

COMMENTS

The Wasteful Duplication Thesis in Natural Monopoly Regulation

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For the better part of the twentieth century, prevailing economic wisdom favored government regulation of profits, entry, and price structure in markets that exhibited the characteristics of a “natural monopoly.”¹ In its traditional formulation, the case for such regulation turned on the view that a grant of monopoly rights prior to excessive competition could preempt the “wasteful duplication” of valuable resources by giving one party the exclusive right—and incentive—to invest. Alfred Kahn, for example, defined a monopoly as “natural” when “one company can serve any given number of subscribers . . . at lower cost than two.”² The problem, as Kahn explained it in the specific context of telephone regulation, was that two overlapping providers could make it necessary for the consumer to pay for “two instruments, two lines into his home, two bills.”³

Kahn’s argument—which I shall call the *wasteful duplication thesis*—enjoyed tremendous currency before the economists and deregulators of the 1970s observed that better alternatives to government regulation of natural monopoly markets might exist.⁴ The thesis enjoyed this prominence despite complaints that its “most intriguing aspect . . . [was] its longevity in the face of its obvious inconsistency.”⁵

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¹ See, for example, Richard A. Posner, *Economic Analysis of Law* § 12.1 at 363 (Aspen 6th ed 2003) (“The law’s traditional answer to the problem of natural monopoly was public utility or common carrier regulation . . . [which included] entry control.”).

² Alfred Kahn, 2 *The Economics of Regulation: Principles and Institutions* 123 (John Wiley 1971) (emphasis removed).

³ Id.

⁴ For the classic articles on deregulation, see George J. Stigler and Claire Friedland, *What Can Regulators Regulate? The Case of Electricity*, 5 *J L & Econ* 1 (1962) (studying the effect of regulation on industry rates and returns, and suggesting that regulation did not appreciably limit the profits earned by industry); Richard A. Posner, *Natural Monopoly and Its Regulation*, 21 *Stan L Rev* 548, 635 (1969) (arguing that the “benefits of regulation are dubious, not only because the evils of natural monopoly are exaggerated but also because the effectiveness of regulation in controlling them is highly questionable”).

⁵ Thomas Hazlett, *The Curious Evolution of Natural Monopoly Theory*, in Robert W. Poole, Jr., ed, *Unnatural Monopolies: The Case for Deregulating Public Utilities* 1, 20 (Lexington 1985).

Even in the deregulatory climate of the last few decades, the wasteful duplication thesis retains conceptual importance. While some reforms have been genuinely deregulatory (in that they abandoned public regulation for exclusive reliance on market transactions), other reforms replaced traditional natural monopoly regulation with a “new paradigm” that seeks “to encourage multiple providers to offer different packages of services at different prices to end-users.”⁶ The latter type of reform, exemplified by the Telecommunications Act of 1996,⁷ retains nonmarket mechanisms that have often been justified in terms of the wasteful duplication thesis. Indeed, in two of the Supreme Court’s most significant decisions interpreting the Telecommunications Act, Justice Breyer’s opinions dissenting in part explicitly invoke the concept of wasteful duplication.⁸

In this Comment, I reassess the validity and place of the wasteful duplication thesis in light of commentary on rent dissipation. “Rent seeking” is any activity or investment by a private party to capture the profits that result from the government’s creation and enforcement of an exclusive right.⁹ A classic example is a gold or mineral rush. By granting exclusive rights to prospectors, government policy induces (arguably) excessive investment in prospecting. On traditional assumptions of perfect competition, the investment that prospectors make to acquire exclusive rights to the mineral should “dissipate” the surplus that the government hoped to create by granting those rights in the first place.¹⁰

Similarly, as I will show in this Comment, traditional models of rent dissipation imply that the wasteful duplication thesis *is* internally inconsistent, because rents will be dissipated (and wasteful duplication will occur) in the race to gain the exclusive right to the natural monopoly. The very fact that the government grants an exclusive monopoly right to avoid wasteful duplication will induce competition to gain that right, creating wasteful duplication on another margin.¹¹ Because

⁶ Joseph D. Kearney and Thomas W. Merrill, *The Great Transformation of Regulated Industries Law*, 98 Colum L Rev 1323, 1324–26 (1998).

⁷ Pub L No 104-104, 110 Stat 56, codified at 47 USC § 251 et seq (2000).

⁸ See *Verizon Communications, Inc v FCC*, 535 US 467, 539 (2002) (Breyer concurring in part and dissenting in part); *AT&T Corp v Iowa Utilities Board*, 525 US 366, 412 (1999) (Breyer concurring in part and dissenting in part). See also Stephen Breyer, *Economic Reasoning and Judicial Review* 8–13 (AEI-Brookings Joint Center 2003) (discussing the economic approach of his *Verizon* opinion), online at <http://www.aei-brookings.org/publications/abstract.php?pid=672> (visited Aug 26, 2004).

⁹ See generally Gordon Tullock, *The Welfare Costs of Tariffs, Monopolies, and Theft*, 5 W Econ J 224 (1967).

¹⁰ See generally John F. Duffy, *Rethinking the Prospect Theory of Patents*, 71 U Chi L Rev 439, 447–58 (2004) (detailing the rent dissipation model of a gold rush).

¹¹ The race to obtain the natural monopoly grant is, in this sense, much like the race to obtain patent rights, on which there is a large literature. See, for example, Yoram Barzel, *Optimal*

competition for exclusive rights must occur on some margin, the investment problem is general: “If individual cost advantages can be eliminated through investment in the techniques of acquiring [exclusive] rights, then all methods of initially establishing [exclusive] rights will completely dissipate the value of the resource.”¹²

The idea of complete rent dissipation, however, conflicts with the empirical observation that rents are routinely created in the real world. Recent models of rent dissipation attempt to paint a more realistic picture by abandoning the “questionable” assumption that all claimants possess the same talents.¹³ If, for example, some gold prospectors are inherently quicker or more effective than others, races will not dissipate surplus entirely. Those inherently quicker or more effective will keep the surviving portion of the rent. More generally, the natural distribution of talents across individuals or random variability in opportunity can preserve rents.¹⁴ Viewed through the lens of theories of rent dissipation that assume “claimant heterogeneity,” we can classify the wasteful duplication thesis as one of many justifications for government intervention that attempts to grant exclusivity at a time when heterogeneity among claimants is greatest.¹⁵ In this manner, the wasteful duplication thesis differs only in degree, and not in kind, from the traditional justifications for property rights—but this divergence in degree and cost makes all the difference. Moreover, the apparent failure of natural monopoly regulation indicates that the costs of administration and benefits of simplicity are crucial to the efficiency of government-granted exclusive rights, an insight that may prove useful in the design of other exclusive-rights schemes.

The Comment proceeds as follows. In Part I, I provide more background on the theory and history of the wasteful duplication thesis and natural monopoly regulation generally. Parts I.A and I.B address the economic structure of the thesis and the origin and history of the argument respectively; whereas Parts I.C and I.D summarize, in turn, recent judicial opinions and the views of some of the critics of natural monopoly regulation.

