Antitrust and the Patent System: A Reexamination

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Introduction

Since the federal antitrust laws were passed in 1890 they have cycled through extreme positions on the relationship between competition law and the patent system. Initially came a period of extreme deference, in which the Supreme Court rejected every antitrust challenge to a patent practice. The Court approved product price-fixing in patent licenses,1 patent ties,2 and refusals to license externally acquired and unused patents.3 A single mention of patents in the 1914 Clayton Antitrust Act abruptly changed that.4 The Supreme Court began development of an aggressive patent "misuse" doctrine that placed severe limitations on the ways a patentee could restrict patent use.5 Under Thurman Arnold's leadership of the Antitrust Division in the late 1930s and 1940s, these concerns migrated into antitrust law.6 At the same time the Court invalidated an ever increasing number of patents under a restrictive "inventive genius" test, prompting Justice Jackson to complain that "the only patent that is valid is one which this Court has not been able to get its hands on."7

The Supreme Court also developed the "leverage" theory, initially in patent misuse doctrine8 and later in antitrust law.9 Under that doctrine a patent owner behaved

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1 E.g., E. Bement & Sons v. Nat'l Harrow Co., 186 U.S. 70, 91 (1902). ("The general rule is absolute freedom in the use or sale of rights under the patent laws of the United States. The very object of these laws is monopoly.").
6 HOVENKAMP, OPENING, supra note ___ at 200-203.
7 Jungerson v. Ostby & Barton Co., 335 U.S. 560, 572 (1949) (Jackson, J., dissenting) (applying "inventive genius" standard and finding lack of invention in combination of a well-known mold process and a well-known process of using centrifugal force to press melted wax into the mold; the process had been widely used with metals in the jewelry industry).
anticompetitively when it adopted a practice that was thought to extend its power "beyond the scope" of the patent itself. For example, *International Salt* condemned a patentee's tie of salt to its salt-injecting machine.\(^{10}\) The Court did not go so far as to say that such ties were condemned per se, without any showing of market power. It did what amounted to the same thing, however, by declaring that ownership of a patent created a presumption of sufficient power to make a patent tie unlawful.\(^{11}\) That presumption stood for nearly sixty years until it was overruled in 2006,\(^{12}\) becoming the basis for many attacks on restrictions in patent licensees.\(^{13}\)

The Supreme Court was hardly the sole instigator of these changes. Many were instigated by the Antitrust Division of the Justice Department. The Antitrust Division was largely responsible for spreading competition doctrine from patent "misuse," which arises exclusively in private patent litigation, into government enforced antitrust policy. The high point of patent aggressiveness was around 1970, when the Antitrust Division articulated its "nine nos" of patenting, virtually guaranteed to produce an antitrust challenge. This list included:

1. tying the purchase of unpatented materials as a condition of the license;
2. requiring a licensee to assign back subsequent patents;
3. restricting the resale right of a product's purchasers;
4. restricting a licensee's ability to deal in products outside the scope of the patent;
5. prohibiting a licensor from granting further licenses;
6. requiring mandatory package licensing;
7. requiring, as a condition of the license, royalties not reasonably related to the licensee's sales of products covered by the patent;
8. restricting a licensee's use of a product made by a patented process; and

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\(^{9}\) *Ethyl Gasoline Corp. v. United States*, 309 U.S. 436 (1940) (condemning resale price maintenance of gasoline containing the defendant's antiknock compound); *Univis Lens Co. v. United States*, 316 U.S. 241 (1942) (condemning RPM of lens blanks for bifocal glasses). The extensive case law is discussed in 8 PHILLIP E. AREEDA & HERBERT HOVENKAMP, ANTITRUST LAW ¶1621 (3d ed. 2011).


\(^{11}\) *Id.* at 395-395, 403-404


\(^{13}\) *See* 10 PHILLIP E. AREEDA & HERBERT HOVENKAMP, ANTITRUST LAW ¶¶ 1781-1782 (3d ed. 2011).
9. setting minimum resale price provisions for licensed products\textsuperscript{14}

The "nine no nos" pertained mainly to vertical practices, although some could be interpreted to reach horizontal practices as well. "No no" number nine encompassed both horizontal price fixing and resale price maintenance. In a perverse turn of events, in Bement and General Electric the Supreme Court had turned away challenges to horizontal price fixing of patented products if the price fix clause was part of a patent license.\textsuperscript{15} Congress attempted repeatedly to overturn the "GE rule," but without success.\textsuperscript{16} -- a point that three dissenting Justices emphasized in the 1947 Line Materials case, where a majority condemned a market wide price fixing agreement contained in patent cross-licenses.\textsuperscript{17} The antitrust enforcement agencies today largely ignore the decisions,\textsuperscript{18} even though they have never been overruled. In its 2013 Actavis decision, however, dicta in the majority opinion restricted their application to agreements between a "single patentee" and a "single licensee."\textsuperscript{19} In 1913 and 1917, however, the Court twice applied antitrust's per se rule to purely vertical price maintenance provisions imposed on dealers in patented products.\textsuperscript{20} The result was that for nearly a century purely vertical agreements on the pricing of patented goods were treated with greater hostility than agreements among competitors.

By the time the "nine no nos" were articulated, the current patent/antitrust doctrine had already come under blistering attack -- particularly its hostility toward patent ties.\textsuperscript{21} as well as its presumption that antitrust-imposed restrictions on patents would advance either competition or


\textsuperscript{17}United States v. Line Material Co., 333 U.S. 287, 362-363 & n. 30 (1948).

\textsuperscript{18} \textit{See, e.g., U.S. Department of Justice and FTC, Antitrust Guidelines for the Licensing and Acquisition of Intellectual Property} (1995), available at http://www.justice.gov/atr/public/guidelines/0558.htm (unpaginated text at note 34, citing \textit{GE} only as a qualifier to its then existing position that resale price maintenance is unlawful; never citing \textit{Bement}).


\textsuperscript{21} \textit{E.g., Ward S. Bowman, Tying Arrangements and the Leverage Problem}, 67 \textit{Yale L.J.} 19 (1957).
innovation.\textsuperscript{22} Today we are inclined to see patent tying arrangements as competitively benign in most cases.\textsuperscript{23} None of the "nine no nos" remains unlawful per se as a general matter. That includes number 9 when applied to resale price maintenance, which was placed under the rule of reason in 2007 by the Supreme Court's \textit{Leegin} decision.\textsuperscript{24} Market wide product price fixing is or should be an exception.\textsuperscript{25} Further, the presumption of market power is gone, and today patents are regarded in most cases as no more indicative of monopoly power than are land titles.

Both antitrust policy and patent policy are properly concerned with economic welfare, although the concerns are articulated more clearly in antitrust law than patent law. At the atmospheric level the concerns of antitrust are said to be with the short run, including such things as immediate pricing and output, while patent law is concerned with longer run issues relating to innovation. But upon inspection this dichotomy quickly breaks down. In fact, antitrust policy has always been concerned with performance over both the short and longer runs and often considers affects on innovation.

Previous studies of antitrust and the patent system have generally assumed that patents are valid, discrete, and generally of high quality in the sense that they further innovation. As a result, increasing the returns to patenting increases the incentive to do socially valuable innovation, whose gains must be traded off against the losses from patent exclusion.\textsuperscript{26} In the mid-1980s Louis Kaplow proposed a "ratio test" that assessed antitrust practices by balancing "patentee reward" against "monopoly loss."\textsuperscript{27} Kaplow himself recognized that the challenges in

\begin{footnotesize}
\textsuperscript{23}See 9 Phillip Areeda & Herbert Hovenkamp, \textit{Antitrust Law \\ \textsuperscript{24}Leegin Creative Leather Prods., Inc. v. PSKS, Inc., 551 U.S. 877 (2007).  \\
\textsuperscript{25}See discussion infra, text at notes __.  \\
\textsuperscript{27}Louis Kaplow, \textit{The Patent-Antitrust Intersection: A Reappraisal}, 97 Harv. L. Rev. 1813, 1831 (1984). As Professor Kaplow explained:  

In this ratio, “patentee reward” and “monopoly loss” refer, respectively, to the \textit{incremental} reward and loss resulting from the practice in question. In general, the higher the ratio, the more desirable the practice.
\end{footnotesize}
applying such a test are both "formidable" and "controversial."\textsuperscript{28} Indeed, in order make the relevant measurements one also required information about the optimal term of a patent.\textsuperscript{29} Not only is this term impossible to compute in litigation, it also varies considerably from industry to industry.\textsuperscript{30}

More fundamentally, though, if a patent does nothing to further innovation then \textit{any} amount of social loss from increased monopoly is harmful. In that case there is no additional benefit from innovation down the road. Since only a subset of patents are worthless, however, this naturally invites the question whether considerations of patent social value are a reasonable element of competition policy.

The approach taken here is driven by two premises. First, any resolution of patent/antitrust conflicts must be capable of judicial administration, although legislation can provide the relevant framework. This places the "patent social value" question out of bounds in most cases because it simply cannot be answered. Second, both antitrust and patent law are "regulatory" institutions which respond to political as well as economic pressures. An approach to harmonization that assumes that patent law always "gets it right" will lead to significant errors, just as much as an antitrust approach that does the same thing. Because of this, courts need to play the hands they are dealt, which are complex statutes that at least at the verbal level have surprisingly few inconsistencies. Further, judicial statutory construction is always subject to further Congressional revision, as the history of both statutory regimes amply indicates. For example, Congress responded with Section 3 of the Clayton Act in 1914 to what it viewed as an irrational lack of judicial concern about patent ties.\textsuperscript{31} It also responded to Supreme Court merger decisions in 1950 with expansions of the merger law.\textsuperscript{32} For its part, Patent Law was amended in 1952 in order to counter what Congress perceived as overly restrictive rules on patent issuance and excessively quick findings of misuse. It further limited misuse claims in 1988.\textsuperscript{33}

In the current state of the law, antitrust is doing a better job of assessing and addressing the concerns within its domain than patent law is at addressing its concerns. Indeed, antitrust law

\textsuperscript{28} Id. at 1833.
\textsuperscript{29} Id. at 1831.
\textsuperscript{33}35 U.S.C. § 271(d).
is often a more effective promoter of innovation than our current patent system is. To be sure, at various points in their history both antitrust law and patent law have engaged in considerable overreaching. Beginning in the late 1970s, however, antitrust law went through a lengthy and still ongoing process of court-imposed discipline that has brought its rules more closely into alignment with its stated concern, which is increasing consumer welfare by promoting competition. Today antitrust cases are far more difficult to win, the per se rule is less frequently used, and we have considerably heightened the requirements of allegation and economic proof. 34 By contrast, patent law has continued on an expansion course that is only now showing some signs of abating. Patent law still awaits the consumer welfare revolution that to a large extent has already occurred in antitrust doctrine. Writing in the mid-sixties Ward S. Bowman and Robert H. Bork warned of a "crisis in antitrust," presaging the significant reform that was to follow. 35 Today we are facing a crisis in patent law.

This article first examines antitrust and patent law as regulatory institutions with legislative authority to manage their given areas, but subject to limitations that all regulatory institutions face -- namely, high cost, imperfect information, and special interest capture. One failed approach to this regulatory enterprise was the view that the patentee acts improperly when it engages in activity "beyond the scope" of the patent. The flip side is that activity that is not "beyond the scope" is permissible. 36 A more sensible way to view the interaction between the patent and antitrust regulatory systems is to divide patent activity into two parts: pre-issuance and post-issuance conduct. Secondly one must look for explicit statutory authorization of the conduct in question. Post-issuance conduct that is not statutorily authorized is generally amenable to antitrust scrutiny. 37 Next we examine the antitrust and patent systems as regulatory institutions, finding that today the presence of special interest capture is far stronger in the patent system than the antitrust system, although that may not always have been the case. 38 After that we turn to the very different ways that antitrust and the patent system approach economic policy. The antitrust system is empirical, market based, and acutely sensitive to market diversity. In sharp contrast, the patent system is dominated by a much more myopic set of queries concerned with the boundaries of individual property rights and largely indifferent to market performance and diversity. If one thinks of the antitrust system and the patent system as tools for promoting

34 See BOHANNAN AND HOVENKAMP, CREATION WITHOUT RESTRAINT, supra, note __ at 33-59; and discussion infra, note __. The specific antitrust doctrines that gave effect to these changes are discussed in in 2 and 2A PHILLIP E. AREEDA & HERBERT HOVENKAMP, ANTITRUST LAW ¶¶305 (jury trial), 307-308 (complaint and summary judgment), 309 (expert testimony), 335-338 (plaintiff standing, causation and antitrust injury).
36 See discussion infra, text at notes __.
37 See discussion infra, text at notes __.
38 See discussion infra, text at notes __.
economic growth and consumer welfare, antitrust has distinct institutional advantages.\textsuperscript{39} Finally we develop a set of rules for evaluating specific disputes that implicate both antitrust and the patent system, focusing mainly on the difference between pre-issuance patent conduct, which is intensely regulated, and post-issuance conduct; as well as the differences between practices that are expressly authorized by the Patent Act and those that are not. Given the level of producer capture exhibited by the Patent Act, the search for express authorization is particularly important. A regulatory statute that bargains away the public interest must be followed, but silence and ambiguity should be construed against the interests in control of the legislative process. These principles are applied to a number of practices, including price-fixing in patent licenses, vertical practices, pay-for-delay settlements and other naked market division agreements, and improper patent enforcement actions.\textsuperscript{40}

\textbf{Antitrust and Patent Law as Regulators}

Both the antitrust and patent systems are regulatory institutions. Both call for government intervention in unrestricted market trading. Antitrust's principal purpose is to correct market failures brought about by lack of competition or to discipline activities that seek to limit it. The patent system is intended to correct market failures that result when investments in new technology or ideas cannot be effectively appropriated by the investor.

Stating the concerns in this way exaggerates their separateness, however. The market failures that result from harm to competition frequently include loss of inventiveness or technical progress, and the patent system ideally accomplishes its goals by metering a tradeoff between exclusion and access, which requires competitiveness and the free mobility of assets. The result is a complex set of rules that reflect the relationship between these two systems, with one frequently required to give way to the other, or vice-versa.\textsuperscript{41}

Of course, a "tradeoff" is necessary only if there is something to trade off. For much of our history the courts have applied aggressive antitrust rules to patent practices when the antitrust rules themselves did nothing to further competition. For example, we don't need to "trade off" the competitive harm from patent tying arrangements with patent law in the vast majority of cases where the tying arrangement does no competitive harm to begin with. By the same token, however, there is nothing to trade off when the patent rule in question causes competitive harm but does nothing to further innovation. In this sense the "crisis" of patent law overreaching today

\textsuperscript{39} See discussion \textit{infra}, text at notes __.
\textsuperscript{40} See discussion \textit{infra}, text at notes __.
\textsuperscript{41}Expressed in multi-volume legal treatises covering a wide array of subjects. \textit{See, e.g.,} H\textsc{erbert} H\textsc{ovenkamp}, M\textsc{ark} D. J\textsc{anis}, M\textsc{ark} A. L\textsc{emley}, and C\textsc{hris}t\textsc{opher} L\textsc{eslie}, \textsc{iP a}nd \textsc{a}ntitrust: \textsc{a}n \textsc{a}nalysis \textsc{of} \textsc{a}ntitrust \textsc{p}rinciples \textsc{a}pplied \textsc{t}o \textsc{i}ntellectual \textsc{p}roperty \textsc{l}aw (2d ed. 2010 & 2014 Supp).
resembles the antitrust crisis of the 1960s and 1970s.\footnote{Described in Bork and Bowman, supra note ___; and ROBERT H. BORK, THE ANTITRUST PARADOX: A POLICY AT WAR WITH ITSELF (1978). See also RICHARD A. POSNER, ANTITRUST LAW: AN ECONOMIC APPROACH (1976) (less rhetorical but equally critical).} For example, in the \textit{Trebro} decision, discussed below, the Federal Circuit traded off a considerable loss of market competitiveness for a remedy that did absolutely nothing to further innovation.\footnote{Trebro Mfg., Inc. v. Firefly Equip., LLC, 748 F.3d 1159 (Fed. Cir. 2014). \textit{See} discussion infra, text at notes __.}

The most important development in patent/antitrust law in the last three decades is that antitrust has become narrower and much more rigorous about its mission to protect competition.\footnote{See HERBERT HOVENKAMP, THE ANTITRUST ENTERPRISE: PRINCIPLE AND EXECUTION (2005); ROBERT H. BORK, THE ANTITRUST PARADOX: A POLICY AT WAR WITH ITSELF (1978).} At the same time, however, patent granting and interpretation have increasingly reflected producer capture and overbreadth. In addition, antitrust policy has become increasingly empirical, assessing practices by modeling impact on price, output, or other indicia of consumer welfare. In sharp contrast, patent law as applied in the courts has very little empirical economic content.

"Beyond the Scope"

One of the most unhelpful patent/competition rules is that a patent practice should be evaluated by querying whether it reaches "beyond the scope" of the patent grant. The formulation perpetuates the idea of the patent as a black box whose insides are largely free of scrutiny, while everything outside is challengeable. The "beyond the scope" formulation originated in nineteenth century cases involving patent term extensions applied retroactively to goods that had already been purchased.\footnote{E.g., Bloomer v. McQuewan, 55 U.S. 539 (1852).} It was later used to justify the judge-made first sale doctrine against patentees who attempted to enforce patents rights in goods that they had already sold.\footnote{E.g., Coupe v. Royer, 155 U.S. 565 (1895) (overly broad interpretation served to "enlarge a patent beyond the scope of its claim, as allowed by the Patent Office").} For example, in Adams v. Burke Justice Bradley described such post-sale restraints as attempts to assert rights that are "no longer within the limits of the monopoly."\footnote{Adams v. Burke, 84 U.S. 453, 460 (1873).} After that the formulation was used to refer to unreasonably broad construction of patent claims.\footnote{E.g., Coupe v. Royer, 155 U.S. 565 (1895) (overly broad interpretation served to "enlarge a patent beyond the scope of its claim, as allowed by the Patent Office").} In the twentieth century it was extended to cover patent practices such as cross-licenses and ties.\footnote{E.g., Mercoid Corp. v. Mid-Continent Inv. Co., 320 U.S. 661, 662 (1944) (cross-licensing: " If the limitations in a license reach beyond the scope of the statutory patent rights, then they must be tested by the terms of the Sherman Act"); United States v. Line Materials, 333 U.S. 287 (1948) (cross-licensing: " If the limitations in a license reach beyond the scope of the statutory patent rights, then they must be tested by the terms of the Sherman Act").}
The "beyond the scope" idea was essentially that a patent is a type of monopoly defined by a set of boundaries identified by its written description and claims. Certain actions were thought to enlarge this monopoly by extending its power outside, or "beyond the scope," of the patent grant. As Justice Douglas stated in the 1944 Mercoid decision, the law
denies to the patentee after issuance the power to use it in such a way as to acquire a monopoly which is not plainly within the terms of the grant. The necessities or convenience of the patentee do not justify any use of the monopoly of the patent to create another monopoly. The fact that the patentee has the power to refuse a license does not enable him to enlarge the monopoly of the patent by the expedient of attaching conditions to its use.50

This formulation has led the courts to two different ideas, both of which lack either conceptual or empirical support. One is that any patent practice that reaches "beyond the scope" of the patent is competitively harmful. The other is that a patent practice that does not reach "beyond the scope" of the patent is benign or untouchable.

As a matter of competition policy the "beyond the scope" formulation makes little sense. Antitrust is concerned with practices that are not authorized by other statutory provisions and that realistically reduce output and raise price. Some contractual restrictions do this, while most do not, but the "beyond the scope" analysis adds nothing to that determination. This is why the dissenters in Actavis were wrong to conclude that a naked market division agreement should be regarded as lawful because it did not stretch "beyond the scope" of the patent.51 Naked market division, the issue in Actavis, is not authorized by the Patent Act, whether or not the agreement goes beyond the scope of the patent.52

As a matter of patent policy, "beyond the scope" inquiries can certainly be meaningful to the extent that patents grant what they grant and no more. As a result, nineteenth century courts rightly complained that overly broad claim constructions were judicial attempts to extend the patent beyond its granted scope,53 and the same complaint has been repeated more recently concerning broad use of the doctrine of equivalents.54 The same thing would be true of attempts

50 Mercoid, 320 U.S. at 665-666.
51 FTC v. Actavis, Inc., 133 S. Ct. 2223, 2241 (2013) (Roberts, C.J., dissenting). Both Justice Breyer's opinion for the Court and the Chief Justice's dissent also used the phrase "beyond the limits of the patent monopoly." Id. at 2231, 2240.
52 See discussion infra, text at notes ___.
53 E.g., Coupe v. Royer, 155 U.S. 565 (1895).

to enforce patents beyond their expiration date, or to enforce them against defendants who are clearly not infringers. These are all fundamentally questions of patent law, and the "scope" question concerns what the protects and what it does not. But the antitrust question necessarily reaches more broadly, to concerns with impact on market price, output, or innovation.

