly effects</td>
</tr>
<tr>
<td>Norm communities defined by philosophic, friendship,</td>
<td>• Centralized control can coordinate</td>
<td>• Crony capitalism</td>
</tr>
<tr>
<td>ethnic, religious or familial, bonds, such as open</td>
<td>• Can rely on informal norms rather than formal rules</td>
<td>o Asset specificity and opportunism</td>
</tr>
<tr>
<td>source projects</td>
<td>o Enforcement and other administrative costs can be lower</td>
<td>o Decreased fungibility (harder to trade, bundle, or divide)</td>
</tr>
<tr>
<td></td>
<td>o Enforcement can be more predictable and more effective</td>
<td>• Decreased diversity (relies on homogeneity)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Closed to strangers</td>
</tr>
<tr>
<td>Fame (as the defining element of a norm community's</td>
<td>• Same as above with families, etc. plus…</td>
<td>• Same as above with families, etc. plus…</td>
</tr>
<tr>
<td>leader)</td>
<td>• As a beacon, it can coordinate</td>
<td>• Not widely accessible</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Not predictable</td>
</tr>
<tr>
<td>Firms</td>
<td>• Centralized control can coordinate</td>
<td>• Administrative costs</td>
</tr>
<tr>
<td></td>
<td>• Can decrease transaction costs by bringing transacting parties under</td>
<td>• Agency costs</td>
</tr>
<tr>
<td></td>
<td>one roof</td>
<td>• Asset specificity and opportunism</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Weakened incentives overall</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Hierarchy is a particular problem for innovation</td>
</tr>
<tr>
<td></td>
<td></td>
<td>o Managers don’t know what the innovators really do</td>
</tr>
<tr>
<td></td>
<td></td>
<td>o Innovators don’t get full credit but face full risk</td>
</tr>
<tr>
<td>Government agencies</td>
<td>• Centralized control can coordinate</td>
<td>• Same as firms plus…</td>
</tr>
<tr>
<td></td>
<td>• Can avoid many market failures of transaction costs, externalities etc.</td>
<td>• Transaction costs of a political market: harder to define and</td>
</tr>
<tr>
<td></td>
<td></td>
<td>enforce promises for a vote than a price</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Information costs of a political market: lower information content</td>
</tr>
<tr>
<td></td>
<td></td>
<td>of a vote compared to a price</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Public choice problems of rent dissipation, agency capture, and toll</td>
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<tr>
<td></td>
<td></td>
<td>booth theory</td>
</tr>
</tbody>
</table>