In Part II, I outline two theories of rent dissipation to provide a framework by which to understand the wasteful duplication thesis. The operative principle in this Part is that exclusive grants are fundamentally the same, whether conferred as exclusive *monopoly* rights to an industry or exclusive *property* rights. Part II.A applies the tradi-

Timing of Innovations, 50 *Rev Econ & Stats* 348 (1968). See also Part II.

¹² Dean Lueck, *The Rule of First Possession and the Design of the Law*, 38 *J L & Econ* 393, 401 (1995) (emphasis removed) (making the very same point in the context of property rights).

¹³ See *id.*

¹⁴ See *id.*

¹⁵ See *id.* at 412–21.

tional logic of rent dissipation to the wasteful duplication thesis. This logic renders the thesis incoherent, because the “race” to claim the exclusive monopoly right will dissipate any surplus associated with the right. Duplication will occur—either before or after the exclusive grant—no matter the government’s choice of policy in assigning such rights. Part II.B introduces the assumption of party heterogeneity. Once we make this assumption, the wasteful duplication thesis can be rationalized as an attempt to give an exclusive monopoly right at a time when party heterogeneity is greatest in order to preserve rents. The wasteful duplication thesis is thus the very same argument made to justify the creation of property rights, and any distinction between monopoly grants and property rights must be based on costs and benefits, not a priori principles.

Finally, Part III addresses the implications of Part II’s explanation of the wasteful duplication thesis. In particular, I consider the consequences for other theories that attempt to prevent rent dissipation through the design of rules governing exclusive rights; I argue that system designers would be well advised to concentrate on factors such as simplicity and administrability, without which the costs of government intervention are likely to exceed the benefits. I also consider the proper use of the wasteful duplication thesis where rent dissipation is absent, noting that its invocation in this context makes sense only if we observe welfare losses due to bargaining breakdowns and holdout problems. By doing so, I show how wasteful duplication always turns on the fact that contracting costs money. Finally, I examine the auction technique for assigning natural monopoly grants, concluding that its effects on rent dissipation are ambiguous.

I. THE THEORY AND HISTORY OF THE WASTEFUL DUPLICATION THESIS

A. Economic Structure of the Argument

Economic theory defines a monopoly as “natural” under conditions of cost subadditivity. Subadditivity exists when the cost of the combined is less than or equal to the cost of the separates.¹⁶ One way to conceptualize cost subadditivity is to think of markets that exhibit declining average costs. Declining average cost simply means that unit costs fall with increases in output. Average costs may decline across a market for several reasons. For example, the production of a good or

¹⁶ For background and a more rigorous economic exposition, see Sanford V. Berg and John Tschirhart, *Natural Monopoly Regulation: Principles and Practice* 22–52 (Cambridge 1988); W. Kip Viscusi, John M. Vernon, and Joseph E. Harrington, Jr., *Economics of Regulation and Antitrust* 355 (MIT 2d ed 1995).

service may require very large fixed expenses that must be incurred no matter how many units of the good are sold. Because a firm can spread these fixed costs across an ever-larger number of units as production increases—and thus lower the price of the good—the market should naturally evolve to leave only one firm producing the good.¹⁷ Traditionally, scholars stated that this kind of market structure meant that “concentrating all production in a single firm is more efficient than having multiple firms undertake production.”¹⁸ More accurately, “a natural monopoly exists whenever it is less expensive for demand to be met using a single *infrastructure* than it is for demand to be met using multiple, uncoordinated infrastructures.”¹⁹

B. Origin and History of the Argument

The modern institution of the state-sanctioned natural monopoly dates back to instances when the British Crown awarded exclusive rights to a private party to “operat[e] such things as a ferryboat, a wharf, or, for a time, a printing press.”²⁰ The English common law gradually developed rules to constrain the monopolists’ excesses, and to defend their monopolies.²¹ Among the rules to constrain monopolists’ excesses were the requirements that they charge only “reasonable and nondiscriminatory” rates, provide adequate service, and accept all customers without discrimination on the same terms. Over time, these principles came to extend to any “common carrier” that was “affected with a public interest” and “held itself open to the general public and purported to serve all comers.”²² American courts imported the common carrier doctrine into the American common law.²³

¹⁷ See Stuart Minor Benjamin, Douglas Gary Lichtman, and Howard A. Shelanski, *Telecommunications Law and Policy* 376 (Carolina 2001). Average costs may decline for two other principal reasons. The incremental costs of production may decline as output increases, once again allowing a larger firm to price cheaper. Second, consumers may demand that the producer of the good has the capacity to provide them with large amounts of the good on little notice. Such demand variability is prevalent in, for example, the electricity market and requires suppliers to retain excess idle capacity, which is expensive. See *id.* at 367–77.

¹⁸ John F. Duffy, *The Marginal Cost Controversy in Intellectual Property*, 71 U Chi L Rev 37, 40 (2004). See also Posner, *Economic Analysis of Law* § 12.1 at 361 (cited in note 1) (“[Monopoly] is the cheapest way of organizing [the particular] industry.”).

¹⁹ Douglas Lichtman and Randal C. Picker, *Entry Policy in Local Telecommunications: Iowa Utilities and Verizon*, 2002 S Ct Rev 41, 79.

²⁰ Peter W. Huber, Michael K. Kellogg, and John Thorne, *Federal Telecommunications Law* 13 (Aspen 1999).

²¹ See *id.* Consider also Posner, *Economic Analysis of Law* § 12.1 at 363 (noting that a natural monopoly presents both the problem of pricing, and “the superficially inconsistent” problem of inefficient entry).

²² Huber, Kellogg, and Thorne, *Federal Telecommunications Law* at 13–14 (cited in note 20).

²³ See, for example, *Munn v Illinois*, 94 US 112, 126 (1877) (holding that when “one devotes his property to a use in which the public has an interest, he . . . must submit to be controlled by the public for the common good”). For a history of the natural monopoly idea in the eight-

John Stuart Mill's manuscript *Principles of Political Economy* is credited with originating the theoretical concept of the natural monopoly.²⁴ Mill argued that "[i]t is obvious . . . how great an economy of labour would be obtained if London were supplied by a single gas or water company instead of the existing plurality."²⁵ In his view, "[w]ere there only one establishment, it could make lower charges, consistently with obtaining the rate of profit now realized."²⁶ By the early nineteenth century, most American monopolies were state-created, operating under the theory that high start-up costs would otherwise deter private parties from investing. Mill's natural monopoly and wasteful duplication theses continued to hold great weight through much of the twentieth century.²⁷

C. Modern Judicial Opinions

The rise of the law-and-economics movement in the latter part of the twentieth century saw several judicial opinions discuss the wasteful duplication thesis. An important example of the application of wasteful duplication concepts to natural monopoly regulation can be found in the Seventh Circuit's 1982 decision in *Omega Satellite Products Co v City of Indianapolis*.²⁸ In that case, a would-be cable franchisee accused the city of Indianapolis of violating antitrust law by discouraging competition in the local cable market. Judge Posner, one of the early critics of natural monopoly regulation in both his opinions and his scholarship,²⁹ stated that "[t]he cost of the cable grid appears to be the biggest cost of a cable television system and to be largely invariant to the number of subscribers the system has."³⁰ With the grid in place, the cost of adding additional subscribers was small; "the average cost of cable television would be minimized by having a single company in any geographical area."³¹

Judge Posner noted that the cable market thus described a natural monopoly, in which "eventually there will be only a single company."³² Without a state-mandated monopoly "there may be wasteful

eenth and nineteenth centuries in America, see Herbert Hovenkamp, *Technology, Politics, and Regulated Monopoly: An American Historical Perspective*, 62 Tex L Rev 1263, 1282-1308 (1984).