In addition, the "beyond the scope" formulation is a relic of a bygone approach to antitrust and regulation, which once regarded regulation as "ousting" antitrust from the regulated market altogether. Once an area was deemed to be pervasively regulated, antitrust law had no place. As a result, the scope of antitrust immunity was a set of boundaries largely defined by the scope of a regulator's jurisdiction. Practices within that jurisdiction required oversight by the particular regulatory agency in charge, not by the antitrust laws. Reflecting this view, the "beyond the scope" identifies the patent as a black box free of antitrust scrutiny as long as the patentee stays within the box's boundaries. As Chief Justice Roberts put it in his Actavis dissent, "the scope of the patent -- i.e., the rights conferred by the patent -- forms the zone within which the patent holder may operate without facing antitrust liability."

This approach grew out of an era that was much more optimistic about regulation than we are today, regarding it as a complete substitute for competition law with respect to matters within its scope. After decades of exposure to ideas about regulatory capture, incompleteness, conflicts, and other imperfections in regulatory regimes, attitudes have evolved. Today we look at competition issues in regulated markets much more critically and focus more narrowly on the issue at hand. Antitrust policy yields if the regulatory provision or the courts interpreting it have clearly asserted jurisdiction over a particular practice and have controlled it as "effective stewards of the antitrust function." Private conduct that is not expressly authorized by the statute enjoys no such status, particularly if the agency itself has not asserted control. In particular, regulatory defenses to antitrust claims should not be taken seriously when activity that

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55E.g., Int'l Tech. Consultants, Inc. v. Pilkington PLC, 137 F.3d 1382 (9th Cir. 1998).
56Eon-Net LP v. Flagstar Bancorp., 653 F.3d 1314 (Fed. Cir. 2011).
59See United States v. Phila. Nat'l Bank, 374 U.S. 321, 351 (1963) (speaking of Pan Am, supra, "the Court held that because the Civil Aeronautics Board had been given broad powers to enforce the competitive standard clearly delineated by the Civil Aeronautics Act, and to immunize a variety of transactions from the operations of the antitrust laws, the Sherman Act could not be applied to facts composing the precise ingredients of a case subject to the Board's broad regulatory and remedial powers....")
61See 1A AREEDA & HOVENKAMP, supra note __, ¶¶ 241, 243.
is not authorized by statute is also "neither compelled nor approved by any governmental, regulatory body."62 As the Supreme Court observed:

To be sure, where Congress did intend to repeal the antitrust laws, that intent governs,…but this intent must be clear. Even when an industry is regulated substantially, this does not necessarily evidence an intent to repeal the antitrust laws with respect to every action taken within the industry….Intent to repeal the antitrust laws is much clearer when a regulatory agency has been empowered to authorize or require the type of conduct under antitrust challenge.63

Regulation and Three Areas of Patentee Conduct

As an alternative to "beyond the scope," it is more useful to divide patentee conduct raising competition issues into three areas. The first is pre-issuance conduct involving the patent application and prosecution process, all of which is under the intensive supervision of the USPTO and its examiners, as well as the Federal Circuit Court of Appeals. The second area concerns post-issuance conduct that is expressly authorized by the Patent Act, or occasionally, some other federal statutory provision. The third concerns post-issuance conduct that is not authorized by the statute.

Pre- vs. Post-Issuance Practices

The regulatory approach just described suggests powerful differences between patentee activity that occurs prior to patent issuance and that which occurs after. Prior to issuance the patent process is subject to intensive public agency scrutiny -- far more, in fact, than is the conduct of many private firms within the jurisdiction of regulatory agencies. Patent applications must be filed with the USPTO. During the patent prosecution process the applicant may rewrite some portions of the proposed patent, add or subtract claims, or even divide complex patents into two or more. At every stage, however, the decision whether or not a patent will be issued and its final text is given to a government official. To be sure, the USPTO might issue too many patents, or it might issue patents on claimed inventions that never should have been patented, but these are not matters of antitrust concern. It is not antitrust's purpose to police shortcomings in other regulatory agencies.

One possible exception is the Walker Process doctrine, discussed below, which can make it unlawful under the antitrust laws to enforce a patent obtained by fraud or inequitable conduct during the patent prosecution process, provided that the enforcement action threatens to create or

63Id. at 839.
maintain a monopoly. The doctrine is applied very sparingly, however, and with good reason. Patent law contains its own provisions and rules that discipline improper conduct in the patent prosecution process, ranging from invalidation to the award of attorneys fees against patent infringement plaintiffs who abuse the process. Once again, the Federal Circuit may be too generous to patentees in this area. But these are fundamentally not antitrust problems.

In any event, however, Walker Process is not about pre-issuance conduct as such. It is concerned with infringement actions, which occur post-issuance. The relevant question is whether the infringement plaintiff sued with an objectively reasonable expectation of success, measured from the time that the infringement lawsuit is filed.

Once a patent goes "out the door," so to speak, the amount of USPTO supervision changes dramatically, from very high to almost non-existent. The USPTO does have jurisdiction for re-examination, payment of maintenance fees, and a few housekeeping matters. By and large, however, an issued patent is completely in the control of its owner, subject to express limitations in the Patent Act. It is treated for antitrust purposes much as any business asset. No one supervises licensing and transfer practices, although there is a passive recordation requirement for assignments, protecting bona fide purchasers without notice. Licensing decisions, patent ties, exclusive dealing agreements, mergers, pricing of both licenses and products, and exclusionary practices are all within the patent owner's control.

Authorized vs. Unauthorized Post-Issuance Practices

Explicit statutory authorizations are immune from antitrust scrutiny even if there is not regulatory supervision. Many provisions of this kind do not require much in the way of supervision at all. For example, once federal law requires new cars to be equipped with seat belts it cannot be an unlawful antitrust tying arrangement for a car manufacturer to refuse to sell an automobile without them. In such cases the specific authorization in a federal statute controls the more general terms of the antitrust laws.

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65 Id., ¶ 705a. But see the discussion infra, text at notes ____, suggesting that these tools are inadequate.
67 3 AREEDA & HOVENKAMP, supra note ____, ¶ 706a,b.
Just as any regulatory provision, the Patent Act is a code that removes certain activities from antitrust scrutiny. For example, once the Patent Act authorizes a patent for a given term, exclusion via patent enforcement during that term cannot be unlawful under the antitrust laws.\textsuperscript{70} The same thing is true of other practices that the statute authorizes, including exclusive and nonexclusive production licenses,\textsuperscript{71} ties in the absence of market power,\textsuperscript{72} simple refusals to license,\textsuperscript{73} and patent assignments.\textsuperscript{74}

On the other hand, the Patent Act does not authorize product price fixing, market divisions unrelated to a production license, predatory pricing in patented goods, anticompetitive acquisitions,\textsuperscript{75} resale price maintenance of patented goods, ties in the presence of market power, exclusive dealing, or infringement suits based on patents that the owner knows or should know are invalid or unenforceable under the circumstances. The Patent Act expressly permits unilateral refusals to license, but does not say anything about concerted refusals to licenses -- although the Federal Circuit suggested to the contrary in its \textit{Princo} decision.\textsuperscript{76} Nor does it have anything to say about practices that have been compared to tying, including package licensing, royalties attached to unpatented goods produced with the patented process, or agreements requiring the making of royalty-like payments that extend past the patent's term.\textsuperscript{77} It nowhere authorizes payments to others to cease production in ways that would infringe the patent, assuming that it is valid.\textsuperscript{78}

Most of the practices in this list are not antitrust violations. Indeed, far fewer practices are regarded as antitrust violations today than were so regarded in 1970, when the Justice Department's list of "nine no nos" was issued.\textsuperscript{79} The significance of the list is that these are practices that can be made subject to antitrust analysis and condemned if a suitable threat to competition is established under ordinary antitrust rules.

\textit{Consumer Welfare and Capture}

The change in attitudes about the relationship between antitrust and regulation was heavily driven by concerns about regulatory capture, particularly by producer interests. As noted previously, the idea that regulation should "oust" antitrust was driven by an optimistic public

\textsuperscript{70} 35 U.S.C. § 271(d) (3).
\textsuperscript{71} 35 U.S.C. §§ 261, 271(d) (2).
\textsuperscript{72} 35 U.S.C. § 271(d) (5).
\textsuperscript{73} 35 U.S.C. § 271(d) (4).
\textsuperscript{74} 35 U.S.C. § 261.
\textsuperscript{75} See 5 PHILLIP E. AREEDA & HERBERT HOVENKAMP, ANTITRUST LAW ¶ 1202f (3d ed.2009).
\textsuperscript{77}See discussion \textit{infra}, text at notes ___.
\textsuperscript{78}As in FTC v. Actavis, Inc., 133 S. Ct. 2223 (2013); see discussion \textit{infra}, text at notes ___.
\textsuperscript{79} See note __, supra.
interest attitude toward regulation that subsequently came under intense scrutiny.\textsuperscript{80} An age that is more skeptical about regulation naturally looks with beadier eyes. Rather than seeing regulatory legislation as serving the public interest, we are more likely to view it as a response to the political pressures of organized interest groups. Interest groups that are better organized, more homogenous, and have larger individual stakes invest much more than large, diffuse groups whose individual stakes are small. In this process consumers often come out as losers because their interests are diverse and individually quite small, even though there are millions of them.\textsuperscript{81}

The most effective ways of limiting the effects of capture are, first, to limit regulatory intervention to situations where it is absolutely necessary. This principle applies to antitrust law as well, but it also applies to the issuance of patents. Second, government decision makers need to be more explicit and transparent when they remove practices from competitive constraints. Explicit legislation that is otherwise valid cannot be overturned simply because it is a product of capture, but the courts need not go beyond the statutory text and give private firms greater anticompetitive power than they were able to bargain for in the legislative process.\textsuperscript{82}

The intellectual property laws, but particularly copyright and patent, are among the most captured regimes in the American legal system today.\textsuperscript{83} By and large Congress has listened to producers while paying little attention to the voices of consumers. One consequence is that Patent Law has not developed any equivalent to the "consumer welfare" prescription that has become so central to antitrust analysis. Even the dissenting Justices in the Actavis decision

\textsuperscript{80}See Hovenkamp, \textit{Opening}, note \_\_ at 307-308.


recognized the centrality of consumer welfare as an antitrust goal. The structural problems of capture in the Patent System go much further, however. Patent prosecution remains a largely ex parte process in which patent examiners and other USPTO officials listen to patent applicants first and foremost. While there is some limited room for opposition, most of it occurs from other affected producers. One consequence of ineffectual opposition in the system is that fields become very crowded with patents of indeterminate value, but nevertheless the cost of challenging or avoid them is very high. As a result, they can deter competitive entry and innovation even if they do little to promote long run technical progress. Just as the availability of patenting may affect the course of invention, so to the existence of heavily patented environments may serve to direct innovation away from these environments, at least on the part of new firms. Some studies have concluded that in an environment heavy in patent infringement suits filed by patentaggregators incumbent firms simply stopped or slowed down innovating activity.

The history of public choice theory and intellectual property policy has been somewhat underresearched. While public choice writers attacked government regulatory policy concerning the railroads, food and drugs, the environment, corporate securities and banking, or other areas with great enthusiasm, intellectual property regulation has traditionally enjoyed a privileged position -- as if it were somehow exempt from the same processes of special interest capture that are at work in other regulatory areas. That is starting to change. Part of the explanation for this

84 FTC v. Actavis, Inc., 133 S. Ct. 2223, 2238 (2013) (Roberts, C.J., dissenting) ("The point of antitrust law is to encourage competitive markets to promote consumer welfare.").
87 See discussion, infra, text at notes __.
is historical. The PTO is not one of the great regulatory edifices of Progressivism and the New Deal, such as the Food & Drug Administration, the Securities Exchange Commission, or the Glass-Steagag Act. Rather, it has been around since the early national period. Further, it has historically been blessed with an aura of specialization and expertise that tended to emphasize the role of producers while minimizing the role of the courts. When the patent prosecution process did get into the courts it was mainly through infringement lawsuits filed after patents were issued and invalidity was raised as a defense.

The absence of a consumer welfare prescription in patent law is troublesome. Consumer interests should be just as central to intellectual property as they are to antitrust enforcement. Just as in antitrust, consumers have the correct set of incentives. They tend to profit from a well functioning patent system that furthers innovation that expands output and increases quality and variety, while reducing costs. More generally, consumers profit from economic growth and innovation is growth’s largest driver.90 Further, consumers tend to be injured by restrictive rules that facilitate exclusion or collusion without producing offsetting benefits in the form of increased incentives to innovate.91

Over history, congress has more-or-less consistently ratcheted up patent protection at the behest of producer groups. For example, in 1952 it responded to a series of Supreme Court rulings limiting patent coverage to acts of "genius" by redefining patentability in terms of merely "nonobvious" subject matter.92 That same year it limited the judge made doctrine of patent

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90See discussion infra, text at notes ___.
misuse. Some of those reforms incidentally benefitted consumers.  

Even today, debates about patent reform and what to make of the recent explosion of infringement lawsuits tend to be waged between different groups of producers. In areas such as pharmaceuticals where the patent system works relatively well, most participants oppose significant change. By contrast, firms operating in information technologies want reform. This has little to do with consumer interests as such. Rather, the patent system as we currently have it has become a deadweight loss on firms operating in markets for information technologies, often yielding private costs that exceed benefits. When consumer interests are recognized in the judicial process, it is in antitrust cases, not patent cases.  

This history of producer capture makes statutory silence all the more important in areas where competition policy is clearly affected. A prime example is pay-for-delay settlements in the pharmaceutical industry, which were the subject of the Supreme Court's Actavis decision. While the Patent Act authorizes production licenses, it says nothing about naked payments to keep a rival out of the market. As a matter of competition policy, the case against large pay-for-delay settlements is overwhelming. Indeed, there is no equilibrium pay-for-delay settlement agreement that can be reasonably anticipated not to harm consumer welfare. What many of these settlements do is create little duopoly cartels between a pioneer drug manufacture and an agreeing generic that effectively shields the patent from outside challenge, no matter how weak it is. This is why the Supreme Court acted correctly when it held that such agreements could be condemned without necessarily inquiring into questions about patent validity or infringement. Significantly, however, as a consistent history of Patent Act capture shows, if Congress wishes it can always amend the Patent Act so as to permit such settlements. 

An important regulatory principal about statutory construction is at work here. Courts are obliged to apply explicit statutory mandates even if they are a consequence of capture. But when capture is a realistic threat and harm is apparent, statutes that are silent on the issue or ambiguous

94 Ibid. (expanding the list of practices not to be regarded as misuse).
96 E.g., In re DDAVP Direct Purchaser Antitrust Litig., 585 F.3d 677 (2d Cir. 2009) (granting antitrust standing to consumers to challenge pay-for-delay settlement); Ritz Camera & Image, LLC v. Sandisk Corp., 700 F.3d 503 (Fed. Cir. 2012) (similar, Walker Process).
97 FTC v. Actavis, Inc., 133 S. Ct. 2223, 2238 (2013). See discussion infra, text at notes __.
99 See discussion infra, text at notes __.
should be construed against the special interest group that controls the process. Bad rules that run contrary to this group's interests are likely to be changed. On the other hand, a bad decision that favors the interest group in charge is unlikely ever to be changed because those on the other side lack the political organization.  

Antitrust Capture: the Government as Buyer

Antitrust is hardly immune from capture, but there are important differences that serve to limit the role of capture in antitrust adjudication. One is the spare and highly general language of most of the statutory provisions. The Sherman Act speaks very simply of practices that "restrain trade" or "monopolize." The Clayton Act is a little more specific, condemning tying, exclusive dealing, and mergers "where the effect may be substantially to injure competition," but saying very little more. The Robinson-Patman Act, passed during the Great Depression as a lengthy amendment to Section 2 of the Clayton Act, is an important exception, intended to protect mainly small family run grocery stores at the expense of larger more efficient sellers and the public. But widespread recognition of its special interest nature has led to suppression of its use, by both the Antitrust Division and the Supreme Court. The balance of the antitrust laws state a very general concern with competition and place the onus for interpretation on judges. Federal judges certainly have ideologies or preconceptions, but they are not actively lobbied, their ex parte contacts in a particular case are severely limited, and they have lifetime tenure which shields them from the most overt political processes.

The federal enforcement agencies are certainly more political, but one thing that distinguishes them from most other government agencies is their highly general, multi-market mandate. Antitrust applies to all commercial activity affecting interstate commerce that has not been exempted. Further, the legal principles, such as market definition or assessment of power, apply across the full range. As a result the idea that any particular industry can capture an antitrust agency is doubtful.

100 For particular application to copyright law, see Christina Bohannan, Reclaiming Copyright, 23 CARDOZO ARTS & ENT. L.J. 567 (2006). More generally, see EINER ELHAUGE, STATUTORY DEFAULT RULES: HOW TO INTERPRET UNCLEAR LEGISLATION (2008).


105 Great Atl. & Pac. Tea Co. v. FTC, 440 U.S. 69, 83 (1979) (noting need to interpret Robinson-Patman Act so as to minimize inconsistency with Sherman Act);
To be sure, there may be some offsetting considerations. For example, the government is a market participant as well as an enforcer. It is a very large purchaser of military equipment, office equipment, vehicles and fuel, and pharmaceutical drugs, particularly through federally administered health care programs. One interesting question is whether a somewhat different type of capture occurs. Perhaps the government's role as a market participant distorts its decision making when it acting as an enforcer.

Historically, the empirical case for such distortion seems quite weak. For example, the government has always been a very large purchaser of leather shoes, principally for the military, but that did not stop it from using antitrust law in Brown Shoe to protect higher cost smaller firms by restricting the efficiencies that a larger but by no means monopolistic firm could obtain from a merger.106 The government also frequently opposed vertical integration in industries in which it purchased products, even though the consequence was almost certainly higher prices in the markets in question,107 and it challenged monopolization in the aluminum industry on the theory that Alcoa continuously expanded its capacity in anticipation of greater market demand, a price and cost reducing strategy.108 Indeed, the government obtained a decree that forbad Alcoa to bid on aluminum plants that the United States government sold after the war, certainly reducing the amount of revenue that the government obtained.109 For a half century the antitrust enforcement agencies, particularly the Federal Trade Commission, engaged in relentless attempts to condemn efficient price discrimination practices under the Robinson-Patman Act. The result was clearly to increase the price of several products for which the government was a very large purchaser -- including petroleum, foodstuffs, vehicles, gasoline, tires, automobile parts, and the like. In other cases they sought rules whose higher costs would apply to government purchasers,

106 Brown Shoe Co. v. United States, 370 U.S. 294 (1962). See the district court's opinion, 179 F.Supp. 721, 738 (E.D. Mo. 1959) (citing the post-merger firm's lower costs as a reason for condemning the merger); and see Brief for the United States 48, Brown Shoe, 370 U.S. 294 (No. 4, Nov. 15, 1961), 1961 WL 101890 (arguing that the merger will permit the post-merger firm to sell its own product at a significantly lower price than the non-integrated independent retailer can obtain for a comparable product.... The conclusion was inevitable that the advantages the merged company would have over its similar retailing competitors would be so great as to threaten to become decisive.


108 United States v. Aluminum Co. of Am. ("Alcoa"), 148 F.2d 416, 437-438 (2d Cir. 1945).

whether or not the specific items in that case were subject to government purchase.\textsuperscript{110} The "purchaser capture" argument also seems inconsistent with the general public choice theory regarding the FDA, which generally sees it as holding back on drug development and raising drug costs.\textsuperscript{111} Given that the United States is the single largest producer of American pharmaceutical drugs, the capture argument seems not to work very well here either.

\textsuperscript{110}E.g., Great Atl. & Pac. Tea Co. v. FTC, 440 U.S. 69, 83 (1979) (seeking to condemn large chain store for bargaining for lower prices from suppliers); FTC v. Borden Co., 383 U.S. 637, 641 n.4 & 643 (1966) (seeking to require Borden to charge the same higher price to chain stores as to individually owned stores); FTC v. Morton Salt Co., 334 U.S. 37, 47 (1948) (attacking Morton Salt's system of quantity discounts); United Biscuit Co. of America v. FTC, 350 F.2d 615 (7th Cir. 1965), cert. denied, 383 U.S. 926 (1966) (similar); Goodyear Tire & Rubber Co. v. FTC, 101 F.2d 620 (6th Cir.), cert. denied, 308 U.S. 557 (1939); Fred Meyer, Inc. v. FTC, 359 F.2d 351 (9th Cir. 1966), rev’d on other grounds, 390 U.S. 341 (1968) (pursuing promotional allowances in grocery retailing); Ark. Wholesale Grocers’ Assn. v. FTC, 18 F.2d 866 (8th Cir. 1927) (condemning grocers’ association boycott of suppliers who sold to chain store retailers at the same price as they sold to the defendant wholesalers); United States v. S. Cal. Wholesale Grocers’ Assn., 7 F.2d 944 (S.D. Cal. 1925) (similar, Justice Department suit) Joseph A. Kaplan & Sons, Inc., 63 F.T.C. 1308, 1347 (1963), modified & aff’d, 347 F.2d 785 (D.C. Cir. 1965) (seeking condemnation of a promotional allowance); Tri-Valley Packing Assn. v. FTC, 329 F.2d 694, 703 (9th Cir. 1964) (condemning discounting in market acknowledged to be "highly competitive"); Standard Oil Co., 41 F.T.C. 263 (1945), modified & aff’d, 173 F.2d 210, 217 (7th Cir. 1949), rev’d on other grounds, 340 U.S. 231 (1951) (should be liability if defendant “sells to a wholesaler it knows or ought to have known…is using or intends to use [the wholesaler’s] price advantage to undersell [the] prices made to…retailers”); Standard Oil Co. v. FTC, 41 F.T.C. 263 (1945), modified & aff’d, 173 F.2d 210 (7th Cir. 1949), rev’d on other grounds, 340 U.S. 231 (1951) (accusing Standard of not assessing sufficiently high markups against some resellers). See also FTC, Chain Stores: Final Report on the Chain-Store Investigation (1934), S. Doc. No. 4, 74th Cong., 1st Sess. 78 (1935) (documenting extent to which chain stores undersold family owned grocers). On automobile parts, see Am. Motor Specialties Co. v. FTC, 278 F.2d 225 (2d Cir.), cert. denied, 364 U.S. 884 (1960); Mid-S. Distribrs. v. FTC, 287 F.2d 512 (5th Cir.), cert. denied, 368 U.S. 383 (1961); Standard Motor Prods. v. FTC, 265 F.2d 674 (2d Cir.), cert. denied, 361 U.S. 826 (1959); Purolator Prods., Inc. v. FTC, 352 F.2d 874 (7th Cir. 1965), cert. denied, 389 U.S. 1045 (1968) (automobile air filters); Alhambra Motor Parts, Inc., 68 F.T.C. 1039 (1965) (automobile parts buyers' cooperative). See also Backhauling Advisory Opinion No. 147, 72 F.T.C. 1050 (1967) (in delivered pricing system trucks should return empty rather than receiving a price allowance for agreeing to carry cargo; opining that "it is highly doubtful that the defense of cost justification … would be available."). See also Minneapolis-Honeywell Regulator Co., 44 F.T.C. 351, 394 (1948), rev’d on other grounds, 191 F.2d 786 (7th Cir. 1951), cert. dismissed, 344 U.S. 206 (1952) (rejecting the use of cost studies to justify discriminatory prices as cost justified).