²⁴ See John Stuart Mill, *Principles of Political Economy* 132-54 (Longmans, Green 1926).

²⁵ *Id.* at 143.

²⁶ *Id.*

²⁷ See *Introduction*, in Poole, Jr., ed, *Unnatural Monopolies* xi, xi (cited in note 5) ("Throughout most of the twentieth century, public utility regulation went virtually unchallenged."); Posner, *Economic Analysis of Law* § 12.1 at 363 (cited in note 1).

²⁸ 694 F2d 119 (7th Cir 1982).

²⁹ See text accompanying notes 53-55.

³⁰ *Omega Satellite*, 694 F2d at 126.

³¹ *Id.*

³² *Id.*

duplication of facilities” in the interim. Such wasteful duplication “may lead not only to higher prices to cable television subscribers, at least in the short run, but also to higher costs to other users of the public ways, who must compete with the cable television companies for access to them.”³³ The alternative procedure, which Indianapolis had adopted, “is to pick the most efficient competitor at the outset, give him a monopoly, and extract from him in exchange a commitment to provide reasonable service at reasonable rates.”³⁴

Justice Breyer advanced the same argument in two recent opinions addressing the Telecommunications Act of 1996. Statutory construction issues predominated in both of these cases, but Breyer used the wasteful duplication thesis to discern the Act’s purpose. Section 253 of the Act states that “no State or local statute or regulation, or other State or local legal requirement, may prohibit or have the effect of prohibiting the ability of any entity to provide any interstate or intrastate telecommunications service.”³⁵ The language thus puts an end to state-sanctioned monopolies in telecommunications service.

In *AT&T Corp v Iowa Utilities Board*,³⁶ the Court was presented with the question of whether ratemaking authority for local telephone service was lodged in the Federal Communications Commission (FCC) or with the states. The Court concluded that the FCC possessed the authority.³⁷ Justice Breyer, dissenting in part, noted that it was not the purpose of the Telecommunications Act to create an exception to the historical norm of state regulation of local telephone service.³⁸ Though acknowledging that the wasteful duplication thesis was primarily a creature of another time,³⁹ Breyer noted that the Act “recog-

³³ *Id.*

³⁴ *Id.* Note that Posner, however, did state that the petitioner “may be able to prove that the City officials were not acting in the consumer interest, that cable television in Indianapolis is not a natural monopoly, [and] that exclusive franchising is a needlessly restrictive way of dealing with natural monopoly.” *Id.* at 127.

³⁵ 47 USC § 253. The FCC has described its purpose in regulating price under the Act as “giving appropriate signals to producers and consumers and ensuring efficient entry and utilization of the telecommunications infrastructure.” *In re Implementation of the Local Competition Provisions in the Telecommunications Act of 1996*, 11 FCCR 15499, 15817 P630 (1996). The FCC has also said that “the prices that potential entrants pay for these elements should reflect forward-looking economic costs in order to encourage efficient levels of investment and entry.” *Id.* at 15844 P672.

³⁶ 525 US 366 (1999). For background on the *Iowa Utilities* decision, and especially the Breyer opinion, see Jerry A. Hausman and J. Gregory Sidak, *A Consumer-Welfare Approach to the Mandatory Unbundling of Telecommunications Networks*, 109 *Yale L J* 417, 442–48 (1999).

³⁷ *Iowa Utilities*, 525 US at 367.

³⁸ *Id.* at 412–13 (Breyer concurring in part and dissenting in part).

³⁹ *Id.* at 414. Breyer stated:

That circumstance may have reflected the belief, current at the time, that local service competition could prove wasteful, leading to the unwarranted duplication of expensive physical facilities by requiring, say, the unnecessary digging up of city streets to install unneeded

nizes that actual local competition might not prove practical” and that “in some places, to some extent, local markets may not support more than a single firm, at least not without wasteful duplication of resources.”⁴⁰

The structure of the Act, Breyer stated, raised a “difficult empirical question[:] To what extent is local competition possible without wasteful duplication of facilities?”⁴¹ According to Breyer, the Act “does not purport to answer this question.”⁴² Rather, it requires incumbent local service companies to provide new entrants “access to network elements” on an “unbundled basis” that “thereby allow[s] new entry in respect to some aspects of the local service business without requiring wasteful duplication of the *entire* business.”⁴³ The “basic logic” of unbundling under the Act mirrored the case of Congress requiring “a sole incumbent . . . service between City A and City B to share certain basic facilities, say, bridges, rights-of-way, or tracks, in order to avoid wasteful duplication of those hard-to-duplicate resources while facilitating competition in the *remaining* aspects of A-to-B railroad service.”⁴⁴

Justice Breyer raised similar issues in his dissent three years later in *Verizon Communications, Inc v FCC*.⁴⁵ *Verizon* involved the power of the FCC to require (i) state utility commissions to set rates charged by incumbents for leases by competitors on a forward-looking basis untied to the incumbents’ investments, and (ii) incumbents to combine certain elements such as lines and switching equipment at the entrants’ request when leasing those elements to the entrants.⁴⁶ According to Breyer, the Act “assumes that . . . local telecommunications markets may now prove large enough for several firms to compete in the provision of some services—but not necessarily all services—without serious economic waste.”⁴⁷ An incumbent’s control “of certain

wires connecting each house with a series of new but redundant local switches.

⁴⁰ Id at 416, citing Thomas J. Hall, Note, *The FCC and the Telecom Act of 1996: Necessary Steps to Achieve Substantial Deregulation*, 11 Harv J L & Tech 797, 810 n 57 (1998).

⁴¹ *Iowa Utilities*, 525 US at 416.

⁴² Id.

⁴³ Id, citing 47 USC § 251.

⁴⁴ *Iowa Utilities*, 525 US at 416–17. See also id at 428 (“Despite the empirical uncertainties, the basic congressional objective is reasonably clear. The unbundling requirement seeks to facilitate the introduction of competition where practical, *i.e.*, without inordinate waste.”).

⁴⁵ 535 US 467, 539 (2002) (Breyer concurring in part and dissenting in part).

⁴⁶ See id at 475 (majority).

⁴⁷ Id at 543 (Breyer concurring in part and dissenting in part). Breyer stated that

at the time Congress wrote the new Act, technological development seemed to permit nonwasteful competition in respect to some aspects of local service; but in respect to other aspects an incumbent local telecommunications provider might continue to possess “natural monopoly” advantages. And these circumstances made it reasonable for Congress to try to secure local competition insofar as that competition would prove economically feasible, *i.e.*,

existing cables, lines, or switching equipment would put the new entrant at an economic disadvantage because duplication of those ‘elements’ would prove unnecessarily expensive.”⁴⁸

As a result, Breyer reasoned, “[t]he new Act does not require the new entrant and incumbent to compete in respect to those elements, say, through wasteful duplication.”⁴⁹ Instead, the Act permitted “the new entrant to offer, and to compete with respect to, a related service by obtaining ‘access’ to (and therefore using) those ‘elements’ of the incumbent’s network, while finding on its own other elements necessary to the service.”⁵⁰ Such a scheme “would avoid wasteful duplication of the hard-to-duplicate resource”—the infrastructure—while “facilitat[ing] competition in the remaining aspects” of service.⁵¹ Breyer concluded that the Act’s goal was “new local market competition insofar as local markets can support that competition without serious waste.”⁵² Breyer’s opinions indicate that the wasteful duplication thesis remains a viable argument for government regulation, but that the proper scope of the argument’s application is uncertain.

D. Critics of the Argument

The wasteful duplication concept has not been without its critics in the legal literature on natural monopoly regulation. Richard Posner’s first article, *Natural Monopoly and Its Regulation*, was a watershed criticism of the regulation of natural monopolies. In it, Posner criticized the wasteful duplication argument, dismissing the “possibility that more than one firm will find itself selling in a natural monopoly market.”⁵³ This situation, he observed, is “inherently unstable,” because either “a brief flurry of fierce competition or a series of mergers will leave one firm in clear command of the field.”⁵⁴ Firms would “realize that they can do much better by merging, operating at an efficient scale, and reaping monopoly profits,” rather than by engaging in wasteful duplication.⁵⁵

where competition would not prove seriously wasteful.

Id. at 545 (internal citations omitted). See also 47 USC § 271(c)(1)(A)–(B) (recognizing that some local markets will not support more than one firm).

⁴⁸ *Verizon Communications*, 535 US at 546.

⁴⁹ Id.

⁵⁰ Id. Breyer repeated the railroad analogy: “It is as if a railroad regulator, anxious to promote railroad competition between City A and City B but aware that it would prove wasteful to duplicate a certain railroad bridge across the Mississippi River, ordered the bridge’s owner to share the bridge with new competitors.” Id.

⁵¹ Id.

⁵² Id. at 548.

⁵³ Posner, 21 Stan L Rev at 585 (cited in note 4).

⁵⁴ Id.

⁵⁵ Id.

Thomas Hazlett provided a more sustained and recent critique of the wasteful duplication thesis.⁵⁶ He characterized the “notion that free competition will invite wasteful overinvestment” as an “old canard” that fails to address questions as to why private investors need to be protected from financial ruin, and whether there will be wasteful duplication in the political auctions prior to the monopoly grant.⁵⁷ Self-interested private actors, “risking their own dollars and reputations,” should be better positioned to recognize duplicative waste than government actors “who do not directly realize any profit or loss.”⁵⁸ Competition, Hazlett argued, “inevitably involves duplication costs,” but these costs are outweighed by the costs of allowing “politicians or government planners to select the firms that they believe consumers would (or should) choose.”⁵⁹

Both Posner and Hazlett provide insightful critiques of the wasteful duplication thesis, but commentators have yet explicitly to connect the thesis to rent dissipation arguments and property rights theory, a discussion to which I turn in Part II.

II. MODELS OF RENT DISSIPATION

The most familiar example of rent seeking in the legal and public choice literatures is the lobbying of public officials in order to achieve some favorable treatment from the government.⁶⁰ But rent seeking occurs more generally any time that a party engages in investment to capture or protect a stream of profits.⁶¹ Traditional examples not involving lobbying include patent races and gold rushes,⁶² where the granting of rights to a piece of property (intellectual or real) can induce excessive investment to gain that piece of property—investment that under assumptions of perfect competition will dissipate all of the surplus created by the government’s initial granting of the property right. Part II.A considers the wasteful duplication thesis in light of intellectual property theories of rent dissipation. Part II.B applies rent dissipation models that assume claimant heterogeneity to the problem.

⁵⁶ See Thomas W. Hazlett, *Private Monopoly and the Public Interest: An Economic Analysis of the Cable Television Franchise*, 134 U Pa L Rev 1335 (1986).

⁵⁷ *Id.* at 1351.

⁵⁸ *Id.*

⁵⁹ *Id.* at 1352.

⁶⁰ See Anne O. Krueger, *The Political Economy of the Rent-Seeking Society*, 64 Am Econ Rev 291 (1974); Tullock, 5 W Econ J 224 (cited in note 9).

⁶¹ See John T. Wenders, *On Perfect Rent Dissipation*, 77 Am Econ Rev 456 (1987); Stephen N.S. Cheung, *The Structure of a Contract and the Theory of a Non-exclusive Resource*, 13 J L & Econ 49 (1970).

⁶² See generally Edmund W. Kitch, *The Nature and Function of the Patent System*, 20 J L & Econ 265 (1977).

A. The Traditional Model of Rent Dissipation

1. The models.

The simple and traditional economic rationale for granting property rights in intellectual property has been that the rights provide incentives for the investments necessary to generate the creation of valuable resources.⁶³ Without patent rights, individuals with patentable ideas would engage in trade secrecy or some other form of self-help in order to obtain the economic gains from their ideas. The patent system removes the need to engage in self-help by granting to inventors another means by which to preserve the profits that result from their ideas, namely an injunction suit against any users of ideas and inventions they develop. Private parties thus have the incentive to generate valuable intellectual property that otherwise could be easily appropriated by competitors.

The patent race model developed by Yoram Barzel questioned this simple economic rationale. Barzel demonstrated that the simple economic rationale outlined in the previous paragraph simply pushed the “common pool” problem earlier in time. Because the right to innovate remains a common right, competition among firms will lead to races to invent that should dissipate any surplus otherwise associated with an invention.⁶⁴ Barzel’s straightforward insight was that competition should push private parties to innovate until the total cost of innovation equals the total discounted return from the innovation.⁶⁵ Any surplus that the patent system attempted to create on the back end would be dissipated on the front end through wasteful races.