\textsuperscript{111} See, e.g., James T. O'Reilly Losing Defense in the FDA's Second Century: Judicial Review Politics, and a Diminished Legacy of Expertise, 98 CORNELL L.REV. 939 (2008); Merrill Goozner, Conflicts of Interest in the Drug Industry's Relationship with the Government, 35 HOFSTRA L. REV. 737, 738-42 (2006) (mainly, big pharma influence); Michael E. Horwin,
In sum, while the government is in fact a very large market participant, there is no good empirical case to be made that this has affected its antitrust policy. For much of the history of the antitrust laws the government promoted antitrust rules that were either indifferent to cost savings or else imposed higher costs on the very products that it purchased.

When the government participates in markets subject to the antitrust laws it is typically as a consumer rather than producer. Given that "consumer welfare" is the articulated goal of the antitrust laws, the interests of the government as a consumer are presumably aligned with the interests of the government as an enforcer: it wants what makes consumers best off.

Perhaps this is too simplistic. When the government purchases drugs its vision may in fact be myopic, overwhelmed by short run costs that come out of the current budget. This may lead it to discount the impact of long-term innovation, which might benefit consumers more, but over a longer period of time. For example, perhaps the federal government operates as a buyer in pharmaceutical markets so as to encourage generic drug use, and this pro-generic bias spills into its antitrust enforcement policy as well. As a result, the tradeoff between immediate low prices and long run investment is negative.

In any event, in order to make this determination we would first have to conclude that there is something to trade off. For example, if there were any actual evidence that condemning pay-for-delay pharmaceutical settlements reduces consumer welfare by suppressing innovation, then the government might be obliged to balance. Based on present information, however, the evidence is quite overwhelming that condemning pay-for-delay settlements increases consumer welfare greatly in the short run by leading to lower drug prices and more widespread use. The idea that condemning such settlements impairs the incentive to innovate and that the social costs of this impairment exceed the benefits of increased access has no empirical support.

Patent Regulation and the Actavis Decision

The Hatch-Waxman Act and Supreme Court's Actavis decision, which is discussed in more detail later, illustrate these regulatory principles.\textsuperscript{112} “Pay-for-delay” settlements, in which a patentee pays an infringement defendant a very large sum to stay out of the patentee's, appear to be a unique feature of the Hatch-Waxman grant of secondary exclusivity to the first generic firm to challenge a pioneer's patent.\textsuperscript{113} But a Congressional overruling of Actavis, should that occur, need not take the form of a general Patent Act amendment. It would most likely be an amendment to Hatch-Waxman itself, applying only to situations which that provision covers. In


\textsuperscript{112} FTC v. Actavis, Inc., 133 S. Ct. 2223, 2241 (2013). \textit{See} discussion infra, text at notes ___.

\textsuperscript{113} The majority and dissenters in Actavis debated this proposition, but the majority was clearly correct on the facts. \textit{See} Herbert Hovenkamp, \textit{Anticompetitive Patent Settlements and the Supreme Court's Actavis Decision}, 15 MINN. J.L. SCI. & TECH. 3, 15-16 (2014).
the case of pharmaceuticals, there is a strong history of producer control over the drug creation and approval system. Patentees in other markets need not worry.

Briefly, the Hatch-Waxman Act provisions at issue in *Actavis* were designed to facilitate the entry of generic drug manufacturers into a market when the drug entered the public domain because its patents had either expired or been invalidated. One problem with generic entry is that often if everyone can enter no one will. Bioequivalent generics are chemically identical, marking them largely fungible with one another. As a result competition among generics will drive prices to the competitive level, making immediate entry by multiple firms unpromising. The compromise position envisioned by the statute is to permit a single generic to enter first, with its own shorter period of exclusivity. Such entry typically produces lower prices quickly. After this generic has produced for a time, then other generics are permitted to come in. The period of first generic exclusivity is currently 180 days from the date generic production commences.\(^{114}\)

Clearly Congress did not foresee the possibilities of abuse that have emerged. The right of generic exclusivity vis-a-vis everyone except the pioneer creates a duopoly with absolute legal protection from challenge or new entry for the duration of the agreement, no matter how weak the pioneer's patent. If there is any doubt about a question of patent validity or infringement, the joint maximizing solution for the pioneer and the first entrant is to divide up the maximum profits available under this duopoly. The price and output determined by a well functioning cartel is identical with the price and output determined by a monopolist.\(^{115}\) Under the pay-for-delay settlement the 180-day clock does not run, because the generic is not producing anything. The more likely that the patent will not withstand judicial scrutiny the more the pioneer will be willing to pay for this agreement.

One important thing about pay-for-delay settlements is that they are favored by *both* the pioneer and the first generic. Dividing up the monopoly proceeds is virtually always more profitable than competing, even within a duopoly. The only way that the two firms could hope to duplicate this return would be if they fixed prices after the generic started producing. But this would be unlawful collusion under the antitrust laws and even a criminal offense.

In defense, settlement participants point out that if the patent is valid and infringed the generic would lose its lawsuit anyway and the result would be the patentee's continued sole production under the patent, or the monopoly result. This is a point that the *Actavis* dissenters

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As a result, a pay-for-delay settlement on an absolutely valid patent would generate a result no worse than litigation would achieve, provided that the duration of the pay-for-delay settlement is no longer than the remaining duration of the patent in question. This is where the "within the scope" issue arises, because the settlement agreements typically terminate prior to the expiration of the patent.

Pharmaceutical drug patents on pioneer molecules are very robust, and for these we would not ordinarily expect large pay-for-delay settlements. It is no coincidence that pay-for-delay settlements are almost never on generic versions of pioneer molecules. Rather they are on extension or "evergreened" patent patents on new dosages, new treatments, or new combinations of well established drugs. When generic entrants actually pursue patent infringement litigation to completion the patents end up being declared invalid or infringed a very high percent of the time. Prohibiting large pay-for-delay settlements will force patentees to litigate against generics or perhaps give them a production license.

The debate between the majority and dissenters in the Actavis decision illustrates two different approaches to the competitive analysis of post-issuance patent practices. As a matter of antitrust law, a pay-for-delay settlement is a naked market division agreement. There is no joint production or distribution, or sharing of technology or information. The pioneer is simply paying the generic to stay out of the market. Further, while production licenses are expressly authorized by the Patent Act, and are a common way of settling patent infringement cases, naked exclusion payments are not authorized by either the Patent Act nor the Hatch-Waxman Act.

The Actavis dissenters believed such agreements were impervious to antitrust challenge so long as they fell within the patent's scope. Of course, the agreement would not be within the patent's scope if the patent were invalid or uninfringed, but historically the courts have not considered these issues unless there were clear abuses. If the term of the agreement extended beyond the life of the patent, then it would exceed the patent's scope whether or not the patent was valid or infringed.

The dissenters were generally correct that over a long history the federal courts have followed a policy of encouraging settlements of patent infringement suits. They have been reluctant to dive into questions of validity or infringement simply when determining whether a

116 See Actavis, 133 S. Ct. at 2238-2239 (C.J. Roberts, dissenting).
settlement should be approved. The general assumption in these cases, however, is that there was true adversity between the parties, the patentee seeking to enforce its patent and the defendant seeking to avoid it or limit its costs. Thus the Supreme Court has concluded that an important test for a settlement was whether there were "genuinely conflicting" litigation claims. That is not the case in Hatch-Waxman pay-for-delay settlements where both the patentee and the generic are made better off by the settlement than by generic production.

The Court's strong preference for settlement has resulted in some clearly anticompetitive arrangements, such as the infringement settlement in Bement that included a provision fixing product prices. Actavis restates a point that the Supreme Court had previously embraced but inconsistently applied: patent settlements containing anticompetitive provisions that are not authorized by the Patent Act will receive closer scrutiny than provisions that are authorized.

By contrast, the majority took an approach that was much more critical of the regulatory process that the patent system entails. First of all, while the Patent Act expressly authorizes production licenses it nowhere permits naked market division agreements, and neither does the Hatch-Waxman Act. In most patent infringement cases involving cash settlements the infringement defendant pays a license fee to the patentee for permission to produce under the patent. Significantly, such license agreements are expressly authorized by the Patent Act and are lawful whether or not they are the outcome of infringement litigation. By contrast, not only are pay-for-delay settlements not authorized by either the Patent or the Hatch–Waxman Act, they seem quite inconsistent with the purposes of the latter statute. While the Court required rule of reason treatment, it made clear that this meant mainly that the burden of proving power and anticompetitive effects were on the plaintiff; however, both could be proven by truncated


Only if a patent settlement is a device for circumventing antitrust law is it vulnerable to an antitrust suit. Suppose a seller obtains a patent that it knows is almost certainly invalid (that is, almost certain not to survive a judicial challenge), sues its competitors, and settles the suit by licensing them to use its patent in exchange for their agreeing not to sell the patented product for less than the price specified in the license. In such a case, the patent, the suit, and the settlement would be devices—masks—for fixing prices, in violation of antitrust law.

120 E. Bement & Sons v. Nat'l Harrow Co., 186 U.S. 70 (1902). See discussion infra, text at notes

evidence. In this case, large payments for delay provided good evidence of market power,\footnote{Actavis, 133 S. Ct. at 2235-2236.} as well as anticompetitive effects.\footnote{Ibid.}

**Patent and Antitrust Approaches to Competition and Innovation: Comparative Advantage**

At least since the passage of the Clayton Act in 1914, courts deciding antitrust cases have attempted to accommodate patent policy to competition policy. To be sure, courts are imperfect and they have wandered to extreme positions upon occasions, but at least they have taken seriously the idea that competition and innovation policy are related to one another.

To illustrate, consider the virtually categorical antitrust rule that a product innovation cannot be unlawful, no matter how much it harms competitors.\footnote{E.g., Allied Orthopedic Appliances, Inc. v. Tyco Health Care Grp. LP, 592 F.3d 991, 1001–02 (9th Cir. 2010). See 3B PHILLIP E. AREEDA & HERBERT HOVENKAMP, ANTITRUST LAW ¶776 (3d ed. 2015) (in press).} The rule has nothing to do with patent law counterclaims or even with any recognition of a specific patent law doctrine. Rather is it rooted in antitrust law's own appreciation that innovation policy is part of antitrust policy, requiring courts to consider them together, often protecting innovation even when it tends to support monopoly. Patent law simply does not have this tradition except in a few areas that fall into patent law's outer boundaries. For example, patent "misuse" doctrine recognized important competitive concerns in patent law licensing and enforcement, often exaggerating them. But recent case law has virtually written the patent misuse doctrine out of existence.\footnote{See Christina Bohannan & Herbert Hovenkamp, Concerted Refusals to License Intellectual Property Rights, 1 HARV BUS. L. REV. ONLINE 21 (2011).} The Supreme Court has occasionally suggested that concerns about competition play a role in defining the scope of IP rights -- for example, denying trade dress protection to functional uses.\footnote{E.g., TrafFix Devices, Inc. v. Mktg. Displays, Inc., 532 U.S. 23 (2001). See Thomas F. Cotter, The Procompetitive Interest in Intellectual Property Law, 48 WM. & MARY L. REV. 483 (2006) (citing misuse doctrine and functionality limits on trade dress law as examples of competition concerns raised within IP policy).}

Patent law has operated in a much more myopic universe in which competition policy is rarely addressed except in the small subset of cases that expressly include an antitrust counterclaim or allege patent misuse. Indeed, in some cases patent increased competition is considered to be the "harm" that justifies patent law relief -- precisely the opposite of the "antitrust injury" rule that refuses to condemn a practice unless harm to competition is shown. A good example is the Federal Circuit's 2014 decision in Trebro vs. Firefly, which counted...
competition itself as patent law harm justifying an injunction on an unpracticed patent that the plaintiff had acquired from an outside inventor.\textsuperscript{127} Injunctions are generally denied to non-practicing entities, but in this case the court held that the fact that the parties were competing served to justify one. No antitrust issues were raised, but that is not surprising given that patent law decision making has never developed a culture of taking competition issues seriously.

It some cases increased competition should count as "injury" for patent infringement purposes. That would be true, for example, when a competitor is a direct infringer of a technology that a dominant firm is practicing. In any event, the Patent Act's expressly created right to bring an infringement action contains no exception for actions against competitors. But entitlement to an injunction is a matter of equitable principles that are not narrowed by any Patent Act provision. To permit a firm to acquire potentially competing technology that it is not using and then shut down a rival can do considerable harm to competition without protecting any element of innovation.

The problem goes deeper than this, however, reflecting a fundamental difference in how antitrust and patent law approach economic policy. The theoretical and empirical literature on price theory, industrial organization, and competition is large and stretches across more than a century. The courts generally paid attention, making antitrust the first area in which there was significant judicial reliance on economic literature.\textsuperscript{128} The record reveals diverse impulses resulting from different economic theories as well as differing ideas about the goals of antitrust law. For example, the post-New Deal era was dominated by an economic theory that strongly distrusted markets and had heightened fears about the competitive threats imposed by vertical integration, product differentiation, and intellectual property.\textsuperscript{129} The Warren Era in the 1960s was overly preoccupied with protecting smaller businesses from conduct that was presumed to be anticompetitive but that was often efficient.\textsuperscript{130} The courts and enforcement agencies were generally following the mainstream economics of the day.\textsuperscript{131} Beginning in the 1980s the courts became much more explicit about their use of economic research in antitrust analysis.

Patent law is a remarkably different enterprise, in which the courts receive little guidance from the economic literature. Part of the reason for this is that we have historically treated patents as "property" rights rather than as an element of economic policy. A distinctive feature of property rights in our legal system is that their absoluteness provides a certain degree of

\textsuperscript{127}Trebro Mfg., Inc. v. Firefly Equip., LLC, 748 F.3d 1159, 1160-1161 (Fed. Cir. 2014); see discussion infra, text at notes __.
\textsuperscript{129}HOVENKAMP, OPENING OF AMERICAN LAW, \textit{supra} note __ at 206-219.
\textsuperscript{130}The most important contemporary critique was ROBERT H. BORK, \textit{THE ANTITRUST PARADOX: A POLICY AT WAR WITH ITSELF} (1978). For a more compact critique from today's perspective, see BOHANNAN & HOVENKAMP, CREATION WITHOUT RESTRAINT, note __ at 33-59.
\textsuperscript{131}See HOVENKAMP, OPENING OF AMERICAN LAW, \textit{supra} note __ at 206-219.
resistance to policies about economic development. People have a "property" right in patents, but not a property right to merge, to fix prices, tie, or enter into exclusive contracts. Taken too far the idea of patents a property can place patents on a collision course with policies about economic growth. This is why it is so critical that suitable restraints be placed on the process of patent issuance. The property right guaranteed by a patent does not kick in until the patent has been granted. But pre-issuance practice is also the place that the patent system is woefully inadequate, because precious little economic analysis goes into the development of the rules for deciding when a patent should be issued.

Another reason for the differences between patent and antitrust approaches to economic development is statutory. In the antitrust laws the "restraint of trade" and "monopolize" language of the Sherman Act, as well as the "may substantially lessen competition" language of the Clayton Act, explicitly invites courts to consider the market impact of various practices. Over time the courts have developed a wide array of tools for doing this. Nothing in the Patent Act invites either patent examiners or the courts to do anything similar. The statute itself says virtually nothing about market impact or "innovation policy." The result is that the only place market analysis plays much of a role in litigation about patents is competition policy analysis of post-issuance practices, such as tying, pooling, price-fixing and cross licensing, mergers, exclusion, and the like. To say this more bluntly, the only time patent law pays much attention to markets is when the law incorporates antitrust principles.

Consider patent law's requirement of nonobvious subject matter. Its purpose is relatively uncontroversial and completely driven by our ideas about the relationship between innovation, exclusion, and economic growth: we don't want to give exclusive rights over things that someone of ordinary skill could be expected to come up with independently. We should not permit people to commandeer technologies that in the ordinary course would be produced competitively rather than not at all. Having a strict nonobviousness requirement is particularly important in a regime of absolute liability for patent infringement such as we have -- that is, people can be held liable even if they did not know the technology they develop has been patented by someone else. One of the reasons copyright and trade secret law can have much lower standards of inventiveness is someone can infringe only by copying.

Empirically, there are useful ways to think about this problem. For example, if a significant number of people who end up being infringers actually discovered or developed the technology entirely on their own, then the patent doctrine of nonobvious subject matter is not doing its job. The fact that the number of infringement suits that either allege (fewer than 11%)


\[133\] See discussion infra, text at notes __.
or prove (fewer than 2%) willful infringement is low, suggests that this is true. These numbers are quite telling given the fact that infringement plaintiffs can obtain up to treble damages by showing that patent infringement was willful. There could be important qualifiers, however. For example, perhaps determining how infringers came upon the infringing technology is difficult. That makes this particular query interesting, but hardly superfluous. In any event, in specific cases we may not relieve infringers of liability simply because they did not know about someone else's patent, but that is an entirely different question from the one whether too many patents in a particular area are being issued.

Neither the Supreme Court nor the Federal Circuit Court of Appeals has suggested that such an inquiry is even relevant, however, either as a general matter or in specific infringement cases. In sum, we do not possess a "political economy" of nonobvious technology in the way that, say, merger law today requires economic modeling and evidence to predict the likely output or price effects of a merger. In this area the empirical science of the patent system is about a century behind the empirical science of industrial organization.

By and large legal queries into nonobviousness proceed by examining existing boundaries, asking questions such as how the technology under consideration differs from earlier technology, whether something in the prior art anticipated the solution that the patent proposes, whether the prior art teaches away from the proposed solution, whether ex post conclusions of obviousness reflect hindsight bias, and the like. Most of this analysis has little to do with human cognitive ability and invites the complaint that far too many obvious patents are granted. It also completely ignores the question of how patent perform as innovation facilitators in specific markets.

Given the large number of patents that are issued, we cannot afford to do much individual market impact analysis at the time of application, such as the antitrust enforcement agencies perform for reported mergers. Of course, if such analyses were performed very likely many fewer patents would issue. More importantly, however, we don't even do such analysis in

137 See discussion infra, text at notes ___.
138 On the antitrust experience with economics since early in the twentieth century, see HERBERT HOVENKAMP, ENTERPRISE AND AMERICAN LAW, 1836-1937 at 241-330 (1991); Herbert Hovenkamp, United States Competition Policy in Crisis, 1890-1955, 94 MINN. L. REV. 311 (2009), Hovenkamp, Antitrust, supra note __.
infringement litigation, where validity is often contested on grounds of nonobviousness. Only 1.5 percent of patents are ever litigated, and only .1% make it to trial. Further, litigating a patent infringement case commits far greater resources in most cases than obtaining one. Because the vast majority of these cases are brought against apparently unknowing infringers, the case for absolute liability depends crucially on a high degree of certainty that patents are not being granted for things that in the ordinary course would have been developed competitively.

Both private and public antitrust enforcement have drawn significant resources into the economic analysis of challenged practices. Antitrust litigation and counseling creates a market for economic experts, and this in turn creates a significant market for the economic study of competition-affecting practices. As a result, litigating an antitrust case under the rule of reason today invariably requires expert economic analysis of the effects of a challenged practice on competition, including market definition, ease of entry, probability of collusion, and the like. Patent law has very little equivalent to this forensic economic evaluation outside of damages measurement, which does use market-based tools. The typical patent infringement case reveals very little awareness that the participants are engaged in making economic policy, particularly when they make decisions about the proper scope of patents and their significance over the prior art.