The initial response to Barzel’s model was to push the time of patenting earlier in order to avoid wasteful races that would dissipate gains from social innovation. Barzel’s preferred form was the patent auction; by pushing the assigning of property rights before any resources were expended to develop an idea, government policy could preserve the surplus.⁶⁶ Responding to Barzel’s race model, Edmund Kitch saw in the patent system a “prospect function” that awarded “exclusive and publicly recorded ownership of a [patent] prospect shortly after its discovery.”⁶⁷ Kitch posited that the patent system, by granting patents at an early stage, put an owner “in a position to coordinate the search for technological and market enhancement of the

⁶³ See, for example, Kenneth J. Arrow, *Economic Welfare and the Allocation of Resources for Invention*, in Kenneth J. Arrow, *5 Collected Papers of Kenneth J. Arrow: Production and Capital* 104, 111–17 (Harvard 1985).

⁶⁴ See Barzel, 50 *Rev Econ & Stats* at 348–49 (cited in note 11).

⁶⁵ *Id.* at 348, 354.

⁶⁶ *Id.* at 352.

⁶⁷ Kitch, 20 *J L & Econ* at 266 (cited in note 62).

patent,” thus “increas[ing] the efficiency with which investment in innovation can be managed.”⁶⁸ Almost immediately thereafter, scholars noted that Kitch’s suggestion had merely pushed the common pool problem even earlier in time.⁶⁹ Because the right to obtain prospect patents was a common right not under the exclusive control of anyone, rivalry that existed prior to the grant would dissipate any surplus.⁷⁰

In light of Barzel’s patent race model, how can the patent system (or any system of exclusive rights) prevent dissipation of the entire surplus associated with rights in intellectual property? Some scholars have argued that “to push patenting ever earlier in the hope of preserving rents is to chase a phantom.”⁷¹ Exclusive rights will induce investment to gain those rights, which will lead to rent dissipation. Duplication, as a result, will happen either before or after the exclusive right is granted; it cannot be avoided.

2. Application to the wasteful duplication thesis.

This logic applies in exactly the same manner to the regulation of industries that display natural monopoly characteristics. Without the grant of a state-sponsored monopoly, two or more competitors may briefly engage in competition for the industry sector. By making available an exclusive right to monopolize a sector of the economy, the government induces greater competition for that very right, thus leading to duplication prior to the allocation of the natural monopoly.

Take, for example, the telecommunications industry. Without government intervention, multiple competitors may enter at first, investing in infrastructure, digging up ground to lay wires, and building switchboards. Over time, the nature of the industry may drive competitors out of the market or lead to a series of mergers, with the possibility that monopoly powers would ultimately be left in the hands of one party. During the intervening period, though, multiple lines of telephone wire may be laid down by the several competitors, thus constituting wasteful duplication in the traditional sense.

With intervention, prior to any investment in telecommunications the government would step in and give an exclusive right to develop the industry to one market participant. By doing so, the government would avert the period of duplicative competition. Yet, the simple

⁶⁸ Id at 276.

⁶⁹ See, for example, Donald McFetridge and Douglas Smith, *Patents, Prospects, and Economic Surplus: A Comment*, 23 J L & Econ 197 (1983).

⁷⁰ Id at 203. See also Pankaj Tandon, *Rivalry and the Excess Allocation of Resources to Research*, 14 Bell J Econ 152, 152 n 1 (1983) (“[The prospect theory] merely shifts [the common pool problem] to a more primitive level.”).

⁷¹ Duffy, *Rethinking the Prospect Theory of Patents*, 71 U Chi L Rev at 496 (cited in note 10).

logic of Barzel's patent race model implies that market participants will invest resources to gain the natural monopoly grant, thus duplicating efforts at an earlier period. The investment problem—here as with intellectual property rights—is general.

On this reasoning, no allocation method for the property right truly mitigates rent dissipation. One possibility—a possibility that no doubt animated the granting of exclusive monopoly rights to the Bell Corporation at the turn of the century⁷²—would be to allocate the exclusive right to the party that has made an early investment in the industry (the “first possessor” of the industry in a sense). However, as evidenced by the replies to Kitch's prospect theory, pushing the grant of the monopoly right earlier in time only succeeds in pushing the investment to gain the right earlier in time.

Moreover, if regulators have the authority to allocate an exclusive right in their discretion, private parties will expend resources in an attempt to influence those regulators' decisions by engaging in lobbying, which is a familiar form of rent-seeking activity. Once again, under the assumption of perfect competition, the investment prior to the exclusive right should precisely equal any surplus that creation of the right itself was intended to generate. In this scenario, a substantial portion of that investment may take the form of lobbying.⁷³ Lobbying is a form of rent-seeking activity that incurs social costs, with minimal social benefits.⁷⁴ We can distinguish lobbying from wastefully duplicative activities like the building of two telephone infrastructures in that there is at least a chance that two such infrastructures might provide a modicum of good.

Using an auction to allocate a natural monopoly right presents analogous difficulties.⁷⁵ Prior to the auction, parties will duplicate activity in order to present the highest bid. In this case, the duplication occurs not just because multiple parties register for the auction. The costs to enter the auction, of course, are minimal. It also occurs because each party engages *ex ante* in capital-attracting activity in order

⁷² See Benjamin, Lichtman, and Shelanski, *Telecommunications Law and Policy* at 614–20 (cited in note 17).

⁷³ See, for example, Hazlett, 134 U Pa L Rev 1335 (cited in note 56) (detailing rent-seeking activities in the cable industry).

⁷⁴ See Duffy, *Marginal Cost Controversy*, 71 U Chi L Rev at 50 (cited in note 18) (noting that if lobbying is a significant problem, then the government monopoly “would be little more than licenses to lobby” and “would not be worth much and few people would invest much in the activity needed to create the claim”).

⁷⁵ See Harold Demsetz, *Why Regulate Utilities?*, 11 J L & Econ 55, 63 (1968) (proposing franchise bidding for natural monopolies). For endorsements of Demsetz's idea, see George Stigler, *The Organization of Industry* 18–19 (Irwin 1968); Richard A. Posner, *The Appropriate Scope of Regulation in the Cable Television Industry*, 3 Bell J Econ 98, 113–16 (1972). But see Oliver E. Williamson, *Franchise Bidding for Natural Monopolies—in General and with Respect to CATV*, 7 Bell J Econ 73, 102 (1976).

to position itself to win the auction. Those costs should be quite real. In a sense, auctions channel duplicative investment by private parties toward margins that will attract sufficient capital to win the bid. For example, to provide a certain natural monopoly good at a specified price, a private party may need to engage *ex ante* in research; by engaging in such research, the private firm can credibly indicate to investors that it can provide the good at the lowest price. A plausible story, therefore, is that auctions shift investment away from infrastructure and toward research. However, the investment problem remains, as the investment by competitors to attract capital prior to the auction is itself duplicative activity. This Comment examines the auction mechanism for assigning monopoly rights in greater detail in Part III.C.

These arguments, however, demonstrate a critical difference between the granting of exclusive rights for entire industries and those for patents. Depending on how the allocation mechanism is structured, when granting an exclusive right to develop an entire industry, the government can divert investment toward lobbying or additional research and away from infrastructure. In the realm of patents, by contrast, the exclusive right moves research to an earlier time, yet the margin on which parties compete remains the same—it is always scientific research.

Finally, one method by which the government can influence the level of rent dissipation is by changing the expected payoff associated with an exclusive right. The government can increase or decrease the patent term. Similarly, the government can tax a natural monopoly or engage in rate regulation. By doing so, the government will dissuade certain private parties from racing for the exclusive right, thus lowering wasteful duplication. The optimal expected payoff, in fact, occurs when the most efficient private party expects to recover marginally more from the exclusive right than the party invested to obtain that right. Determining this optimal expected payoff in any given case, however, strains government capabilities, which is one reason why we have uniform patent and copyright terms rather than government discretion to determine the optimum term on a case-by-case basis.

Taxation and rate regulation present their own conceptual problems, of course. Will the government tax and spend in a socially beneficial manner? Will the government possess enough information to prescribe the correct regulation rates? For purposes of this Comment, the important point is that these calibration issues are quite apart from the decision to grant an exclusive right. The government can tax and regulate the rates of a natural monopoly without granting an exclusive right. Granting the exclusive right itself does nothing to reduce rent dissipation.

B. Rent Dissipation under Claimant Heterogeneity

1. The models.

In an article aimed at explaining the rule of first possession in property law, Dean Lueck provides an economic analysis of how property rights are designed in order to avoid rent-dissipating races. First possession can operate either by granting property rights to the *flow* of output (for example, a single bison or barrel of crude oil) or by granting right to the entire *stock* itself (for example, the herd of bison or reservoir of oil).⁷⁶ Both paths have the potential for dissipation. If rights to the entire stock are granted, and the value of the stock exceeds the value of the investment necessary to obtain it, dissipation will occur through excessive investment in a race to claim the stock. If rights to the flow alone are granted, then there will be dissipation through open-access exploitation.⁷⁷ The problem is the same one that Barzel and Kitch observed many years earlier: under plausible assumptions, investment to gain a property right should dissipate all of the rents.⁷⁸

What, then, explains the fact that rents are routinely created in the world? At heart, according to Lueck, the answer lies in claimant heterogeneity, which “reduces and possibly eliminates the dissipation of wealth.”⁷⁹ Put another way, specialization permits the preservation of rents. The knowledge that others may make better basketball players or gourmet chefs, for example, encourages the rest of the population to direct its attention and time elsewhere. Preservation of rents depends on claimants’ knowledge of their relative strengths as compared to other claimants, and their respective choices to specialize.

According to Lueck’s explanation, the law therefore designs the rule of first possession in order to capture the greatest gains possible from claimant heterogeneity, traded off against the cost of enforcing property rights. Where enforcing possession of the stock is prohibitively costly, the law adopts the rule of capture.⁸⁰ Capture of wildlife is a relevant example. Ownership is established over wildlife when an animal is captured; the stock itself remains unowned.⁸¹ By contrast,

⁷⁶ See Lueck, 38 J L & Econ at 396 (cited in note 12).

⁷⁷ See *id.*

⁷⁸ See Part II.A.1.

⁷⁹ Lueck, 38 J L & Econ at 399.

⁸⁰ See *id.* at 404.

⁸¹ The classic example in the law of wildlife capture is *Pierson v Post*, 3 Cai, R 175 (NY Sup Ct 1805). Although that case did not involve “stocks” and “flows,” the disagreement between the majority opinion and Justice Livingston’s dissent can be reframed in rent dissipation terms. The object of government policy is to avoid wastefully duplicative activity (the simultaneous chase of a fox by two individuals) while, at the same time, maintaining clear property rights that are easy to adjudicate. The majority opinion strikes this balance at true capture, whereas Justice

where establishing property rights over the stock is not prohibitively costly, doing so permits the preservation of rents, since claimant heterogeneity is at its highest in early stages of discovery. “First possession of resource stocks will emerge where claimant heterogeneities can limit a rent-dissipating race” and “when claimant heterogeneity is large in order to mitigate dissipation.”⁸²

Exclusive rights permit specialization. By giving a property right to an individual who first possesses or discovers the property at a sufficiently early time, government policy can preserve rents.

2. Application to the wasteful duplication thesis.

The wasteful duplication thesis exhibits precisely the same structure as this rent-preserving justification for the creation of property rights. By creating a property right, the government harnesses the forces of claimant heterogeneity, thus mitigating duplication and preserving rents. For example, by giving broad mineral claim rights to prospectors, the government can see to it that a few prospectors who are inherently faster (or more skilled in some other way) will acquire the property with less duplicative investment by their competitors. Similarly, granting an exclusive monopoly right at an early stage in the development of an industry ensures that one private party remains in control, forcing competitors to look for different investment opportunities and preempting the duplication of infrastructure. If the monopoly grant is conferred early enough, at a time of greater claimant heterogeneity, then the wasteful duplication thesis fits the rent-preserving model.

This facial similarity between property rights and natural monopoly grants masks important differences—but these differences are purely empirical, and do not depend on the logic of the argument. The benefit of the rent-preserving exclusive right must be balanced against the costs of administration, additional complexity, and monopoly rents granted to one party (although the last of these might be inevitable in the context of natural monopoly regulation).⁸³ The preservation of rents is not justified where the costs exceed the benefits. Experience, and not logic, has demonstrated that benefits likely exceed costs for private property, but not for the regulation of many declining variable cost industries. More generally, the case for the granting of exclusive rights falls or stands on its welfare effects.

Livingston would merely have required “hot pursuit.”

⁸² Lueck, 38 *J L & Econ* at 410 (cited in note 12).

⁸³ See notes 80–82 and accompanying text.

III. IMPLICATIONS

In this Part, I bring to bear the lessons of rent dissipation theory on some broader issues in the granting of state-sponsored exclusive rights. Although some commentators have treated the wasteful duplication thesis as though it is conceptually different from other justifications for grants of exclusive rights, there is no such a priori difference. The only difference is in the relative costs and benefits of the exclusive rights. In this Part, I attempt to add further content to this conclusion, and to explain and criticize two other aspects of natural monopoly regulation. First, I address the tradeoff implicit in the choice between granting or not granting an early exclusive right, namely the costs of administration and the benefits of simplicity versus the benefits of rent preservation. Second, I return to Justice Breyer's use of the wasteful duplication thesis in recent decisions, showing how his argument turns on the effects of holdout problems, not rent dissipation, but that both of these are caused by contractual breakdowns. Finally, I explore in greater detail the implications for auctions of property and natural monopoly rights.

A. Administrability and Simplicity

Exclusive rights are exclusive rights, whether we call them natural monopoly rights or property rights or intellectual property rights. Exclusive rights may differ from one another in terms of costs and benefits, but the same basic justifications can be made for, and the same basic criticisms leveled at, each type. A governmental policy of granting exclusive rights is merely an attempt to preserve rents by preempting competition before excessive duplication occurs.