Another critical area of difference between the antitrust and patent systems is in their treatment of market diversity. Today antitrust is acutely sensitive to issues of market structure and diversity. In many markets monopolization is regarded as structurally impossible because the number of rivals is large and entry is easy. Both monopolization and merger law regard market structure and diversity as critical. This is also true of the law of horizontal restraints under the rule of reason. We distinguish networked industries or industries with economies of scale or informational needs that justify competitor collaboration from those that do not. We also distinguish product differentiated markets from markets for fungible products, as well as industries with high fixed costs and a heavy upfront investment component. Further, these differences clearly impact not only traditional price and output competition but also innovation.

Imagine an antitrust system for assessing mergers or a monopolistic practice such as exclusionary pricing that was not permitted to differentiate in any way based on the number of firms in a market, ratios of fixed to variable costs, barriers to entry, flow of information, and the

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141 See infra text at notes 138.
142 For example, the *Antitrust Law* treatise includes a large portion of a volume on the use of economic experts in antitrust litigation. See 2A PHILLIP E. AREEDA, HERBERT HOVENKAMP, ROGER D. BLAIR, AND CHRISTINE DURRANCE, *ANTITRUST LAW* ¶¶ 390-399 (4th ed. 2014).
But that is very largely the legal patent system we have today, and it is increasingly clear that the innovation value of patents is just as dependent on individual market characteristics as antitrust rules are. Patent policy is played out in a one-size-fits-all system that is largely indifferent to industry structure, nature of information dissemination, or other factors that explain when patents are socially valuable and when they are not. Its broad protections are most justified in the chemical and pharmaceutical industries for patents on primary molecules, but they are very likely not justified in high turnover technologies such as electronics, computers, communications devices, software, and business methods. As a result the law of patents has virtually no market specific metering.

For example, the literature on the extent of copying by claimed patent infringement defendants shows significant differences between industries. A relatively high percentage of patent infringement cases in chemical and pharmaceutical markets allege and show copying, while very few do in the information technologies. The data suggest alternative explanations, all of which are largely unresearched. Perhaps the nonobviousness requirement as currently articulated works better for chemicals than for, say, communications technology. That is particularly likely to be true if the patent is on a molecule, which could be unknowingly "copied" only by an extraordinary coincidence. Or relatedly, perhaps evaluating prior art is easier for chemicals then it is for, say, electronics. Alternatively, perhaps information about patents is disseminated more effectively in the chemical and pharmaceutical industries than in other industries. Dissemination consists of two things: being able to locate a patent and being able to interpret it. The data also suggest an important question: is it merely a coincidence that the patent system seems to be functioning much better in industries such as chemicals and pharmaceuticals where the percentage of infringement claims based on copying is high. An antitrust economist looking at these data would see obvious needs for differential treatment. The current law of nonobvious subject matter seems to work better in some industries than in others.

For decades the economics of competition policy has been one of the most thoroughly researched areas of American law. Further, the research occurs not only at a "background" level but is also incorporated into judicially-mandated antitrust analysis, particularly under the rule of reason and in merger analysis. In sharp contrast, the performance of the patent system in specific markets remains a mystery, producing an unacceptably wide range of opinions about its value. In addition, our empirical understanding of the welfare effects of individual patent rules are poor to nonexistent. Neither Congress nor the Supreme Court has insisted on the development of tools that enable decision makers to determine empirically how specific patent doctrines serve as inducements or in some cases impediments toward innovation. To a very significant extent patent drafters, lawyers, and judges interpret questions of patent validity and scope in the same way that real property lawyers have traditionally determined boundary lines in real property

146 On how the courts have required this analysis in predatory pricing cases, see 3A ANTITRUST LAW, supra note __ at ¶¶725-730.
147 Cotropia & Lemley, supra note __ at 1445.
cases -- mainly by reference to a set of rules of long standing, but rarely confronting fundamental issues directly.

To be sure, economic assessments of industry performance are difficult to make, our views change over time, and generalist judges and lawyers may make errors. These are good reasons for trying to do better, but not for jettisoning economic analysis from antitrust law. Patent law will never be able to optimize innovation until it begins to internalize a "political economy" of the patent system, including the development of empirically-supported conclusions about how patent law affects innovation.

Economic research on innovation and the patent system can be divided into several parts, with overlapping boundaries. These include:

1) the relative contributions to economic growth of innovation as opposed to competition under constant technology;
2) the relationship between market structure and the rate of innovation;
3) the competitive impact of post-issuance patent practices;
4) the influence of patent issuance or strength on the rate of innovation, its direction, or its quality;
5) the way that specific patent doctrines perform in the market;
6) private patent value under the existing system;
7) the social cost of restraints on innovation

The following discussion examines these very briefly.

Innovation and Economic Growth

On the first issue, contribution to economic growth, the literature is significant and has been developing since the 1940s. Joseph Schumpeter argued in *Capitalism, Socialism, and Democracy* that innovation contributed much more to economic growth than competition did.\(^{148}\) The concern of this literature is with the relationship between innovation and growth, not with the patent system. In the 1950s Robert M. Solow's empirical work modeling economic growth with and without innovation concluded that as much as 85% of nonfarm economic growth in the twentieth century up to his time came from innovation.\(^{149}\) Since that time the modeling has become more complex, and has divided into different theories of growth depending on whether

the relevant stimulants are endogenous or exogenous.150 But there is very little dispute over the basic proposition that innovation is the dominant contributor to growth.151

Innovation and Market Structure

A second body of empirical as well as theoretical literature deals with the relationship between market structure and innovation. Schumpeter argued that monopoly was essential to robust innovation because only the monopolist would have both the appropriation incentives and the economic surplus to profit from it.152 Writing roughly a decade later after Schumpeter had died, Kenneth Arrow disagreed, pointing out that competitors have much more to lose from not innovating: if they do not innovate, someone else will. In addition, under competition firms would compete on innovation itself. Finally, one obstacle to invention by the monopolist is that innovation would tend to displace its own established technology. By contrast, competitors must continuously worry that if they do not develop new technology someone else will. As for appropriation incentives, Arrow believed the patent system would take care of them.153

This Schumpeter-Arrow "debate" spawned an enormous literature in industrial organization economics, both theoretical and empirical. The emergent consensus is that neither Schumpeter nor Arrow had it exactly right, although Arrow was somewhat closer. The innovation/market structure curve is in fact an inverted "U."154 Monopolized markets tend not to exhibit a great deal of innovation, but neither do highly competitive markets. Rather, innovation proceeds most quickly in moderately concentrated, product differentiated markets that have relatively large firms but also sufficient competition that each firm offers an innovation threat to the others.

Economic Effects of Patent Practices

151 See also the strong assumptions about the relationship made in Thomas Piketty, *Capital in the Twenty-First Century* (2014).
The largest body of literature, which stretches back nearly a century, concerns the economic impact of various uses of patents that have already been issued.\textsuperscript{155} A related and also extensive law review literature looks more specifically at antitrust rules, but frequently invokes the economics literature.\textsuperscript{156} The theoretical and empirical literature ranges over such subjects as the economic effects of tying, pooling, or price fixing, price discrimination, the impact of patents on product differentiation and the resulting competition among firms, the use of patents by


dominant firms, and the like. While this literature concerns the use of issued patents, nearly all of it properly falls into the domain of competition policy rather than patent policy.157

**Patents, Economic Growth, and the Direction of Innovation**

The fourth issue concerns the relationship between patent issuance or patent strength and economic growth, and relatedly, the relationship between the availability of patents and the direction of innovation.158 As patent protection is greater, measured by either duration or breadth, the incentive to obtain them increases but the dissemination of knowledge decreases. Economic growth of course depends both on sufficient incentives to innovate plus the effective dissemination of innovation through the economy. Finding the right balance presents an empirical question. The more general literature on patent issuance and economic growth is inconclusive, with most of it suggesting little correlation between a country's patent system and its growth rate.159 More discriminating studies that break industries into different groupings find positive correlations in markets where products are durable, investment costs are high, but copying is cheap, such as chemicals and pharmaceuticals.160 By contrast, studies of information

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160 For a summary of this literature, see Michael Meurer and James Bessen, *Do Patents Promote Economic Growth* (March 17, 2008), http://www.researchoninnovation.org/WordPress/?p=95 (finding chemicals and pharmaceuticals to be an outlier in a large number of diverse studies).
technologies and software often find just the opposite: the patent system actually tends to hinder development.\textsuperscript{161} Some studies also find that the effect of patent protection in restricting the dissemination of knowledge outweighs its effect in inducing innovation, thus producing a negative correlation between patenting and economic growth.\textsuperscript{162} None of this literature is absolutely conclusive and it has not come close to establishing a consensus on these issues. One startling likelihood, however, is that while innovation contributes a great deal to economic growth, the patent system may not contribute much to innovation, although the results vary from one market to another.

This literature must also be qualified by another important factor, which is the cost of the patent system itself. Obtaining patents is costly and litigating them is even more costly. Further, the patent system creates risks for innovators and, as a result, costly duties to search. On very troubling conclusion for many markets is that there is not any "tradeoff" at all between the value of appropriation and the hindrance to dissemination. In fact, the appropriation value is negative because even looking at purely private costs and returns, the patent system costs innovators more than it is worth. Once again, chemicals and pharmaceuticals are an outlier on the positive side.\textsuperscript{163}

The Economic Performance of Specific Patent Doctrines

An economically defensible patent system requires patent rules that enable the kind of performance the system seeks. How do rules concerning such issues as patent duration, the requirement of nonobvious subject matter, enablement, or the doctrine of equivalents perform in the market? There is virtually no empirical study of how individual patent doctrines perform in the market, although a significant "meta" empirical literature exists on judicial behavior concerning these doctrines.\textsuperscript{164} By contrast, antitrust law often adopts specific doctrines by


\textsuperscript{163}See \textit{Bessen and Meurer, Patent Failure}, supra note 2 at 95-120.

linking them to market performance or expectations. One example is antitrust's per se rule, which is applied only after judicial experience indicates that certain practices as a class are highly likely to reduce market wide output and increase price.\footnote{See 7 ANTITRUST LAW, supra note \_ at ¶\¶1509; 11 id. ¶¶1909b (horizontal restraints).} Another example is the "recoupment" requirement in predatory pricing law, which used a great deal of economic analysis and empirical study to link the law of predatory pricing to the specific markets in which it occurs.\footnote{Developed in Brooke Group Ltd v. Brown & Williamson Tobacco Corp., 509 U.S. 209 (1993). See 3A ANTITRUST LAW, supra note \_ at ¶¶725-727.}

Antitrust rules evaluate practices by asking market performance questions, often in the context of litigation, although also by relying on industry studies that are later used in litigation. For example, as a matter of doctrine monopolization and merger law require definition of a "relevant market" in which the threat of monopoly or cartel behavior can be assessed. Relevant market queries are highly empirical, looking at such factors as degree and speed of substitution from inside to outside, the number of firms in the market and their size, and the history of new entry. For antitrust purposes markets differ so much from one another that each new market requires its own inquiry. Doing that is costly but it is based on recognition that the thing we are attempting to measure is very specific to the environment in which it occurs.

The work that has been done on various patent doctrines suggests exactly the same thing -- namely, that a one-size-fits-all approach is completely wrong headed. That is clearly true of patent duration.\footnote{See, e.g., Eric E. Johnson, Calibrating Patent Lifetimes, 22 SANTA CLARA COMPUTER & HIGH TECH. L.J. 269 (2006) E.g., Mark A. Lemley, An Empirical Study of the Twenty-Year Patent Term, 22 AIPLA Q.J. 369 (1994) (finding a greater incentives to innovate in most industries as term went to twenty years from date of application).} A longer patent term increases the incentive to patent.\footnote{WILLIAM M. LANDES AND RICHARD A. POSNER, THE ECONOMIC STRUCTURE OF INTELLECTUAL PROPERTY LAW 296 (2003).} As Landes and Posner note, at a discount rate of 10 percent, which is probably low for patented goods with high price/cost margins, the ex ante value of a 20 year patent is approximately 85 percent of a patent whose duration is infinite.\footnote{A patent, just as a lease, depreciates in value as it gets closer to expiration. It also depreciates in value to the extent that the demand for the product it covers declines, perhaps because it has become obsolete.} Once they calculate in what they believe to be a realistic depreciation rate the number is closer to 95 percent.\footnote{At the same time, the harm caused by...}
exclusion extends over the full term. As a result these numbers are not very revealing about the impact of longer terms on the balance between incentive and dissemination of information, except to suggest that shorter terms give us somewhat smaller incentives and significantly reduced exclusionary effects.

The existing literature provides very little insight into the effects of specific patent or antitrust rules on economic performance. For example, there is little to no empirical support for suggestions made by some that limiting pay-for-delay pharmaceutical settlements reduces welfare in the pharmaceutical industry.\textsuperscript{171} To be sure, any practice that tends to increase the duration of patent protection increases the incentive to patent,\textsuperscript{172} but \textit{ex ante} the incentive is not all that large, as the Landes and Posner conclusions indicate. Further, that number needs to be offset by dissemination effects, which are substantial when one considers the impact of generic entry on price and output.\textsuperscript{173} Even incentive effects are uncertain. A likely impact of restricting pay-for-delay settlements is to increase patentee incentive to develop new drugs that start the patent clock over, as an alternative to weak extensions of patents on old drugs.\textsuperscript{174} Further, one must consider the generally low quality of the extension patents that are subject to pay-for-delay settlements.\textsuperscript{175} Given the exclusive rights they create, the incentive to obtain them may be strong, but if they provide protection over developments that in the ordinary course would have been provided competitively, their social value is negative.

Returning to the question of nonobvious subject matter, a performance based litigation question would consider how many independent inventors had developed the same technology. For example in the \textit{Alexsam} litigation the defendant had sued thirteen different "stored value" gift card manufacturers for infringing its patent.\textsuperscript{176} That fact alone should have provoked a


\textsuperscript{173}See discussion infra, text at notes ___.


\textsuperscript{175}See discussion infra, text at notes ___.

query into such questions as how many relevant gift card manufacturers there are, and whether they had copied this technology or developed it internally. That is to say, if the requirement of nonobvious subject matter is performing as it should, we should not have a large number of independent developers. The Federal Circuit found that the defendant had not established obviousness by looking at some prior art, particularly since it failed to provide expert testimony on the question whether a skilled artisan would have been motivated to combine the various prior art references. In short, the court asked a backward looking "boundaries" question when it should have been asking an "economic performance" question.

Without changing the doctrine of absolute liability a court interested in a performance-based rule of nonobvious subject matter might develop a presumption that if, say, 10% of the producers in a market are infringing, then the subject of the patent must be obvious. The infringement plaintiff could defeat the presumption by showing that the infringers are in fact copyists or that the product, once on the market, is easy to copy. For example, a showing that the product is easy to copy and was widely disseminated prior to rivals' entry creates an inference of copying. By contrast, the fact that a large number of firms are infringing an electrical or business method patent held by a non-practicing entity is a strong indicator that the patent's subject matter is obvious.

That question will be difficult to answer in close cases, but not so difficult in others. Further it would actually measure what the nonobvious requirement should be measuring.

**Comparative Advantage**

Legal policy makers must make decisions with the tools and information available to them, even if they are not perfect. At this time our knowledge about the relationship between antitrust law and traditional competition, while imperfect, is much more complete than our knowledge about the relationship between patent law and innovation -- and more particularly, about the impact of particular patent doctrines and innovation. In that setting it is not irrational to condemn a practice that is highly likely to decrease welfare via collusion or exclusion in the shorter run based on nothing but an unsupported hunch that it might also increase innovation.

One of the biggest contributors to a "conflict" between antitrust and patent policy was significant overreaching by the antitrust laws, condemning practices that were not anticompetitive to begin with. But antitrust is a far more defensible enterprise today than it was thirty years ago. Patent law has not yet undergone that process. In patent law as in antitrust, however, more is not necessarily better.

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(noting that joinder provision is not retroactive and considering pre-passage complaint naming eighteen infringement defendants in a single suit).

177 Alexsam, Inc. v. IDT Corp., 715 F.3d 1336, 1347 (Fed. Cir. 2013).
Restraints on Innovation

One important corollary to the observation that innovation contributes much more to economic growth than does competition under constant technology is that restraints on innovation can do much greater harm. To an extent the Patent Act itself or the courts interpreting it restrain innovation when exclusion effects outweigh the incentive effects. Several of the studies previously mentioned have observed that possibility. A well known example is broad use of the patent law doctrine of equivalents to shut down technologies that are actually inventions in their own right. For example, in Wright v. Curtiss, the Wright Brothers were able to get a very broad interpretation of their patent that shut down the greatly superior technology involved in the Curtiss airplane. Wright's design employed flexible fabric covered wings and a series of cables that twisted, or "warped," them in order to steer and level the plane. By contrast, Curtiss' alternative used hinged ailerons, capable of being used with rigid metal wings, and similar to the technology in current use. While the practical result of Wright v. Curtiss is controversial, it may have delayed the development of a military-worthy United States aircraft until after World War One was over. The government eventually forced the parties to cross license.

Another is the Supreme Court's 1908 Paper Bag decision, which once again relied on a broad interpretation of the doctrine of equivalents to shut down a dominant firm's competitor, who was in fact using a different technology than the dominant firm was using.

Only some restraints on innovation come through the patent system itself, however. Most are the result of conduct that for which the Patent Act is largely irrelevant. Examples include Microsoft's successful effort to use its market power to force Intel to cease development of a microchip capable of efficiently processing Java's multi-language instructions. Microsoft feared that efficient translation and processing of different computer languages would weaken the hold of its Windows operating system by making it easier for non-Window systems to be compatible. Another is a cartel among American automobile manufacturers to suppress the development of low emissions automobile technology. Yet another is the temporarily successful efforts of Allied Tube to withhold legal approval to plastic electric conduit, a lower

179 See BOHANNAN & HOVENKAMP, CREATION WITHOUT RESTRAINT, supra note __ at 238-257.
181 Mfrs. Aircraft Ass'n v. United States, 77 Ct. Cl. 481, 485 (1933) (detailing the government "suggestion" of cross licensing).
182 Cont'l Paper Bag Co. v. E. Paper Bag Co., 210 U.S. 405 91908); see discussion infra, text at notes ____.
cost and technologically superior alternative to Allied's steel conduit.\textsuperscript{185} To my knowledge no one has ever attempted to catalog such events completely, and certainly not to estimate their social impact, but both numbers are almost certainly large.\textsuperscript{186}

Aside from the anti-innovation aspects of some patent rules, as discussed above, the problem of innovation restraints is best analyzed through the antitrust system. First of all, a restraint on innovation is an "output" restraint, just as much as a restriction on the number of units of a good to be produced. As a result it can readily be modeled through the ordinary tools of price theory, which typically regard it as leading to higher prices to the extent that the innovation would have reduced cost; or a shift in the demand curve, to the extent that the innovation would have made a product more attractive. Some innovations, such as the plastic conduit in the \textit{Allied Tube} case, do both of these things at the same time.

The presence and ubiquity of restraints on innovation suggests that legal policy take them more seriously. Patent law has an important role to play here, principally in ensuring that overly broad interpretations do not serve to restrain rather than incentivize innovation. For example, a developing concern about the activities of non-practicing patent assertion entities is that they may be restraining innovation by deterring firms from innovating in the areas in which the PAEs have large portfolios.\textsuperscript{187} To the extent that is true the fix will very likely have to come from patent law rather than antitrust.

\textbf{The Proper Roles of Patent and Antitrust for Innovation-Affecting Anticompetitive Conduct}

This section considers the most commonly occurring conduct areas involving patents and competition policy, delineating the proper role of antitrust for each, beginning with some basic principles.

\textit{Principles for Resolving Antitrust/Patent Conflicts}

1. Pre-issuance conduct involving patents is generally not addressable under the antitrust laws, although pre-issuance conduct may be relevant to certain forms of post-issuance exclusionary behavior, such as the filing of infringement suits. The patent system is a largely complete and effective regulator of pre-issuance conduct, and it is not antitrust's purpose to police other functioning federal regulatory regimes.

\textsuperscript{185} Allied Tube & Conduit Corp. v. Indian Head, Inc., 486 U.S. 492 (1988).
\textsuperscript{186} For fuller accounts see \textsc{Bohannan & Hovenkamp}, \textit{Creation Without Restraint}, supra note \_\_ at 238-257; Herbert Hovenkamp, \textit{Restraints on Innovation}, 29 Cardozo L.Rev. 247 (2007).
\textsuperscript{187} See discussion \textit{infra}, text at notes \_\_.
2. A practice that is expressly authorized by the Patent Act cannot be the basis of an antitrust claim, provided that the conduct under consideration falls within the authorization. This proposition is nothing more than a general rule of statutory construction: specific statutory authorizations in a federal statute should control general prohibitions, such as those contained in the antitrust laws.

3. Post-issuance practices that are not authorized by the Patent Act should be evaluated under ordinary antitrust rules, which take both static competition effects and innovation effects into account.

4. Active production under a patent license can indicate that a restraint is "ancillary," justifying rule of reason treatment, but it is important to distinguish restraints in the licensing market from restraints in the product market.