In the recent past, several commentators have made similar observations. For example, William Landes and Richard Posner consider the seeming incongruity between the rise of the deregulation movement and the simultaneous expansion of intellectual property rights. They observe that, if intellectual property were to be thought of as regulation, "the trend toward deregulation in other sectors of the economy was being bucked, as it were, by an equal and opposite regulation trend."⁸⁴ Thomas Nachbar makes a parallel argument in the context of the interpretation of the Constitution's Intellectual Property Clause.⁸⁵ Nachbar notes, "In the end, 'exclusive rights' are merely an-

⁸⁴ William M. Landes and Richard A. Posner, *The Political Economy of Intellectual Property Law* 11–13 (AEI-Brookings Joint Center 2004), online at <http://aei-brookings.org/publications/abstract.php?pid=784> (visited Aug 15, 2004).

⁸⁵ See US Const Art I, § 8, cl 8 (authorizing Congress "[t]o 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").

other form of regulation that Congress may, and frequently does, use to confer economic rents on favored special interests.”⁸⁶

The difference between laws relating to intellectual property and laws relating to natural monopoly does not, therefore, lie in the verbal distinction between “property rights” and “regulation,” but somewhere else instead. We can draw a clearer line between the two if we look at the simplicity and ease of administration of the exclusive right. Of course, drawing the line in this fashion means that property regulation and natural monopoly regulation differ in degree, and not in type. Nevertheless, we can usefully distinguish between kinds of regulation on two margins: first, the ease with which the government can assign the exclusive right in question; and second, the ease with which the government can enforce that right.

Traditional property rights rules are notoriously simple on both margins. The rule of first possession, which grants exclusive rights to the party that gains control over a piece of property before other potential claimants, is the dominant method of establishing initial property rights.⁸⁷ First possession rules have been a fundamental component of civil law, African, and Islamic regimes, as well as informal and customary rulemaking.⁸⁸ With few caveats, the common law developed a relatively simple rule to delineate the rights that an owner of property held: “the party who takes first possession of a thing is entitled to exclude the rest of the world from it, forever.”⁸⁹

Justifications of the rule take several different forms. Richard Epstein defends it on the grounds that courts have limited cognitive abilities and remedial powers. Given these limitations, a court “is not apt to choose, or even stumble upon, property doctrines whose enforcement requires elaborate machinery.”⁹⁰ Carol Rose notes that the rule is modeled to advance “two great principles”: notice to the world through a clear act, and reward to useful labor.⁹¹ “Society is worst off in a world of vague claims,” in Rose’s words, because “clear titles fa-

⁸⁶ Thomas B. Nachbar, *Intellectual Property and Constitutional Norms*, 104 Colum L Rev 272, 272 (2004).

⁸⁷ See generally Richard A. Epstein, *Possession as the Root of Title*, 13 Ga L Rev 1221 (1979); Carol M. Rose, *Possession as the Origin of Property*, 52 U Chi L Rev 73 (1985).

⁸⁸ See Lueck, 38 J L & Econ at 394 (cited in note 12) (citing sources exploring traditional property systems). Lueck notes that the rule has been criticized in studies of homesteading, oil and gas, and patents, because of its race-creating qualities. See id.

⁸⁹ Richard A. Epstein, *Past and Future: The Temporal Dimensions in the Law of Property*, 64 Wash U L Q 667, 669 (1986).

⁹⁰ Epstein, 13 Ga L Rev at 1222–23 (cited in note 87) (“The rule that possession lies at the root of title is one that a court can understand and apply; absent a better alternative it becomes therefore an attractive starting point for resolving particular disputes over the ownership of particular things.”).

⁹¹ Rose, 52 U Chi L Rev at 77 (cited in note 87), citing and analyzing as an example *Pier-son v Post*, 3 Cai, R 175 (NY Sup Ct 1805).

cilitate trade and minimize resource-wasting conflict.”⁹² The rule of first possession, combined with devices such as recording statutes, “force[s] a property claimant to make a public record of her claims on pain of losing them altogether.”⁹³ The common law rules governing property rights after initial allocation were similarly simple and easy to administer.⁹⁴ Simplicity and administrability thus emerge as two of the important justifications for a regime of property rights based on possession rules.

Natural monopoly regulation, by contrast, appears to be much more complex on both margins. As an initial matter, unlike with real property, determining when a private party “possesses” an industry as such presents intractable difficulties—difficulties that are parallel to, but an order of magnitude greater than, those presented when the patent office attempts to determine whether an inventor has taken a significant enough step to justify granting an exclusive monopoly right over an idea. The timing and allocation of the exclusive right, therefore, presents more vexing problems than private property regulation does. Moreover, once allocated, the contours of the exclusive right are more difficult to define and enforce. Once again, the outlines of an entire industry are blurry, where the outlines of a piece of real property, subtle questions aside, are not.

This distinction, and the history of natural monopoly regulation generally, thus provide lessons for the regulation of intellectual property. As Landes and Posner observe, “Equating intellectual property rights to physical property rights overlooks the much greater governmental involvement in the former domain than in the latter.”⁹⁵ The greater governmental involvement includes involvement on the two margins identified above. It is more difficult to say when a private party possesses a piece of intellectual property, and also more difficult to determine when a second private party infringes on that property. To the extent that government involvement becomes (or, for that matter, has become) pervasive, intellectual property regulation may start to look more like natural monopoly grants than property rights.

⁹² Rose, 52 U Chi L Rev at 78, 82 (cited in note 87).

⁹³ Id at 81.

⁹⁴ See, for example, Henry E. Smith and Thomas W. Merrill, *Optimal Standardization in the Law of Property: The Numerus Clausus Principle*, 110 Yale L J 1 (2000) (emphasizing the simplicity of property rules, in particular the *numerus clausus* principle, which limits the forms of property that can be owned).

⁹⁵ Landes and Posner, *Political Economy of Intellectual Property Law* at 22–24 (cited in note 84).

B. Wasteful Duplication and Contracts

Justice Breyer's invocation of the wasteful duplication thesis in the *Iowa Utilities* and *Verizon* cases does not neatly fit any theory of rent dissipation.⁹⁶ The purpose of the Telecommunications Act of 1996, in Breyer's view, is to prevent wasteful duplication in investment in telephone infrastructure. With existing infrastructure already in place, entrants might inefficiently build anew rather than share with incumbents. This duplication would be wasteful, and in contravention of the Act's purpose. But once infrastructure has been built, it makes no sense to speak of wasteful duplication through races. The wasteful duplication that rent seeking causes has either already occurred or been preempted by government policy. Breyer's use of the term in this setting makes clear that the wasteful duplication thesis is always an argument about the cost of contracts.

Once again, an analogy to property rights may prove instructive. After an owner has come to possess a piece of property—say, by patenting or copyrighting—he or she is typically not under obligation to license that property to others. Compulsory licensing is rare in American law, though such schemes do exist in other jurisdictions.⁹⁷ The lack of compulsory licensing derives from the theory that, without compulsion, a property owner should still be willing to license a piece of property to any competitor who agrees to pay a sufficient amount of money.