5. Innovation affecting conduct falls within the domain of antitrust just as much as patent law, with the important limitation that antitrust applies only to innovation affecting conduct that is also anticompetitive. While the patent law's own system sometimes works to restrain innovation, it is not antitrust's place to second guess the way that Congress, patent officials, or judges make or interpret patent law. For example, judicial recognition of an overly broad doctrine of equivalents may restrain innovation, but policing the behavior of federal judges is not an antitrust function. By contrast, most post-issuance restraints on innovation are completely within antitrust's reach.

6. The range of "agreements": covered by the antitrust laws is broader than the range of "licenses" authorized by the Patent Act. This principle is particularly important for assessing large industry wide arrangements that include cross-licenses but may also be subject to other agreements or agreement facilitators, not all of which will be in writing.

Product Restraints v. Patent Restraints

Most patent licenses cover the use of patents, not the production of products. The difference is important for two reasons. First, many patents cover only a component of a product, and the patent may have alternatives or be amenable to inventing around. Secondly, nothing in the Patent Act authorizes market division or price-fixing of products, but only the licensing of patents. For example, under the Patent Act a maker of outdoor grills who has patented a unique igniter may license the igniter technology to a competing grill maker and specify the geographic area in which that patent can be used, perhaps limiting competition with itself in certain areas. The Patent Act expressly permits geographic restrictions on a license of the patent itself. What the Patent Act does not authorize, however, is an agreement under which the patentee limits the territories in which the licensee can sell any outdoor grills

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188 See discussion infra, text at notes ____.
whatsoever, whether or not they practice the patent.\textsuperscript{190} That would be a product market restraint and it is fully subject to the antitrust laws.\textsuperscript{191} The distinction is important because there may be a robust market remaining for outdoor grills that do not have the igniter in question. Indeed, the igniter may do little more than create a product differentiation that some consumers prefer but not others. Second, there may be alternative technologies that get the same job done, or it may be possible for the second firm to invent around the patent, a practice that patent law generally encourages.

Most antitrust condemnations of restrictive licensing agreements have involved restraints with a significant impact in the product market. At the same time, however, only a subset of product market restraints violate the antitrust laws. For example, suppose that the patentee of the grill igniter licenses it and specifies the price at which the grills must be sold. Assuming that the patentee does not make grills itself, this would be resale price maintenance, a vertical practice that is governed by the rule of reason and most often lawful.\textsuperscript{192}

One interesting aspect of pharmaceutical pay-for-delay settlements is that typically the patent and the product are coterminous. This is because drugs falling under the Hatch-Waxman Act must be "bioequivalent" in order to qualify for abbreviated FDA testing. A generic firm invoking the statute does not have the option of making a version of the drug that does not practice the patent. Nor is it able to invent around. In each case the impact would be that the resulting drug would not be bioequivalent.

These facts are important to understanding the Supreme Court's \textit{Actavis} decision.\textsuperscript{193} The pay-for-delay settlement effectively creates a market division in the product market, an area where antitrust scrutiny has historically been justified. One might object that the only way one can have a patent license restriction on a bioequivalent drug is to have product market restriction as well. The argument would carry some weight but for the fact that a pay-for-delay settlement is not a license at all, because under it the generic firm does not produce anything. As a result it

\begin{footnotesize}
\textsuperscript{190} Indeed, as a matter of patent policy the exhaustion, or "first sale," doctrine would refuse to enforce such a restriction imposed in a patent license. \textit{See} Adams v. Burke, 84 U.S. 453 (1873) (refusing to enforce territorial restriction imposed via patent license on good after sale); Keeler v. Standard Folding Bed Co., 157 U.S. 659 (1895) (same).

\textsuperscript{191} E.g., Ansul Co. v. Uniroyal, Inc., 448 F.2d 872 (2d Cir. 1971) (resale price maintenance of patented product constituted both per se Sherman Act offense and patent misuse); Solvex Corp. v. Freeman, 459 F. Supp. 440 (W.D.Va. 1977) (similar; vertical territorial restraints).

\textsuperscript{192} When RPM was unlawful per se it was frequently used to condemn resale price maintenance on the product contained in license agreements. United States v. Univis Lens Co., 316 U.S. 241 (1942) (bifocal lens blanks ground with a patented process); Ethyl Gasoline Corp. v. United States, 309 U.S. 436 (1940) (gasoline containing patented additive); Cummer-Graham Co. v. Straight Side Basket Corp., 142 F.2d 646, 647 (5th Cir.), cert. denied, 323 U.S. 726 (1944) (patentee of basket-making machine could not impose RPM on unpatented baskets made with the machine).

\textsuperscript{193} \textit{FTC v. Actavis}, 133 S. Ct. 2223 (2013). \textit{See} discussion \textit{infra}, text at notes __.
\end{footnotesize}
can be characterized only as a product market division that does not enjoy any preferential treatment that the Patent Act offers for license agreements.

*Per Se Rule; Settlements*

Courts analyze most antitrust claims under the rule of reason, which in its full form requires the plaintiff to show that the defendant has significant market power and that the challenged practice injures competition by facilitating either collusion or anticompetitive exclusion. By contrast, antitrust’s per se rule condemns a subcategory of agreements simply upon proof that they have occurred, not requiring proof of market power or actual competitive harm. Today the per se rule is largely reserved for price-fixing, naked market divisions, and naked concerted refusals to deal ("boycotts"). Once we have decided that the antitrust laws can be applied to a practice involving patents, ordinary antitrust analysis should determine whether the per se rule or the rule of reason should be used. That is to say, this is an antitrust question of law, not a patent law question.

Nevertheless, antitrust disputes involving patents may contain special facts that indicate use of the rule of reason. For example, while a naked product market division agreement is unlawful per se, an agreement embodied in a patent license or cross license may reveal that the firms are sharing a common technology that justifies rule of reason treatment. But this is simply a way of saying that the rule of reason governs "ancillary" restraints, and legitimate technology sharing is a form of ancillarity. Identifying the potential for gains and harm is the purpose of the rule of reason.

Many patents are licensed without ever being challenged. That is particularly true in standards rich technologies such as telecommunications. In addition, however, many but not all settlements resolving patent disputes also involve licenses. Today the most prominent exceptions are pay-for-delay settlements in which the infringement defendant does not obtain a license under the disputed patent at all, but merely withdraws from the market for a time. Under antitrust law that is a naked market division agreement that would ordinarily be illegal per se. Further, nothing in the Patent Act or Hatch-Waxman Act authorizes pay-for-delay settlements. On top of that, many pay-for-delay settlements involve such attenuated adversity between the parties that they are best regarded as "settlements" in name only.

Nevertheless, in *Actavis* the Court concluded that the rule of reason should be applied to a very large pay-for-delay settlement. The facts are unique, however, and peculiar to the Hatch-Waxman Act. The restraint would have been harmless if the patent were valid and

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194 See 7 ANTITRUST LAW, Ch. 15 (3d ed. 2011); and 11-13 ANTITRUST LAW, Chs. 19-22 (3d ed. 2012)
195 The choice of rule is a question of law, although factual determinations concerning ancillarity may be needed. See 11 HERBERT HOVENKAMP, ANTITRUST LAW ¶ 1909b (3d ed. 2011).
196 See discussion infra, text at notes __.
infringed, and the issue was what to make of a very large payment that sent a strong signal of patent invalidity. By contrast, practices such as naked product price fixing are unjustified whether or not the patents in question are valid and infringed.\textsuperscript{197} The two most salient facts about Actavis’ antitrust analysis are, first, that the Court applied the rule of reason, but second, that it severely attenuated the rule of reason’s proof requirements, permitting both power and anticompetitive conduct to be inferred from the existence of a very large settlement payment.\textsuperscript{198}

Most patent infringement suits settle prior to trial.\textsuperscript{199} The settlements often result in production licenses, which the Patent Act authorizes in any event. These would be lawful even if there were no infringement case to be settled.\textsuperscript{200} When the settlements include provisions that the Patent Act does not authorize, then closer judicial scrutiny is appropriate.\textsuperscript{201} Patents enjoy a statutory presumption of validity, and at the time of a pre-trial settlement this presumption has typically not been upset.\textsuperscript{202} In general, the courts look closely at settlement agreements that include restrictions on the product price,\textsuperscript{203} market division of the product,\textsuperscript{204} or concerted refusals to deal with outsiders.\textsuperscript{205} Purely vertical settlements are generally approved, with some exceptions for exclusive agreements.\textsuperscript{206}

The previously discussed “beyond the scope” formulation\textsuperscript{207} for patent practices retains some traction in judicial opinions dealing with antitrust challenges to patent settlements. Whether it contributes anything useful is open to dispute. In practice, the formulation has come to mean that the terms of the settlement are no more exclusionary than a finding of patent validity.
validity and infringement would have been. The important thing about most of these disputes is that there is true adversity between the parties. That is not the case with the unique subset of settlements in Hatch-Waxman cases involving pharmaceutical drugs, where the joint maximizing course is typically for the two parties to divide the market, taking advantage of the law to exclude everyone else. 208

Pay-for-delay settlements are sometimes thought to be unique because the market division does no more than protect what a valid and infringed patent would have protected in the first place -- namely, the patentee's right to exclude the generic. Those defending the agreements have suggested that an agreement whose duration runs short of the time remaining on the patent might actually benefit consumers by permitting quicker generic entry then a valid patent would permit. 209 The problem with that argument, however, is that there is no equilibrium agreement that would satisfy those conditions. 210

The availability of a pay-for-delay settlement under the Hatch-Waxman Act creates one of the more perverse anticompetitive incentives in the patent system. Such settlements are virtually unknown in patent law outside the context of Hatch-Waxman. 211 The owner of a pioneer drug whose patent is about to expire is incentivized to create a secondary or extension ("evergreened") patent that is just strong enough to get by a patent examiner. 212 Evergreened patents of this nature have an extraordinarily high failure rate. 213 It does not matter how weak the patent is, however; it simply has to be issued. At that point the patentee can enter into a pay-for-delay settlement that ratchets the patent' anticipated success probability up to 100% because no one can challenge the patent for the duration of the settlement. The result creates a largely impregnable market division because the patent and the product in a pay-for-delay settlement are coterminous: one cannot make the product without the patent. 214

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208 See discussion infra, text at notes __.
210 Edlin et al., Actavis and Error Costs, supra, note __.
214 See discussion supra, text at notes __.
As noted previously, some have argued that rules disfavoring pay-for-delay settlements might restrain innovation by reducing the incentive to develop new drugs. The only empirical support for that claim is that a longer protection period provides a greater incentive to get a particular patent, but says nothing about overall effects on innovation or the social cost of a longer period of exclusion. On the other hand, the short-run cost/benefit analysis is overwhelmingly negative. The consistent record of drug prices shows sharp declines upon generic entry. In any event, the remedy for a patent period that is too short is Congressional action lengthening the patent term, at least for pharma patents; it is not to tack a bad patent onto a good one.

During the period covered by a pay-for-delay settlement the two firms will set price and output just as a monopolist would. The duration of the settlement is largely a function of the operative legal rule. If the dissenter's "scope of the patent" test had prevailed in Actavis, we could expect most future pay-for-delay settlements to terminate one day prior to expiration of the patent in question.

Those defending such agreements can always point out that if the agreement terminates prior to patent expiration the consumer harm caused by the delay is less than the amount caused by a finding that the patent is valid and infringed. For example, if the patent has ten years remaining and is found valid, then the pioneer will appropriate the entire value to itself for that period. If the pay-for-delay settlement term is nine years, then price and output will stay the same during that period, but the period would be one year shorter. Considered ex ante, whether that agreement harms consumers depends on the likelihood that the patent will be invalidated. This is where the size of the payment becomes relevant. A patentee who is highly certain that its patent is valid and infringed would not be willing to pay significantly more than nuisance (litigation) costs to the defendant to stay out of the market. As the risk of an invalidity finding rises, however, the patentee will pay more to keep the generic out. Significantly, once the agreement is made the patent itself becomes unassailable for the period over which it delays entry. The parties have effectively turned a probabilistic patent into a certain one, without regard to its quality. By eliminating pay for delay settlements the parties would either have to litigate or else they would settle on a shorter period that reflects their joint assessment of patent strength.

The Actavis decision creates some unacknowledged tension with the Patent Act's statutory presumption of validity, which gives the challenger the burden to prove invalidity. In 2011 the Supreme Court agreed with a long line of cases that this presumption can be defeated only by clear and convincing evidence. At the time of a pay-for-delay settlement a patent has

215 See discussion supra, text at notes ___.
216 See, e.g., Health Care and Antitrust L., Appendix E 171, testimony of Jon Leibowitz, Chair, FTC (2009).
218 Microsoft Corp. v. i4i Ltd. P’ship, 131 S. Ct. 2238 (2011).
typically not yet been declared invalid; although there are some exceptions.\textsuperscript{219} Nevertheless, the Court's opinion is driven by an assumption that a high pay-for-delay settlement suggests patent weakness. The fact is that the Patent Act's statutory presumption of validity is in conflict with a reality in which nearly half of patents are declared invalid even under the clear and convincing standard.\textsuperscript{220} In any event, the Court's holding that it is not necessary to litigate the patent's validity\textsuperscript{221} is consistent with other decisions holding that settlement agreements can be unlawful whether or not the patents in question are valid and infringed. For example, patent validity is not a defense to marketwide price fixing in the product market.\textsuperscript{222} This is most likely to be the case when the restraint affects the product market, and when the agreement is not one that the Patent Act authorizes. Both of these things are true of pay-for-delay pharmaceutical settlements.

\textit{Actavis} concluded that on the facts of that case the rule of reason should be applied to a naked product market division agreement contained in a patent infringement settlement. It also concluded, however, that the rule of reason inquiry could be quite truncated, inferring both power and anticompetitive effects from a very large payment. Further, all parties agreed that some payment might be lawful, provided that it did not exceed reasonably anticipated litigation costs. This approach is consistent with the Supreme Court's general reluctance to embrace a unitary "quick look" approach as a middle ground in antitrust analysis.\textsuperscript{223} Rather, the Court prefers a "sliding scale" that attempts to vary proof requirements with the danger of the conduct, its objectively measured rationale, and the availability of evidence.\textsuperscript{224}

\textbf{Product Price Fixing and Horizontal Market Division}

Naked product price fixing is per se unlawful under the antitrust laws, is condemned by competition authorities everywhere, and can be a criminal offense under United States antitrust

\textsuperscript{219} See, e.g., FTC v. Cephalon, Inc., 2014 WL 3731753 (E.D. Pa. July 29, 2014) (because patent had already been declared invalid respondent could not rely on strength of the patent arguments to defend settlement that provided for six year delay).


\textsuperscript{221} \textit{Actavis}, 133 S. Ct. at 2237-2238.

\textsuperscript{222} See discussion infra, text at notes ____.

\textsuperscript{223} On the "quick look," see 7 Phillip E. Areeda & Herbert Hovenkamp, \textit{Antitrust Law} ¶ 1508 (3d ed. 2010).

\textsuperscript{224} See \textit{Actavis}, 133 S. Ct. at 2237-2238; to say this is not to require the courts to insist, contrary to what we have said, that the Commission need litigate the patent's validity, empirically demonstrate the virtues or vices of the patent system, present every possible supporting fact or refute every possible pro-defense theory. As a leading antitrust scholar has pointed out, "‘[t]here is always something of a sliding scale in appraising reasonableness,’ ” and as such “‘the quality of proof required should vary with the circumstances.’ ” \textit{California Dental}, supra, at 780, 119 S. Ct. 1604 (quoting with approval 7 Areeda ¶ 1507, at 402 (1986)). treatise adds "quality of proof required should vary with the circumstances...."
law. At the same time, a patent production or use license is a buy-sell agreement that must set a price on the license itself. As a result there is nothing wrong with a license agreement that sets a royalty for the licensee's use of a patent as a lump sum, a percentage of product value, or by some other means. In any event, such licenses are expressly authorized by the Patent Act.

In the Bement case the parties went further, however. They settled litigation over patents covering spring-tooth harrows by a cross-license agreement that also stipulated the price at which the harrows themselves could be sold. The Supreme Court upheld the agreement, reasoning that one element in ownership of a patent is the right to set a product price, which the patentee could retain. In 1926 the Supreme Court acknowledged a similar exception for an agreement under which General Electric licensed Westinghouse to make light bulbs under its patent and set the price for the bulbs. Congress attempted repeatedly to overturn this rule, but without success -- a point that three dissenting Justices emphasized in the 1947 Line Materials case, where a majority condemned a market wide price fixing agreement contained in patent cross-licenses. The basic cross-licensing agreement covered two complementary patents owned by the two principals, but they also agreed to license others to manufacture under the two patents and stipulated the price of the manufactured product.

While Bement and GE have never been explicitly overruled, today the antitrust enforcement agencies largely ignore it. In a district court opinion Judge Richard Posner sitting by designation opined that a product price fixing agreement contained in a license settling a patent dispute would be unlawful if the parties believed that the patent was "almost certain" not to survive a validity challenge. He also suggested that the "elderly and much-criticized" GE decision would not be upheld today, noting that the low royalty rate (2%) plus an output escalation clause that served to limit production indicated that the parties were very dubious about the patent and also wanted to fix prices. In addition, they collectively held 93% of the

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light bulb market. In dicta in *Actavis* the Supreme Court restricted *GE* in a different way, limiting it to agreements between a "single patentee" and a "single licensee." I believe that neither Judge Posner's restriction to patents of dubious validity nor *Actavis'* restriction to agreements between a single patentee and a single licensee goes far enough. First, the *Actavis* limitation might be a useful way of distinguishing *GE* as judicial precedent, but on the collusion question the smaller number of players increases rather then decreases the competitive danger, provided the cartel has sufficient power to increase the price. Indeed, a two person cartel in a duopoly market is typically more stable and thus more dangerous than a cartel composed of a larger number.

Judge Posner's restriction to patents of dubious validity does not address the real problem either. To be sure, including a license in a worthless patent may be a cover for price fixing. But the problem goes far deeper: a product price fix in a patent license agreement attributes the *entire* value of a monopoly position to the patents covered in the license agreement. To illustrate, suppose that office staplers can be sold competitively at a price of $5.00, but that a monopolist or well functioning cartel would charge $7.00, or 40% higher. Suppose that the manufacturers of these staplers identify a minor patent covering one manufacturer's stapler. They form a cross-licensing agreement for that patent, stipulating that each of them will charge $7 for staplers. They have in fact merged the legal question about patent validity and infringement and also the economic question of patent value into the cartel agreement. Even if the patent were completely valid it may have contributed little value to the staplers in question and certainly not value sufficient to enable the staplers to be sold at the full product cartel price.

The empirical literature on price fixing overcharges and patent licenses bears this out. The average cartel markup is on the order of 20% to 40% over the pre-cartel price, while average royalty rates on licensed patents run in a range of 1% to 6% of the wholesale product price. One study found the median rate to be about 3%. Further, only valuable patents are

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234 A cartel and a purchasing functioning monopolist charge the same price. See HOVENKAMP, FEDERAL ANTITRUST POLICY, note ___ at §§ 4.1-4.2.
licensed. Only 1% to 2% of issued patents are ever litigated, and as few as 3-4% are licensed.\textsuperscript{237} A significant majority of patents are not even maintained when renewal fees become due.\textsuperscript{238} But any patent, whether valuable or not, could be used as an excuse for a product price fix if contained in a cartel agreement that the courts permitted. Without regard to the patent's value this agreement would permit the parties to set the price to the full cartel level. That situation resembles the one in \textit{Actavis}, where the opportunity for collusion eliminates most of the adversity of the parties, permitting them to share the cartel profits. Patent strength could then be reflected in the size of internal cross-licensing royalties. As Judge Posner noted in \textit{Asahi Glass}, for example, the fact that GE and Westinghouse set a very low royalty rate suggests that the patent was not very strong.\textsuperscript{239}

By contrast, suppose that one of the stapler manufacturers has a patent that it believes really does make the staplers worth $7, or $2 more than the cost of production. The manufacturer could then license the patents to its competitors at a royalty rate of $2 per stapler. The output result in this case would be the same, yielding final prices of $7, assuming that both manufacturers have costs of $5. But this situation is far different because now we have created adversity among the parties on the relevant patent questions of validity, infringement and value. If the rival stapler manufacturer does not believe that the patent is valid, that it is not infringing, or that the patent does not add $2 in value it will not pay. This makes this situation very different from \textit{Bement}.

No provision of the Patent Act authorizes product price fixing, and for good reason. But should we apply the rule of reason rather than the per se rule to a product price fix contained in a patent license? That might be a compromise between the \textit{Bement} and \textit{GE} conclusions of legality and the antitrust rule of per se illegality. It would condemn such price fixes only in cases of significant power and where the price that is fixed is in some way unreasonable.

The problem with a rule of reason in this setting is that it greatly complicates the analysis of a problem without giving anything in return. As noted above, the harm from a product price fix can occur whether or not the patents are valid or infringed. Quite aside from questions of validity or infringement, they might simply not be worth much, or at least not worth nearly as much as the markup that the fixers agree upon. As a result, asking whether the price fix was no more than reasonably necessary to cover the value of a patent that was valid and infringed would require a very costly and uncertain inquiry into both patent validity and market value -- precisely the "sea of doubt" that Judge Taft worried about in his famous defense of the per se price fixing

\textsuperscript{238} Lemley, \textit{Rational Ignorance}, supra note __, 95 NW. U. L. REV. at 1504.
\textsuperscript{239} See text at note ____, supra.
rule, rejecting the defendants' arguments for an inquiry into reasonableness. Further, in this case the patentee has a perfectly reasonable alternative, which is metering of the royalty rate rather than the product price. The patentee will simply have to convince the prospective licensee that the patent is worth that much.