We can analyze telecommunications infrastructure in a similar manner. In the absence of enforced unbundling under the Telecommunications Act, duplication of infrastructure would remain unlikely. This is so because owners of infrastructure would willingly license their property to any competitors who credibly threatened to build separately. A licensing bargain of this sort would be a winning proposition for both sides—incumbent owners win because they could prevent a whole separate system from competing with their own; and competitors win because they could avoid the necessity of building the separate system.

This analysis, however, elides one important qualification—namely, the problem of holdouts.⁹⁸ Wasteful duplication could still oc-

⁹⁶ See Part I.C.

⁹⁷ See Robert P. Merges, *Contracting into Liability Rules: Intellectual Property Rights and Collective Rights Organizations*, 84 Cal L Rev 1293, 1316 n 61 (1996) (citing the compulsory licensing laws in foreign jurisdictions).

⁹⁸ See Richard A. Epstein, *A Clear View of the Cathedral: The Dominance of Property Rules*, 106 Yale L J 2091, 2119–20 (1997) (similarly analyzing the Telecommunications Act in terms of liability rules and holdout problems). For the classic treatment of property and liability rules, see Guido Calabresi and A. Douglas Melamed, *Property Rules, Liability Rules, and Inalienability: One View of the Cathedral*, 85 Harv L Rev 1089 (1972).

cur if monopolist owners of telecommunications infrastructure failed to reach agreements with their competitors because they overvalued their own bargaining position. Under such circumstances, competitors may build a whole new infrastructure, or waste may occur through excessive bargaining.

We can extend the logic of contractual breakdowns to situations where no infrastructure exists. In those situations, in theory, a private party could credibly commit to build an infrastructure in the future, and then announce a price at which it will share with other parties. If no other party believes that it can provide the same good at a better price, this strategy should stop competition and, as a result, all waste. The problem, of course, is that reaching these agreements comes at a price. Rent dissipation itself, in other words, stems from high costs of contracting. In particular, where there is no existing infrastructure, parties may not know who to trust and to whom they should make offers; reaching the appropriate party is easier after an infrastructure has been built.

The upshot is that the wasteful duplication described by Justice Breyer in *Iowa Utilities* and *Verizon* derives from holdout problems, not rent-seeking effects, but that both of these stem from bargaining breakdowns that can obstruct otherwise mutually beneficial agreements. Whether government policy is justified in preventing these breakdowns turns on their prevalence and cost, as compared to the cost of prevention.⁹⁹

C. Auctions

Auctions present something of a puzzle for the allocation of exclusive rights. In the case of property rights, the common law method is to assign rights on the basis of first possession.¹⁰⁰ But, for some time, the economically sophisticated way to allocate natural monopolies has been Harold Demsetz's proposal to auction exclusive rights to the highest bidder.¹⁰¹ What explains this difference?

The first possession rule, unlike auctions, encourages private parties to invest resources in the search for resources. By contrast, auctions require that the government invest resources to identify and de-

⁹⁹ On the problem of holdouts, it is useful to note that studies indicate that compulsory licensing schemes do not produce welfare gains. See William E. Kovacic, *Failed Expectations: The Troubled Past and Uncertain Future of the Sherman Act as a Tool for Deconcentration*, 74 *Iowa L Rev* 1105, 1106 n 9 (1989) ("Most commentators have concluded that compulsory licensing decrees generally have contributed little to the accomplishment of deconcentration objectives."). Any failure to analyze the Telecommunications Act in light of prior compulsory licensing schemes, of course, should be attributed to the framers of the Act, not to Justice Breyer.

¹⁰⁰ See Part III.A.

¹⁰¹ Demsetz, 11 *J L & Econ* at 63 (cited in note 75).

fine the exclusive right. Auctions are therefore less useful when government policy aims to induce private investment in the discovery of new goods, and more useful when the government has already identified the good in question.¹⁰² A relevant example is intellectual property. The rule of first possession encourages private research; the auction method requires that the government know what it is auctioning off. Put another way, where the government's information on the exclusive right compares favorably to private information, an auction may be the preferable way of distributing that right. In the case of natural monopoly regulation, the "good" is an entire industry, which has typically reached a state of some development before the government chooses to auction it off.

A second factor involved in the choice between the two allocation mechanisms is the ease with which the government can identify the first possessor. Here, again, simplicity in identification and definition comes to the fore. Identifying the first possessor of a plot of land is comparatively easy; identifying the first discoverer of a patent right is somewhat less so; and identifying the first possessor of an entire industry seems nearly impossible.

Identification of a possessor and definition of the exclusive right aside, it is hard to see exactly what effect the use of an auction can have on wasteful duplication through rent dissipation. As with other allocation mechanisms, private parties should adjust their investment patterns in anticipation of the government allocation mechanism. Unlike first possession, which encourages investment to find and obtain an exclusive right, an auction superficially requires no actual investment by private parties in order to achieve success. Upon further inspection, however, auctions shift duplicative investment to a different point in time (and often along different margins). Private parties, under the auction system, would still have incentive to duplicate efforts to attract capital prior to the auction bid. The investment problem here, as elsewhere, is general. From a theoretical perspective, at least, the effect of auctions on rent dissipation is ambiguous.

CONCLUSION

The wasteful duplication thesis in natural monopoly regulation has a long and storied tradition. But its application to real-world problems and its invocation in the literature have demonstrated that commentators remain confused as to its scope and proper application. This Comment has situated the wasteful duplication thesis in the rent dis-

¹⁰² See Lueck, 38 *J L & Econ* at 403 (cited in note 12) (making the same point in the context of property rights).

sipation and property rights literature, thus permitting a richer understanding of its underlying justifications. The thesis is not, as some commentators urge, entirely incoherent, because it precisely parallels similar justifications in property rights theory.¹⁰³ Nor should it be used unthinkingly whenever the prospect of large investments by multiple private parties presents itself.

Rather, the concept of wasteful duplication of infrastructure should be invoked with a careful eye to costs and benefits.¹⁰⁴ Beyond this banality, we can posit that the success of a system of exclusive-rights regulation will depend crucially on the government's ability to administer it; on this score, experience counsels that simplicity in the rules governing the acquisition and definition of the exclusive right is important. Moreover, wasteful duplication itself ultimately stems from bargaining breakdowns, making the costs of contracting crucial to the government's decision to intervene and grant an exclusive right. The modest goal of this Comment has been to show how the wasteful duplication thesis must be invoked with a full understanding that its applicability turns crucially on costs and benefits.

¹⁰³ Or, at least, it is incoherent only to the extent that one believes the patent system, and the granting of property rights generally, is incoherent.

¹⁰⁴ In some respects, this Comment is little more than a minor extension of Harold Demsetz's thesis that property rights emerge when the benefits of internalization exceed the costs. See Harold Demsetz, *Toward a Theory of Property Rights*, 57 *Am Econ Rev Papers & Proceedings* 347 (1967).