One problematic exception to this rule is the Patent Act provision that authorizes domestic horizontal territorial division. Section 261 authorizes a patentee to grant a production license to another firm that covers "the whole or any specified part of the United States." The provision is written in such a way that it covers purely vertical territorial restraints, where the licensor and licensee are not product competitors. Thus, for example, if the owner of an upstream process patent licenses it to numerous downstream dealers, neither patent policy nor antitrust policy has much reason to attack the arrangement, provided that the licensees are not agreeing with each other. As far as patent law is concerned, the practice is statutorily authorized. As far as antitrust is concerned, purely vertical nonprice restraints are governed by the rule of reason and few are condemned.

Problematically, however, the provision also insulates purely horizontal territorial restraints where the parties are competitors. These could be per se unlawful under the antitrust laws. In *National Lead* the Supreme Court qualified Section 261's reach, holding that the Sherman Act applies if competing firms disguise a naked horizontal territorial division agreement in patent cross licenses. The territorial division agreement in that case involved licensees as well as licensors. While Section 261 of the Patent Act authorizes a patentee or its assignees to grant a territorially restricted license, it does not authorize licensees to agree with each other.

Unlike a pay-for-delay settlement, in which the generic does nothing but stay out of the market, section 261 creates an express authorization only for licensees. As a result there can be a

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242 See Sec. Materials Co. v. Mixermobile Co., 72 F. Supp. 450, 455 (S.D. Cal. 1947) (lawful for patentee to grant one licensee an exclusive right to sell in Southern California and another licensee an exclusive right to sell in other parts of the United States excluding Southern California and the patentee’s own area). See also Beckton, Dickinson & Co. v. Eisele & Co., 86 F.2d 267, 269 (6th Cir. 1936), cert. denied, 300 U.S. 667 (1937) (dicta: patentee license multiple users and limit each to a specified part of the United States).
245 See 332 U.S. at 341-342.
level of integration between a competing patentee and licensee, at least to the extent that they are using a common patent to produce something. An ancillary market division agreement -- unlike the naked territory division in *National Lead* -- would be addressed under the rule of reason.\(^{246}\)

Finally, Section 261 speaks of licenses with respect to the *patent*, not the entire product in which the patent is embodied. To illustrate, suppose that firm A sells lawn mowers east of the Mississippi River that include a patented handle that purports to be easier to grip. A is free to license firm B, another lawn mower seller, to use its patent and to limit use of the handle to mowers sold west of the Mississippi. What A cannot do, however, is forbid B from selling any mowers whatsoever east of the Mississippi. Firm B is free to sell mowers anywhere he wishes provided that they do not incorporate A's patented handle. Territorial agreements that reach to the product itself are not protected by Section 261. If naked, the can be illegal per se.

Product and customer market division agreements stand on a different footing from territorial division because they are not authorized by the Patent Act. Such agreements usually take the form of "field of use" restrictions, under which a patent is licensed for a particular product or customer set. Field-of-use restrictions permit a producing patentee to licensee others for markets that it does not wish to serve with its own production. If the restrictions are imposed by one firm on others the courts generally uphold them under the rule of reason. For example, in *General Talking Pictures*, AT&T reserved the production of sound amplifiers for commercial use to its own subsidiaries, but it licensed others to produce residential versions.\(^{247}\) While agreements such as these are horizontal in form, because the patentee competes with the licenses, they are essentially "vertical" in substance to the extent that the patentee behaves as the manager of the arrangement and is simply licensing other firms to produce in other markets. A close analogy in distribution restraints generally is "dual distribution," in which a producer such as General Motors might own some of its dealerships while entering into franchise agreements with


others. After a lengthy history of debate, the courts today overwhelmingly regard them as essentially "vertical" arrangements with significant potential to increase output.

But some field-of-use arrangement cross the line when firms use the restrictions to support collusion. These are closely analogous to other restricted distribution systems in which the product division is instigated by a cartel of dealers or by one powerful dealer. For example, the *Hartford-Empire* case involved an elaborate product market division agreement among competing glass makers. The agreement, which settled patent infringement litigation, gave Corning an exclusive right to make pressed and brown glassware, while Hartford received an exclusive right to make other types of glass, Thatcher became the exclusive manufacturer of glass milk bottles, and Ball the exclusive maker of canning jars. All of the major participants owned patents that were contributed to the cross-licensing agreement.

Dividing the territory between beneficial and harmful field-of-use arrangements brings antitrust policy to one its most conceptually frustrating issues, which is how to distinguish vertical from horizontal agreements in the context of restricted distribution. Because the Patent Act does not speak to the issue of product-restricted licenses, antitrust's rule of reason applies and the issues for patent licenses are not different in principle from the issues for organized product distribution generally. The one important difference is that organized distribution by means of patent licenses may involve technology sharing, while individual product dealers tend to be silos with relatively little inter-dealer communication. But these are fact questions that antitrust's rule of reason is designed to address.

*Pooling, Cross Licensing, and Standard Setting of Patented Technologies*

Pooling and cross licensing *simpliciter* refer to situations in which product-producing firms agree to share technologies for some part of their production without fixing product prices or dividing the product market itself. The agreements can range from specific licenses for specific patents, to licenses for large numbers of patents, to standard setting agreements that involve standards essential patents (SEPs) and FRAND commitments up front. In some cases firms will simply exchange royalty free licenses to their entire portfolios. As noted previously,
for some technologies such as bioequivalent pharmaceuticals it is impossible to separate the product market from the patent. A market division agreement covering a patented molecule is the same thing as a market division agreement on a product in which the molecule is the active ingredient.

There is surprisingly little room for application of the antitrust laws to licensing exchanges that do not restrict products. Most of the disputes have involved either patent law or contract law. Antitrust becomes involved when the restrictions operate on products or facilitate price fixing or market division in the product market, when standard setting is manipulated so as to exclude products, or somewhat similarly, when firms combine their patents and use exclusive cross licenses as a device for excluding others.\(^{253}\)

A traditional view about antitrust in markets for pooling and cross licensing was that pooling of complementary patents is efficient, while pooling of substitutes is suspicious because it facilitates collusion.\(^{254}\) At a high level of abstraction that observation seems important. Complements are ordinarily used together, and pooling complements reduces the transaction costs of joint licensing, as well as eliminating double marginalization, or royalty "stacking."\(^{255}\) By contrast, if two patents are substitutes they should be competing with one another and the licensee needs one of them, not both. In that case pooling is unnecessary to achieve economies and may facilitate collusion.

The substitutes/complements argument is often difficult to apply, however, particularly in information technologies. First, when patents have large numbers of claims, as many do, then dividing them up into substitutes and complements is often impossible. Many patents function as both simultaneously. That is particularly true in information technologies such as telecommunications and computers. For example, the Princo decision involved alternative patents for digital and analog technologies for a portion of a writable CD system. A manufacturer would use one technology or the other, but not both, making them function as substitutes. However, practicing the analog patent required infringement of at least one claim in


\(^{255}\)Double marginalization, or royalty stacking, occurs when the producers of two complementary products with some monopoly power are unable to coordinate their output. The result will be that price will be higher and output lower than under coordinated pricing. See Hovenkamp & Hovenkamp, Tying Arrangements, note ___.

the digital patent. This made the patents complements as well because effectively they had to be licensed together.\textsuperscript{256}

The \textit{products} that contain pooled patents might be more easily classified as substitutes or complements, but even that is not always clear. One problem with large information technology pools such as MPEG-LA, which pools video patents for digital devices, is that the scope of many individual patents has not been determined at the time of licensing. The members of MPEG LA include manufacturers of personal computers, software, DVD discs and players, digital televisions, mobile video receivers, TV set-top boxes, Blue ray discs and players, digital still video cameras, as well as pay--per-view television technology.\textsuperscript{257} For example, a digital camera and a digital computer display are clearly complements in the product market. One makes photos and the other displays them. Each enhances the value of the other. Nevertheless, these two devices very likely share hundreds of patents that cover technologies of video digitization and compression. A traditional DVD player and a Blu-Ray player are better classified as substitutes rather than complements. Nevertheless, they undoubtedly share many patents as well.

For many patents in large information technology pools no one knows until after costly claim construction in an infringement action whether or not they write on someone’s product. A paying licensee of the package has little economic incentive to examine each patent in the package for validity or infringement. Even if a patent in the package were declared invalid, there is no legal mechanism short of price regulation that would require a rate reduction.

In such a setting the transaction cost savings from pooling make it far more favorable to most firms than individual enforcement or licensing. Indeed, in markets other than chemicals the average value of patents is less than the cost of acquiring, interpreting, and litigating them.\textsuperscript{258} In that case widespread pooling becomes a way for firms to "back out" of a patent system based on individual appropriation when sharing is a much better alternative. By sharing all of the important technology they can bring themselves back into an equilibrium with far fewer patents to worry about, except for those held by outsiders to the pool.

A more robust explanation for pooling in high tech markets is rooted in the theory of commons development, or in this case the "innovation commons."\textsuperscript{259} The legally recognized boundaries of individual property rights are valuable to the extent they reduce the costs of enforcement and in the process increase the value of appropriation. The clearer boundaries are and the less costly to defend them, the more valuable individual property rights will be.

\textsuperscript{258} \textit{Bessen & Meurer, Patent Failure, supra, note __ at 138-140.}
\textsuperscript{259} \textit{See Bohannan & Hovenkamp, Creation Without Restraint, supra note __ at 325-364.}
In some cases, however, boundaries are so costly to define and defend that sharing is preferable to individual appropriation. Consider the examples of fisheries and grazing rights, which traditionally experienced a large number of commons dating all the way back to the Middle Ages.260 A characteristic of such "common pool resources" is that the cost of defining and defending individual boundaries is very high in relation to production value. One might imagine that the 100 fishermen owning a common pool would build underwater fences dividing the pool into 100 parts. But doing so would be tremendously expensive, might hamper the movement of the fish with devastating results to the yield, and produce many disputes about who was getting the more attractive parcels. Considering all these impediments the fishermen obtain a much greater payoff by turning the pool into a commons, and creating a set of rules about how much each participant can take out and how much they must contribute.

This phenomenon is simply a special case of Ronald Coase's *Nature of the Firm*.261 Firms decide on an input-by-input basis how to organize their production, choosing the most cost effective/highest payoff alternative. The Coasean theory of the commons simply says that firms will choose a commons when the aggregate payoff of doing so is greater than the payoff from individual boundary setting.

Patent pools are similar to common pool resources, but not identical. One critical difference is that the resources in a traditional common pool are rivalrous, or "subtractive," while output under a patent is not. For example, the people fishing on a common pool are in danger of overfishing, which will deplete the pool. As a result they must impose catch limitations on individual members. These quotas look dangerously like cartels, however, and would be unlawful if enforced by a fishing group that did not share a common pool. A patent, by contrast, can be practiced an infinite number of times without depleting the amount that is left over. As a result, output restrictions in patent pools are much more suspicious than they are in traditional common pool resources.262 That is of course a place where antitrust can become relevant, although for the most part large pools for standardized technologies do not impose output limitations.

Another difference between patent pools and traditional common pool resources has to do with the diversity of both the participants and the patents in the pool. A commons for grazing, fishing, or irrigation rights typically includes participants and rights that are fairly homogenous. Not so with many large patent pools. This can naturally lead to disputes about what should be included in the patent pool. Some manufacturers might want a smaller set of patents, or a different set of patents from what other members want.

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This fact has led to a common complaint of a form of "tying," or package licensing, in which a licensee complains that in order to obtain a set of patents that it wants (analogized to the tying product) it must also take a set of patents that it does not want (i.e., the tied product). Historically the Supreme Court has recognized such claims under the antitrust laws, but today they generally fail for the reason that no injury to competition is present.

Competitive harm from tying occurs when a buyer is forced to take a dominant firm's tied product and as a result cannot purchase that product from a rival. The "unwanted tied product" claim, by contrast, is simply that the buyer would prefer a smaller package than the one that is being sold. It is not antitrust's purpose to force sellers to cut their product offerings into smaller pieces for the benefit of a customer, but rather to condemn practices that appropriately harm competition. Further, accepting the "unwanted tied product" rationale for an antitrust claim turns the court into a micromanager of package size and price. For example, if the licensee member of a 1000 patent pool protests that its product actually uses only 150 of the patents, a court would have to conduct a fiercely expensive claim construction in order to determine how many patents the plaintiff's product actually practices. Then it would have to determine some pro rata formula for giving the plaintiff a price reduction to account for the patents it does not use. Because all patents are hardly created equal, such evaluations would be enormously costly if not heroic.

Patent pooling via standard setting can become anticompetitive for the same reason that standard setting generally might do so -- namely, when it is used to exclude a superior standard for the benefit of incumbent firms who are committed to an established standard. One good example outside of the patent licensing context is Allied Tube, where the Supreme Court found a likely antitrust violation when a group of firms dedicated to producing traditional steel electrical conduit manipulated a standard setting organization into disapproving plastic conduit, a cheaper and superior product that eventually captured most of the market once the ruling was reversed. This story has a few analogues in patented high technology standard setting.

268 See Golden Bridge Tech., Inc. v. Motorola Inc., 547 F.3d 266 (5th Cir. 2008) (rejecting such a claim) See also Hovenkamp, et al, IP AND ANTITRUST, supra note __, § 35.6; See also Hillary
One important thing about technology standard setting is that antitrust needs to be able to resolve exclusion disputes without becoming unnecessarily involved in the substantive standards themselves. In areas such as telecommunications, electrical, and medical devices juries are simply not equipped to make such evaluations. But there are other things that a court can examine. Perhaps most importantly, competitive harm will not result if those setting the standard are not competitors with the person being excluded. For example, a standard setting association of boat trailer manufacturers who purchase rather than make their own trailer lights has no anticompetitive incentive to exclude a product anticompetitively.\footnote{Moore v. Boating Indus. Ass’n, 819 F.2d 693, 702 (7th Cir. 1987). See Herbert Hovenkamp, \textit{Standards Ownership and Competition Policy}, 48 B. C. L. REV. 87 (2007).} As purchasers rather than competitors, they stand to benefit from safe reliable lights, just as consumers would. Second, if the standard setting organization does have participants who compete with the excluded firm there needs to be transparency and, if possible, firewalls that exclude direct competitors from participating in the standard setting process.\footnote{One situation where these were absent is \textit{Allied Tube, supra}, 486 U.S. at 496-497. Allied Tube was able to pack a voting meeting with its own employees, instructing them where to sit and how to vote. The administrators apparently paid no attention to who was voting or to conflicts of interest.}

\textit{Grantbacks}

A grantback clause in a patent license requires the licensee to "grant back" any patented improvements to the invention that the licensee might make. Patenette might regard such a clause as essential before they agree to a license, because they don’t want to become obsolete in the very markets that they have developed. For example, if patent A were licensed and the licensee then developed a complementary improvement B that made A work better, the patentee would be stuck with the older version of A unless it were guaranteed access to B as well.\footnote{See \textit{2 Hovenkamp, ET AL, IP AND ANTITRUST, supra} note __, Ch. 25.} Grantback clauses can be either vertical or horizontal, depending on whether the patentee and licensee are competing producers in the product market.

The Patent Act does not mention grantbacks by name, but the Patent Misuse Reform Act provision applied to tying arrangements includes them. It speaks of a patentee who "...condition[s] the license of any rights to the patent ... on the acquisition of a license to rights in another patent...." The statute then provides that this practice should be regarded as unlawful only if "the patent owner has market power in the relevant market for the patent or patented product on which the license or sale is conditioned."\footnote{35 U.S.C. § 271(d)(5) (2012).} The Supreme Court has interpreted this language as requiring proof of market power for antitrust claims of unlawful tying just as much...
as for misuse claims. There is no obvious reason that the same limitation should not be applied to grantbacks.

Assessed under the rule of reason, grantbacks are rarely found to be anticompetitive. "Nonexclusive" grantbacks, which require that the improvement be licensed back to the patentee but not that it be exclusive, do not often impose a competitive threat, although there are a few exceptions. The district court in the General Electric case found one when GE granted production licenses to a large number of licensees for electric lamp production and made each of them promise GE a nonexclusive license in all improvements that they made. The court believed that this could create a patent aggregation monopoly by making GE the only holder of all of the extant technology. In any event, this strategy would require market dominance in the primary patent, so it should be addressed under the rule of reason with a serious market power requirement.

An exclusive grantback requires the licensee to grant the improvement back to the grantor exclusively. Typically, such a provision permits the innovating licensee to retain a royalty free licensee to use the improvement itself, but only the original patentee can license the improvement out to others. One complaint about exclusive grantbacks is that they reduce the licensee's incentive to make and patent improvements, for all it receives is a nonexclusive right to use, which could generate only the competitive return. Another complaint about exclusive grantbacks is that licensee improvements created late in the term of the primary patent effectively transfer the exclusive right back to the original patentee.

Exclusive grantbacks may also exacerbate the collective action problem in the General Electric case, discussed above, by making it impossible for anyone other than the primary patentee to assemble the full technology set. For example, if GE owned a pioneer lamp patent and placed exclusive grantback clauses in the agreements of, say, ten licensees, each might develop one or more patented improvements. Under an exclusive grantback clause only GE would be able to aggregate all of the improvements, however. Each licensee would be able to practice only its own improvements. In an extreme case a patentee whose patent must be licensed to every market participant would be in a position to acquire an exclusive right to every

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patent developed for the industry by its existing participants. Once again, this is a dominant firm strategy which would have to be tested under antitrust's rule of reason.277

Purely Vertical Practices

A practice is purely vertical if the parties to any agreement are noncompetitors, but stand in a buyer-seller relationship. As noted previously, most of the "nine no nos" from the 1970s era were vertical practices, including such things as tying, exclusive dealing, and resale price maintenance.278 The law in most of these areas has changed, although for reasons that have little to do with patent policy. In most cases no harm to competition can be shown. Prior to the 1990s much of the perceived conflict between antitrust and patent law resulted from routine antitrust condemnation of competitively harmless vertical practices. Today purely vertical agreements are addressed under the rule of reason in virtually all contexts, including IP licensing agreements and settlements.279 To the extent that a vertical settlement involves a production license to the infringement defendant it is authorized by the Patent Act in any event, provided the agreement does not restrain product output.280

Resale price maintenance and vertical nonprice restraints were both unlawful per se when the nine no nos were issued.281 But today both are addressed under the rule of reason and rarely condemned. The presence of absence of patents is largely irrelevant.

The major antitrust concern is vertical agreements that limit the sales of rivals, principally tying, exclusive dealing, and similar practices. Tying arrangements are competitively benign in most cases, even when one of the products is patented and, significantly, even when the defendant has market power in the tying product. Exclusive dealing raises competitive concerns only when relatively strict structural requirements are met.282

277 A possible situation is Kobe v. Dempsey Pump Co., 198 F.2d 416, 420 (10th Cir. 1952), where the court found an unlawful attempt to monopolize in the primary patentee's use of exclusive grantbacks to acquire all new patents in the industry.
278 See discussion, supra, text at notes ____.
280 Vertical practices involving patent and other IP rights are treated in HOVENKAMP, ET AL., IP AND ANTITRUST, supra note __, Chs. 20-25. On vertical practices generally, including those that implicate patents, see vols. 6-11 PHILLIP E. AREEDA & HERBERT HOVENKAMP, ANTITRUST LAW, Chs. 14 (agreement), Ch. 16 (intrabrand restraints), 17 (tying), 18 (exclusive dealing).
The Supreme Court has not yet overruled its numerous declarations that tying is unlawful per se.\textsuperscript{283} In \textit{Illinois Tool Works} the Supreme Court came close, but in fact struck down only a per se presumption that tying of a patented product is per se unlawful without an independent showing of power.\textsuperscript{284} The decision is perhaps a strong signal that the Supreme Court is prepared to get rid of the tying per se rule in an appropriate case.

The list of "vertical" practices still requiring close antitrust examination also includes package licenses and related practices, as well as some grantbacks.\textsuperscript{285} Also of concern are vertical restraints initiated by licensee cartels or powerful individual licensees.\textsuperscript{286} What all these practices have in common is a firm that is dominant and a practice that in actual effect is "horizontal" in that it either limits the opportunities of rivals or facilitate collusion. Traditionally these practices are assessed under both Sections one and two of the Sherman Act as well as Section 3 of the Clayton Act. Section 1 of the Sherman Act and the Clayton Act provision both require an agreement,\textsuperscript{287} but Section 2 of the Sherman Act does not.

One of the most important developments in the recent antitrust analysis of vertical practices is the courts’ movement away from agreement-based models of harm for supplier (licensor) imposed practices, and toward dominant firm models.\textsuperscript{288} This movement reflects two important realities. First, conduct involving exclusivity obligations imposed on downstream firms is in fact unilaterally imposed, notwithstanding that most of the time it is contained in an agreement, such as a franchise contract or an IP license. The “agreement” requirement adds nothing other an explanation for the dominant firm’s leverage over downstream firms. In some interbrand restraint cases a relevant agreement is impossible to prove, such as when the seller refuses to sell separate components individually or refuses to sell to dealers who are already selling the products of competitors, or when the two products are bound together by technological design.\textsuperscript{289} The result is that legality too often depends on the happenstance of an agreement only because of the statutory structure. Second, vertical exclusion is in fact a dominant firm practice, in which market power is much more relevant to competitive harm than the existence \textit{vel non} of an agreement.


\textsuperscript{285}See discussion \textit{supra}, text at notes __.

\textsuperscript{286}On the role of dealer cartels or powerful individual dealers, see 8 AREEDA & HOVENKAMP, ANTITRUST LAW, \textit{supra} note __, ¶1604.


\textsuperscript{288}Examples are United States v. Microsoft Corp., 253 F.3d 34, 68-69 (D.C. Cir. 2001); United States v. Dentsply Intl., Inc., 399 F.3d 181, 191-192 (3d Cir. 2005).

\textsuperscript{289}See 10 ANTITRUST LAW, \textit{supra} note __ at ¶¶ 1753-1757.
I have argued elsewhere that Section 2 is actually a better fit for these practices because they are best assessed as the unilateral actions of a dominant firm.\textsuperscript{290} In fact, failure to insist on a reasonable showing of anticompetitive exclusion explains much of the antitrust overreaching that occurred in the 1980s and before. Having found a qualifying “agreement,” the courts were content to condemn the practice on a much lower market share than they would have required for a §2 dominant firm case.

Of course, exclusive patent licenses can be collusive – but this occurs when the licensor or licensee are competitors, or would be competitors but for the license. The other collusion danger is cartel agreements among licensees, but these are not authorized by the Patent Act and can readily be addressed under ordinary antitrust rules for horizontal restraints.\textsuperscript{291}

While Section 261 of the Patent Act authorizes exclusive licenses, it does not explicitly authorize anticompetitive exclusive licenses. But does it do so implicitly? In other contexts the general creation of granting or transacting powers does not imply a right to violate the antitrust laws. For example, all business corporations have a power to enter into contracts or acquire property, but that does not imply a power to make anticompetitive contracts or acquisitions that violate the antitrust laws. Mere legality under corporate law does not imply antitrust legality.\textsuperscript{292}

In any event, whether Section 261 authorizes anticompetitive exclusive licenses is partially settled by Section 3 of the Clayton Act, which reaches exclusive dealing and tying of goods "whether patented or unpatented," provided that the requisite harm to competition is proven. That does not fully address the Section 261 issue, however, because the Clayton Act provision is limited to “goods, wares, merchandise, machinery, supplies, or other commodities….”\textsuperscript{293} A patentee might still grant an exclusive license of a process patent, which would not be covered by the Clayton Act provision. By contrast, the Patent Act appears to recognize antitrust challenges to anticompetitive ties, provided that the tying patentee has market power in the tying patent.\textsuperscript{294} The best conclusion harmonizing these various provisions is that

\textsuperscript{290}11 HERBERT HOVENKAMP, ANTITRUST LAW ¶ 1800c5 (3d ed. 2011).
\textsuperscript{291} See discussion supra, text at notes ___.
\textsuperscript{292} The point was recently reiterated by F.T.C. v. Phoebe-Putney Health Sys., Inc., 133 S. Ct. 1003 (2013). However it stretches back a century earlier. See, e.g., United States v. Union Pac. R.R. Co., 226 U.S. 61 (1912) (fact that transaction was lawful under corporate law did not immunize it from Sherman Act merger challenge). See 1 PHILLIP E. AREEDA & HERBERT HOVENKAMP, ANTITRUST LAW ¶ 102b (4th ed. 2013).
\textsuperscript{294} 35 U.S.C. § 271(d)(5).
the Section 261 authorization of exclusive licenses should be limited to exclusive licenses that are not anticompetitive.  

It is also important to remember that when exclusive licensing causes anticompetitive harm it is generally at the behest of the licensee, who is the beneficiary of the exclusivity provision, rather than the licensor. For example, a dominant firm in a technologically heavy product market might acquire an exclusive license to a particular technology in order to keep rivals from having access. Section 261 of the Patent Act expressly permits IP rights holders to "grant and convey an exclusive right," but says nothing about receiving such a right. So even if this provision protected anticompetitive exclusive selling of IP license it does not protect anticompetitive buying.

Limiting antitrust condemnation of vertical practices to those involving exclusion or collusion, throws out two important sets of tying and tying like practices that the courts have historically recognized. The first is claims involving leverage, while the second involves unwanted tied products.

The leveraging issue is complex and often muddled by its confusion with foreclosure and price discrimination. In its most basic form the claim is that a person with a monopoly in one product can earn a second monopoly profit by tying a complementary good. Stated in this way the leveraging claim was thoroughly exploded in the 1950s by Ward Bowman, who observed that consumers of complementary goods place a value on the package rather than its individual components. As a result, if a seller is already charging its profit-maximizing price for a tying product it cannot earn more by tying a complement and charging a second monopoly price. Consistent with profit-maximization the seller can increase the price of the second product only by reducing the price of the primary product. To be sure, tying can create opportunities for price discrimination which can resemble leverage, but the great majority of price discrimination ties are efficient.

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295 See Cnty. Materials Corp. v. Allan Block Corp., 502 F.3d 730 (7th Cir. 2007) (noncompete agreement similar to exclusive dealing not patent misuse; no injury to competition); Columbus Auto. Corp. v. Oldberg Mfg. Co., 387 F.2d 643 (10th Cir. 1968) (assuming that exclusive dealing requirement in patent license constituted patent misuse); Nat’l Lockwasher Co. v. George K. Garrett Co., 137 F.2d 255 (3d Cir. 1943) (similar). Cf. Monsanto Co. v. Scruggs, 342 F.Supp.2d 568 (N.D. Miss. 2004) (assuming that exclusive agreement in patent licensing could be challenged under antitrust laws, but not finding illegality).


298 For differing sides of this debate, see Erik Hovenkamp & Herbert Hovenkamp, Tying Arrangements and Antitrust Harm, 52 Ariz. L. Rev. 925 (2010); Einer Elhauge, Tying, Bundled Discounts, and the Death of the Single Monopoly Profit Theory, 123 Harv. L. Rev. 397 (2009).
Ties and package licensing, which is typically analogized to tying, can be used for a number of purposes unrelated to exclusion or collusion. These include quality control, maintenance of interoperability, elimination of double marginalization, price discrimination, economies of joint production or distribution, or transaction cost savings. Many of these effects are identical with those of pooling. The main difference is that a pool is an agreement among numerous patentees while a package license contains one patentee with a portfolio of patents, and numerous licensees. Most antitrust challenges to package licensing do not involve exclusion but rather are complaints that the patentee is required to take "unwanted" patents. As noted in our discussion of pooling, however, these cases do not raise competition concerns. After years of wrestling with this practice the courts are now beginning to see it.

In a few exceptional cases the impact of package licensing is to exclude a rival by forcing it to compete with a price of zero. For example, suppose firm A licenses a package of several patents on an all-or-none basis. One of those patents is X, and a rival holds patent X', a substitute that may be superior to X for some users. From the licensee's perspective, however, X is already included in the package and the licensee will not receive a royalty reduction if it does not practice X but instead switches to X’. Even so, inclusion of X in the package license is not necessarily illegal. First, there may still be costs associated with verifying whether licensees are using X. Second, inclusion of X' in the licensee's technology may create conflicts with the other patents in the package. Third, relief might require a court to compute the requisite downward adjustment in the royalty rate for a package that does not include patent X.

In some situations these problems can be addressed. One example which did not involve package licensing was Microsoft's "per processor" licensing contract with computer manufacturers. Microsoft's standard licensing agreement for Windows required computer manufacturers to pay the Windows license fee on every computer it made, whether or not the computer actually used Windows. The result was that if a computer manufacturer wanted to install a rival's operating system that computer would be subject to two licensing fees. In this case Microsoft entered a consent decree requiring it to abandon per-processor licensing and charge a fee only on computers that actually installed the Windows OS.

Would an injunction against a patent package that forbid inclusion of patents with competitive alternatives be procompetitive? Suppose that a licensor of a package of 100 patents includes one patent X, and a rival patentee holding a substitute patent X' claims anticompetitive foreclosure. The court responds with an injunction requiring the defendant to drop X from its package. If the court simply removes patent X from the package without ordering a price

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299 See discussion supra, text at notes ___.
300 E.g., Brantley v. NBC Universal, Inc., 675 F.3d 1192 (9th Cir. 2012).
302 See 10 AREEDA & HOVENKAMP, ANTI-TRUST LAW, supra, note __, ¶1782a2 (3d ed. 2011)
reduction, then whether the patentee cuts the price will depend on competitive constraints. If it does not cut the price, however, then all licensees will simply end up paying more. On the other hand, if the court must determine and order a price reduction, it is placed in the unacceptable position of price regulator of the value of that patent.

This discussion suggests two warnings about the antitrust analysis of vertical arrangements. The first is that courts and enforcers should be aware of the ubiquitous possibilities that vertical practices create for achieving operational and transactional efficiencies. This makes it imperative that market power requirements be taken seriously and that courts understand the rationale for a practice. A second warning is that it does no good to identify a practice as an antitrust violation if the court is unable to devise an effective remedy, and that judicial setting of prices is rarely effective as an antitrust remedy.

Royalty "Extensions"

Royalty "extensions" refers to a collection of vertical practices in which the basis for royalties is something other than the typical percentage of cost or price, or a fixed dollar amount of each unit sold or each time a patented device is used. The most common and commonly litigated examples are: 1) provisions that require the payment of a royalty beyond the expiration date of the patent,\textsuperscript{304} 2) provisions that assess royalties on goods that are not covered by the licensed patent but that are produced with a patented machine or process; 3) "pass through" royalties that are attached to final products that are produced with a patented research tool or process; or 4) royalties assessed on a producing licensees entire output of some product, whether or not individual units of that product actually practice that patent.

Royalty extensions are not explicitly authorized by the Patent Act, so antitrust analysis is appropriate. Nevertheless, the practices are almost always purely vertical and rarely anticompetitive. In addition, most of them are not obviously offensive to patent policy's concern with promoting innovation either.

In \textit{Brulotte} a divided Supreme Court refused to enforce a sales contract for a hop-picking machine that called for the payment of royalties beyond the date that the last patent on the machine expired. The patentee was not the seller of the machine, but rather had licensed its patents to the manufacturer who then used a reach-through provision to charge the license fee to the purchaser. While \textit{Brulotte} was clearly not an antitrust case, it was not strictly speaking a misuse case either. Ordinarily misuse is asserted as a defense to patent infringement. In this case, however, the royalty extension was challenged in a state law breach of contract action to

\textsuperscript{304}Brulotte v. Thys Co., 379 U.S. 29 (1964). Decisions applying \textit{Brulotte}, often while criticizing it, include Kimble v. Marvel Enter., Inc., 727 F.3d 856 (9th Cir. 2013); Scheiber v. Dolby Labs., Inc., 293 F.3d 1014, (7th Cir. 2002); Zila, Inc. v. Tinnell, 502 F.3d 1014 (9th Cir. 2007); Meehan v. PPG Indus., Inc., 802 F.2d 881, 884-886 (7th Cir. 1986). See HOVENKAMP, et al., \textsc{IP AND ANTITRUST}, supra note __ at §23.2.
enforce the royalty provision.\(^{305}\) In any event, Justice Douglas' opinion for the Court used antitrust-like language to speak of the provision as leveraging the patent "monopoly" beyond the scope of the patent.\(^{306}\) The dissent also spoke of the issue as involving patent misuse.\(^{307}\)

No monopoly was being extended, however. The challenger was not wishing to produce Thys' machines, and once the patent expired anyone could have done so. Indeed, to the extent that Brulotte, a farmer, was required to pay a per use royalty\(^ {308}\) on the Thys machine he would have an increased incentive to obtain a machine from a competitor. Just as was true of many patent misuse cases, the underlying theory was based on a conception of harm that had little to do with either competition or innovation.

Second, the majority ignored the extent to which nominal license payments perform an amortization function, at least when they are attached to patented goods. If I buy an automobile and agree to pay for it over ten years, the price has been set up front and the payments operate in satisfaction of a loan or lease. This ultimately reduces the Brulotte problem as one of contract drafting, and the relatively few situations that have run afoul of it fall into that camp.\(^ {309}\) Otherwise the implications would be that if someone leased a car for, say $100 per month plus 5 cents per mile, she would be entitled to a pro rata price reduction to account for any patent that expired during the lease period. Justice Harlan's dissent made this point rather forcefully.\(^ {310}\) Brulotte is simply bad law and is standing in line to be reversed when the Court gets an appropriate case.\(^ {311}\)

Much the same can be said about royalties on unpatented goods or royalties attached to a licensee's entire output, whether or not every unit embodies the licensed patents. Many situations operate as nothing more than per use royalties calculated by an alternative method. Others involve transaction cost savings in situations where it is difficult to identify which units of a licensee's output practice a particular patent. For example, the owner of a large portfolio of patents covering radio circuitry might license them to a radio manufacturer with the royalty calculated as so much per radio produced, regardless of how many of the patents are actually used in that particular radio. This agreement clears the transaction at far, far lower cost than an alternative that would require inquiry and perhaps litigation over the question of exactly how many patents are practiced by any particular unit. Neither collusion nor exclusion is obvious.\(^ {312}\)


\(^{306}\) *Id.* at 33.

\(^{307}\) *Id.* at 38 (Harlan, J., dissenting).

\(^{308}\) The royalty stipulated in Brulotte's contract was $3.33 per 200 pounds of hops harvested, subject to a minimum of $500 annually over the life of the contract. 62 Wash.2d at 286.

\(^{309}\) *E.g.*, Scheiber v. Dolby Labs., Inc., 293 F.3d 1014 (7th Cir. 2002).

\(^{310}\) *Brulotte*, 379 U.S. at 38.

\(^{311}\) Other decisions are discussed in HOVENKAMP, ET AL., IP AND ANTITRUST, note __ at § 23.2.

Indeed, even if we believed that Patent Law had a concern with "extraction" as such -- that is, with obtaining elevated royalties -- it is hardly clear that these royalty formulations extract. Most are a form of second degree price discrimination that tends to collect higher royalties from higher intensity users. Whether licensees are harmed on balance would be extraordinarily difficult to determine, but certainly cannot be inferred. Significantly, virtually all such schemes serve to increase total output and, typically, the total number of licensees as well.\footnote{313}

"Reach through" royalties operate in much the same way, with the added attribute that they are an effective risk sharing device. For example, the seller of a research machine or tool to be used in a laboratory might grant the right to use the machine without charge but demand a royalty of a percentage of the sales price of any successful product that is developed with the machine. If the research venture is unsuccessful, as is true of a high percentage, then no royalty is due. If it succeeds, then the royalty could end up being quite high, particularly if the product is highly successful. Such a contract permits the licensor of the machine to participate in ah risks and benefits of the research in question. As a general proposition the arrangement is no more anticompetitive than if the research team agreed to hire a specialist whose compensation was a percentage of the return on the final product. Although the practice has generated some controversy in the law reviews, particularly because it may contribute to double marginalization or royalty "stacking,"\footnote{314} the courts have generally treated it as benign.\footnote{315}

\emph{Antitrust and Patent Enforcement}

Obtaining patents is pre-issuance conduct that is heavily supervised by a federal agency, and where antitrust has little place. By contrast, most private enforcement of patents is post-issuance conduct.\footnote{316}

Merely "obtaining" a patent is pre-issuance conduct that is not generally addressable through antitrust law.\footnote{317} The patent system itself provides for comprehensive regulatory

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\footnote{313}{On the economics, see Hovenkamp & Hovenkamp, \textit{Tying Arrangements and Antitrust Harm}, supra note \textbar. For coverage of the cases, see Hovenkamp, et al., \textit{IP AND ANTITRUST}, supra note \textbar, at Ch. 23.}


\footnote{315}{E.g., Bayer AG v. Housey Pharm., Inc., 228 F. Supp. 2d 467, 470 (D. Del. 2002) (reach through royalty not patent misuse).}

\footnote{316}{See discussion \textit{supra}, text at notes \textbar.}

\footnote{317}{See FMC Corp. v. Manitowoc Co., 835 F.2d 1411, 1418 \\& n.16 (Fed. Cir. 1987) (distinguishing "mere procurement" of a patent from subsequent enforcement: the former cannot}
oversight with virtually all issuance decisions made by government officials and supervised on appeal by judges. Second, the patent system includes its own remedial mechanisms for dealing with improper conduct, mainly through declarations that a patent is invalid or unenforceable. This system has been harshly criticized, mainly because a mere declaration of invalidity as punishment on a patent that was invalid to begin with is not really a punishment at all.\textsuperscript{318} For example, if a patent would not be issued if the true facts were known, then an applicant has every incentive to hide an essential fact when the probability of detection is significantly less than 100\% and the only penalty is that the patent will not issue. Indeed, in the case of a licensed patent later invalidated for inequitable conduct, the Patent Act does not even call for disgorgement of improperly obtained royalties.\textsuperscript{319} It is the rough equivalent of a criminal rule for theft that required as its only penalty that the thief return the stolen good.

None of this constitutes an antitrust problem, however, at least not unless the inequitable conduct before the PTO is coupled with some post-issuance conduct as well, such as an infringement action, threat of an infringement suit, or insistence on licensing. Housekeeping inside of the PTO and the patent system is a job for Congress and the oversight power of the Secretary of Commerce or the Federal Circuit Court of Appeals, but fixing deficiencies in the work of other government agencies is not an antitrust function so long as the decision making in those agencies is entirely in public control.

Walker Process: \textit{Objectively Unreasonable Infringement Actions}

Post-issuance conduct is another matter. The decision to bring an infringement suit, to threaten a suit, or to insist on a license, are all privately initiated. Here, antitrust can be brought to bear, but its limitations are fairly evident. In this area the conduct is typically unilateral. This means that it must be addressed under Section 2 of the Sherman Act, which reaches only monopoly or attempt to monopolize. As a result, antitrust reaches only a small subset of instances of improper patent infringement where monopoly is threatened.

While the Patent Act explicitly authorizes enforcement by the filing of infringement actions,\textsuperscript{320} it does not authorize improper, anticompetitive actions. In addition, access to courts and other enforcement tribunals is strongly protected under the United States Constitution.

without regard to the subjective intent of the plaintiff. Objectively baseless enforcement actions are a different matter.\textsuperscript{321}

In \textit{Walker Process} the Supreme Court held that an infringement lawsuit based on a patent that had been fraudulently procured could be the basis of an antitrust violation, provided that the structural elements of an antitrust offense were present as well.\textsuperscript{322} The lawsuit must be "baseless" under an objective test, considering whether a reasonable patentee knowing the facts would have believed the suit to be proper.\textsuperscript{323}

If the conduct does not threaten monopoly, then a patent system finding of invalidity will invalidate the patent. In addition, the exceptional case provision in the Patent Act, discussed below, may shift some attorneys fees for litigation misconduct, but the remedy will not go beyond that. The inadequacy of these remedies leads one to expect that the amount of deadweight loss caused by improper enforcement actions is significant, particularly where the probability of detection is low. This is the reason that antitrust law has a damages multiplier -- designed to offset the fact that violations are difficult to detect and prove.

A good illustration of this problem is the \textit{Dippin' Dots} case, in which the patent on a popular ice cream concoction was never properly issued because the patent applicant had lied about barring prior sales made a decade earlier at small fairs.\textsuperscript{324} When the patentee later filed an infringement action, the sales were discovered and the district court found both that the patent was invalid and that the defendant had violated the antitrust laws. The court awarded attorneys fees to the infringement defendant under the antitrust attorneys fee award provision.\textsuperscript{325} The Federal Circuit reversed the antitrust judgment, concluding that the antitrust laws required something more than mere enforcement of an improperly obtained patent. it also reversed the judgment granting attorneys fees. The result is that the only penalty that \textit{Dippin' Dots} suffered was invalidation of its patent. The patent was already invalid, however. It never would have issued but for the false declaration that there had not been any disqualifying prior sales. Further, the court seems to have lost sight of the fact that clearly there was something more -- the patentee had not merely obtained the patent fraudulently, but it also filed an infringement action several years later, knowing the patent to be invalid if the true facts were known.

\textsuperscript{321}On the \textit{Noerr-Pennington} Doctrine and protection of access to the courts in antitrust cases, see 1 AREEDA & HOVENKAMP, ANTITRUST LAW, note __, Ch. 2A; on patent infringement actions specifically, see 3 AREEDA & HOVENKAMP, ANTITRUST LAW, \textit{supra} note __, ¶ 706.
\textsuperscript{323}Clarified in Prof'l Real Estate Investors, Inc. v. Columbia Pictures Indus., Inc., 508 U.S. 49 (1993).
\textsuperscript{324}Dippin' Dots, Inc. v. Mosey, 476 F.3d 1337 (Fed. Cir. 2007).
\textsuperscript{325}\textit{Id.} at 1349. \textit{See also} 15 U.S.C. § 15 (providing for attorneys fees to a prevailing antitrust plaintiff).
What makes the *Dippin' Dots* rule particularly troublesome is that prior sales that bar patentability are "off record," known to the patent applicant but not necessarily to others. The patent applicant typically provides a sworn statement that there were no barring prior sales or uses.\(^{326}\) This makes the problem different than for a patent subsequently declared invalid because the applicant failed to mention known prior art\(^{327}\) or took inconsistent positions in front of different enforcement tribunals.\(^{328}\) These failures are more likely to be on the record and discoverable later, given that many more resources are poured into patent litigation than initial patent procurement.

The Supreme Court has corrected this imbalance by strengthening the Patent Act, which permits a judge to award attorney's fees to prevailing parties in "exceptional" cases.\(^{329}\) The Supreme Court rejected the Federal Circuit's rule that confined the use of this provision to patent infringement claims that were "frivolous" or "objectively baseless," or brought in subjective bad faith, and required proof by "clear and convincing" evidence.\(^{330}\) Placing these limitations on the provision largely rendered it superfluous, the Court concluded, because the common law already permitted judges to shift fees for bad faith lawsuits.\(^{331}\) Shifting of attorneys fees is a fairly toothless remedy for a patent that has been improperly obtained but has been licensed out to third parties unaware of its deficiencies. Of course, all patents are probabilistic and judgments must be made about validity and scope, but they must be made with objectively measured good faith.

The time period and knowledge requirements for a *Walker Process* violation are not the same as those for determining pre-issuance inequitable conduct. The *Walker Process* doctrine considers what a reasonable patentee actually knew or should have known at the time of an infringement suit, which could be many years after patent prosecution activity. In some cases a patent may have been obtained improperly but was subsequently assigned to an innocent purchaser with no knowledge of the improper conduct. In other cases invalidating facts may not have been known at the time a patent was obtained but may have come to light later. Further, *Walker Process* is not limited to questions of invalidity resulting from inequitable conduct. It can also apply to cases that involve valid patents that are clearly not infringed or where the patentee sued without inquiring about infringement.\(^{332}\) The courts have even indicated that suit

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\(^{326}\) See *Dippin Dots*, 476 F.3d at 1341. See also *In re Cygnus Telecomms. Tech.*, LLC, Patent Litigation, 536 F.3d 1343 (Fed. Cir. 2008) (referring to applicant's sworn declaration).

\(^{327}\) E.g., *Nobelpharma AB v. Implant Innovations*, 141 F.3d 1059 (Fed. Cir.).

\(^{328}\) E.g., *Therasense, Inc. v. Beckton, Dickinson & Co.*, 649 F.3d 1276 (Fed. Cir. 2011) (en banc).

\(^{329}\) 35 U.S.C. § 285 ("The court in exceptional cases may award reasonable attorney fees to the prevailing party.").


\(^{331}\) Id. at 1757-1758.

\(^{332}\) United States v. Besser Mfg. Co., 96 F. Supp. 304, 312 (E.D. Mich. 1951), aff'd, 343 U.S. 444 (1952) (lawsuits on machine alleged to infringe but that patentee had never examined); Ecrix Corp. v. Exabyte Corp., 95 F. Supp. 2d 1155 (D. Colo. 2000) (permitting antitrust discovery on patentee's basis for thinking that infringement defendant's device infringed the patent in
on an expired patent could be a *Walker Process* violation, although it is difficult to see how a lawsuit so easily countered could ever create durable monopoly power.333 Finally, unjustified threats to sue can also be *Walker Process* violations even if no lawsuit actually occurs.334

The *Dippin Dots* holding is unlikely to be disciplined by circuit conflict, even though it is an antitrust holding rather than a patent law holding and the Federal Circuit has exclusive jurisdiction only over the latter. *Walker Process* antitrust claims are virtually always presented as counterclaims on patent infringement suits, and in most cases they are compulsory counterclaims, which means that they cannot be separately brought.335 Prior to 2012 counterclaims to patent infringement actions were appealed to the regional circuits rather than the Federal Circuit.336 However, the Leahy-Smith America Invents Act brought counterclaims on patent infringement suits, including antitrust counterclaims, into the exclusive jurisdiction of the Federal Circuit.337 Direct attack remains a possibility for third parties such as purchasers, however. In *DDAVP* the Second Circuit held that it had jurisdiction over a *Walker Process* style lawsuit brought by purchasers who claimed that they paid more for a branded drug as a result of an improper lawsuit intended to keep generics off the market.338 Significantly, such a lawsuit does not "arise under" the Patent Act, and thus is not within the exclusive jurisdiction of the Federal Circuit.

Refusal to License, Unilateral and Concerted

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The Patent Act provides that “no patent owner … shall be denied relief or deemed guilty of misuse or illegal extension of the patent right by reason of his having … refused to license or use any rights to the patent....”\(^{339}\) By its terms that provision applies to unilateral and unconditional refusals to license. For example, price-fixing is a refusal to license except at the cartel price, and tying is a refusal to license unless the licensee also takes the tied product. These are “conditional” refusals to license, and they are subject to the ordinary rules of antitrust analysis. Additionally, it does not apply to mandatory licensing that is incorporated into a consent decree or judgment concerning some other violation, such as an unlawful merger or act of monopolization.\(^{340}\)

In addition, the provision speaks in the singular and authorizes a unilateral refusal to license. Extending it to concerted refusals to license, as dicta in the Federal Circuit’s \textit{Princo} decision did, reads an unnecessarily broad immunity into the provision, disregarding competition considerations.\(^{341}\) In antitrust law, unilateral refusals to deal are ubiquitous and rarely unlawful.\(^{342}\) Reading Section 271(e) of the Patent Act to apply to unilateral refusals simply states a policy that is consistent with United States competition policy generally.

By contrast, concerted refusals to deal, or boycotts, are fully addressable under the antitrust laws and naked concerted refusal agreements among competitors can be unlawful per se.\(^{343}\) There is no obvious reason why antitrust should depart from these rules. Naked restraints do not further innovation, and ancillary restraints come under the rule of reason, where innovation effects can be considered if appropriate. Seen thus, the Patent Act provision on unilateral refusals does no more than add a small amount of additional limitation on an antitrust rule that is already extremely tolerant of unilateral refusals. For example, under the \textit{Aspen} decision,\(^{344}\) which the Supreme Court severely qualified in \textit{Trinko},\(^{345}\) a firm acting unilaterally has no general duty to deal with a rival. Nevertheless, an unjustified or unexplained withdrawal from a previous cooperative arrangement may have “evidentiary significance” entitling a jury to condemn the withdrawal.\(^{346}\) The Patent Act provision does not contain this limitation. Thus, for

\(^{342}\) \textit{E.g.}, Verizon Commc’n, Inc. v. Law Offices of Curtis V. Trinko, LLP, 540 U.S. 398 (2004); Novell, Inc. v. Microsoft Corp., 731 F.3d 1064 (10th Cir. 2013).
\(^{343}\) Rossi v. Standard Roofing, Inc., 156 F.3d 452 (3d Cir. 1999).
\(^{345}\) Verizon Commc’n, Inc. v. Law Offices of Curtis V. Trinko, LLP, 540 U.S. 398 (2004); \textit{Aspen}, 472 U.S. at 601.
example, a dominant firm that licensed a patent to a rival for a term of, say, five years, would have no obligation to renew the license upon expiration.

Reading the Patent Act to exonerate concerted refusals from misuse or antitrust claims condones practices that should not be immunized without antitrust scrutiny. For example, a group of firms that cross licenses a networked technology but refuses to include a firm merely because it charges a lower price or has a superior technology would be exonerated. Or two automobile companies might agree to license their patents for some technology to one another, but agree that they will not license them to a third, more competitively aggressive rival. To that extent the Federal Circuit’s statement on concerted refusals seem ill-advised and was probably made without considering the implications for competition policy.

Overly Broad Remedial Demands; FRAND-Encumbered Patents

Walker Process and lawsuits on invalid patents are not the only type of litigation exclusion. Overly broad requests for an injunction, particularly on FRAND-encumbered patents as well as lawsuits by non-practicing patent aggregators have also exposed serious potentials for abuse in the patent system. It is unlikely, however, that these actions are antitrust violations under current law unless they arise to the level of litigation misconduct that Walker Process contemplates. In eBay the Supreme Court held that there is no automatic entitlement to an injunction for patent infringement. Since then, denials of an injunction to non-practicing entities have been common, although there still are a few.

A FRAND-encumbered patent is a patent which the owner has promised to license on fair, reasonable, and nondiscriminatory terms in exchange for its designation as part of a technological standard. There is a growing academic consensus that injunctive relief should not be given to the owner of a FRAND encumbered patent, unless perhaps a firm simply continues to produce while refusing to pay anything. A recent three judge panel of the Federal Circuit split three ways on this issue.

Both First Amendment doctrine and our general rules about access to the courts forbid applying the antitrust laws to litigation conduct unless it is "baseless," measured by an objective test. In the current state of the law a non-practicing entity who requests an injunction, or

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someone who asks for an injunction on a FRAND-encumbered patent, might lose. But until the courts speak more decisively these are not yet "baseless" claims and antitrust liability should not attach to bringing them. In any event, these questions are predominantly legal, and once an absolute rule has been adopted it is difficult to believe that asserting a lawsuit in violation of it has any prospect of creating durable monopoly power. Fundamentally, these are problems best addressed through the patent system rather than by antitrust law.

**Patent Acquisitions, Exclusive and Nonexclusive**

Under the Patent Act patents are treated as personal property and freely assignable.\[^351^\] Once again, however, while the Patent Act expressly permits assignments, it does not prohibit anticompetitive assignments. As a result, the courts have held that patent transfers are reachable under the antitrust laws, although they have rarely found that a patent acquisition is anticompetitive.\[^352^\] For example, one court concluded that patent acquisitions are fully reachable under the merger provision, §7 of the Clayton Act. It then rejected an antitrust attack on Xerox’s acquisition of photocopier patents that were not yet practiced at the time of the acquisition, however, because there was as yet no market subject to diminished competition.\[^353^\]

The antitrust treatment of patent rights is appropriately sensitive to the type of right that is being transferred. In general, even a dominant firm can obtain a nonexclusive license without excluding anyone else, provided that the license is nonexclusive in fact as well as form. Acquisitions of nonexclusive licenses to practice may be essential to enable a firm to stay abreast of technology within its industry.

Exclusive rights are another matter. While a dominant firm needs access to technology in order to remain competitive, it does not need exclusive access. For that reason a monopolist should be limited to the acquisition of nonexclusive licenses of patent for technology in any market in which it has dominance.

One offsetting consideration is the rights of the patentee. The value, and thus the price, of a patent reflects added value to the buyer. A patent that will create or preserve a product monopoly will claim a higher price than one that is sold into a competitive market. As a result one can expect that a monopolist intent on maintaining its market position will be willing to pay more for an exclusive right than the aggregate of potential licensees would be willing to pay to produce in a competitive market. While the Patent Act gives the patentee the right to transfer,


\[^352^\] One example is Great Lakes Chem. Corp., 103 F.T.C. 467, 471 (1984) (consent order; requiring nonexclusive license).

however, it does not create a right to transfer at a monopoly price, anymore than the power to sell a production plant gives the owner a right to enter into an anticompetitive transaction. On this point the anti-monopolization policy of Section 2 of the Sherman Act and the merger policy of Section 7 of the Clayton Act are in accord.\textsuperscript{354}

Even more threatening to a competitive economy is the dominant firm's acquisition and nonuse of a patent. In this case the monopolist is seeking not only to protect its own productive technology from competition, but to shut down alternative technologies that might compete with it. In the \textit{Paper Bag} case, which did raise any antitrust issues, the Supreme Court held that a dominant firm could acquire a patent in alternative technology that it was not using, and in effect put the patent "to sleep" except for the right to bring infringement lawsuits.\textsuperscript{355} Worse yet, the lawsuit had been sustained on a particularly broad reading of the patent law's doctrine of equivalents, which permits infringement actions against technologies that do not literally infringe any claim in the holder's patent.\textsuperscript{356}

As a matter of patent law, \textit{Paper Bag} is difficult to justify, even more today given that entitlements to an injunction are governed by ordinary equity principles. Injunctions are typically denied on unpracticed patents, although in \textit{Trebro vs. Firefly} the Federal Circuit recognized an exception for a firm who competed in the market at issue but used a different technology than the one covered by the patent. Further, the firm had acquired the patent from someone else.\textsuperscript{357} The court held that, even though the patent in question was unpracticed, the infringement plaintiff would suffer irreparable harm, a requirement for an injunction, because it and the infringement defendant were direct competitors.\textsuperscript{358}

\textsuperscript{354}See 3 \textsc{Areeda} \& \textsc{Hovenkamp, Antitrust Law}, \textit{supra} note ___ at ¶707c (4th ed. 2015) (in press).
\textsuperscript{355}\textsc{Cont'l Paper Bag Co. v. E. Paper Bag Co.}, 210 U.S. 405, 427-430 (1908); see \textsc{Bohannan \& Hovenkamp, Creation Without Restraint}, \textit{supra} note ___ at 295-298. The putting patents "to sleep" comment came from \textsc{John Maurice Clark, Studies in the Economics of Overhead Costs} 146 (1923).
\textsuperscript{357}\textsc{Trebro Mfg., Inc. v. Firefly Equip., LLC}, 748 F.3d 1159, 1160-1161 (Fed. Cir. 2014). See \textsc{Erik Hovenkamp \& Thomas F. Cotter, Unprotected Market Entry, Diagonally Integrated NPEs, and Injunctive Relief} (working paper on file with author, July 2014).
\textsuperscript{358}\textit{Trebro}, 748 F.3d at 1171: ... the fact that Trebro does not presently practice the patent does not detract from its likely irreparable harm. To the contrary, Trebro and FireFly are direct competitors selling competing products in this market. Thus, the record strongly shows a probability for irreparable harm.
The *Trebro* decision represents the worst of both world -- doing nothing to further patent policy by actually permitting a firm to remove technology from the market altogether, while also protecting a firm from competition in precisely the circumstances it should be encouraged.

The decision also raises a troublesome question of accommodation between innovation and competition policy. For a century or more antitrust courts have accommodated patent policy in their decisions involving patent practices made the subject of antitrust challenge. In sharp contrast, patent law cases virtually never confront the issue except in the small subset of cases where antitrust counterclaims are raised. Does balancing of the "equities" in a patent infringement case where an injunction has been requested mean balancing a myopic set of factors having to do with injury from patent infringement, or does it require examining a broader set in which our preference for competitive markets is accorded some weight? In *Trebro* the Federal Circuit found irreparable harm because the market contained only three players and the infringement defendant FireFly was a new entrant among the three. The court observed that the sale of a Firefly harvester was likely to steal a sale from Trebro, and that at least one customer had switched from Trebro to Firefly.\(^{359}\) This theft of sales counted as "harm" to the Federal Circuit, even though Firefly's technology did not infringe the technology that Trebro was actually using in its own machines.

But what counts as harm for purposes of patent law in this case counts as a social benefit for purposes of competition policy. The decision effectively gives dominant firms a protected right to buy up patents to technologies that they do not actually use, simply to keep them from being deployed in the market by prospective competitors. That is a great deal of harm to competition policy, for little to nothing in return from patent policy.

These facts suggest a case for antitrust, perhaps by means of a counterclaim. In order to do that the infringement defendant would have to show a relevant market for mechanical sod cutters, which contains only three players, and the patentee's market dominance. It would then have to show that obtaining the injunction against the new entrant under these facts constituted an exclusionary practice. That is where the rub comes in. A lawsuit on a valid patent is expressly authorized by the Patent Act and not countenanced under antitrust law.

This would be a better place for a court of equity to intervene with a misuse rule -- something that is not in favor today, particularly in the Federal Circuit. Just as the "antitrust injury" doctrine, which is not articulated in any statute, forbids plaintiffs from using the antitrust laws in anticompetitive ways,\(^{360}\) so too patent doctrine should be limited to prevent uses that harm competition while doing nothing to further innovation. Before that can happen, however, courts need to think of the Patent Act as a set of legal rules that manage innovation and competition policy, not simply as a set off property rules.

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\(^{359}\) *Id.* at 1169-1170.

\(^{360}\) *See discussion supra*, text at notes __.
Non-Practicing Patent Aggregators Generally

A growing body of literature suggests that the patent enforcement activities of patent aggregators are harming innovation.\textsuperscript{361} According to one recent report, more than 60\% of infringement suits are filed by Patent Assertion Entities (PAEs), or "trolls."\textsuperscript{362} The prevailing view is that this activity is pure rent seeking, pursuing innovators who are sued for their own internal research, not because they have copied technology from others. For example, Mark Lemley concludes that the "overwhelming majority" of patent suits are being brought, not against copyists, but rather against those who developed an invention independently.\textsuperscript{363} Offering some support for this view is the fact that only a very tiny percentage of infringement suits find willful infringement, or knowing copying. Infringement plaintiffs have every incentive to show willful infringement, which can lead to multiple damages.\textsuperscript{364} In too many cases the aggregator of a large portfolio of patent brings an infringement suit against a technology company's own internally developed technology and is able to extract a significant award. In addition, often the number of defendants is large, strongly suggesting that the patent is obvious.\textsuperscript{365}

This problem exists in significant part because patent infringement is a strict liability defense, even when the patent being infringed is not being practiced. In this respect patent law differs from copyright and trade secret law, which require actual copying as a precondition for infringement, although copying can be inferred from circumstantial evidence. The strict liability infringement rule is particularly onerous in markets for information technologies where patents are easy to obtain, numerous, costly to interpret, and difficult to search for. Further, to the extent they are not practiced there are no devices that can be examined.

These facts raise two questions, and it is important to keep them distinct. The first one is whether we are issuing far too many obvious patents, with the result that people in the ordinary course of developing new ideas become unsuspecting infringers. The second has to do with the way information about patents and existing technology is disseminated. Before an innovator can proceed without concern about patent infringement the patents that are already out there need to be both discovered and interpreted. To the extent that either of these activities is too costly we have unknowing infringers. As a general matter, the cost of providing notice is lower than the cost of searching -- a fact that must be considered if we want to improve the system.\textsuperscript{366} Further,

\begin{footnotes}
\item \textsuperscript{361} See the citations at note __, supra.
\item \textsuperscript{364} See discussion supra, text at notes __.
\item \textsuperscript{365} See discussion supra, text at notes __.
\item \textsuperscript{366} On this point, see Herbert Hovenkamp, \textit{Notice and Patent Remedies}, 88 TEX.L.REV.221 (2011). \textit{See also} Peter S. Menell & Michael J. Meurer, \textit{Notice Failure and Notice Externalities},
\end{footnotes}
as long as knowledge about a patent is not required for infringement, patentees have no reason to supply any more notice than they can get away with.

The strict liability rule for patent infringement has been widely criticized, all the more because of the recent sharp increase in suits by patent "trolls" -- a term which suggests people the catching of people who are unaware that they have committed patent infringement until they are surprised. On the other side, some voices defend the existing scheme, at least with qualifications, arguing that requiring proof of copying could drastically change patent law's incentive structure. While that argument has some force when we are talking about practiced patents that are embodied in products that are widely disseminated, it seems much more strained when we are speaking of unpracticed patents that are highly complex and difficult to assess. Some compromises may be available. One would be to require proof of copying in cases where the invention is not practiced by either the infringement plaintiff nor its licensees.

Given the high number of infringement actions filed by aggregators, this is a ballooning crisis in the patent system, particularly when one considers implications that are now beginning to be documented to the effect that such lawsuits are discouraging rather than encouraging innovative activity. To acknowledge that is to recognize a serious disconnect between what the patent system should be doing and what it is actually doing.

Nevertheless, it is difficult to see any of this as an antitrust problem. Even if the infringement lawsuits are objectively baseless, the plaintiff is not practicing and typically not

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operating in any market. As a result the structural requirements for a Walker Process lawsuit are not likely to be met. Mounting an antitrust challenge to the aggregation and enforcement of a large patent portfolio, even if the patents are unused, would require identification of a relevant market in which competition is lessened. Further, neither nonuse of a patent nor the bringing an infringement action based on an unused patent is an antitrust violation, even if the patent has been acquired from someone else. This is largely a problem for the Patent System, and a system concerned with protecting innovation would take it seriously. The fix, however, will have to come from either Congress or the Federal Circuit's equity powers.

**Conclusion:**

**Innovation, Competition, and the Equitable Powers of Courts**

Antitrust and patent law are both imperfect instruments for dealing with complex problems of the innovation economy. The American patent system is older than federal antitrust enforcement, but it has also been dominated by a property law mentality that has paid inadequate attention to the innovation and competition effects of patent law's own processes. This is in sharp contrast to antitrust law, which has been much better at incorporating economic knowledge into policy.

The rise, very considerable excesses, and subsequent decline of the judge made patent law doctrine of "misuse" was an opportunity lost. Patent misuse doctrine promised patent law something that it needed a century ago and needs even more strongly today -- namely, a body of rules that come out of the patent law system itself and are designed to make the system more consistent with its underlying goals.

Misuse doctrine got off to a good start a century ago in the Motion Picture Patents case. The Supreme Court relied on patent doctrine rather than antitrust law to refuse enforcement of an obviously anticompetitive patent license restraint. Within a few years, however, the doctrine had flown off the rails, reaching practices such as variable proportion ties of unpatented commodities that were never shown to be offensive to either competition policy or innovation policy.

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In an equity case the historical remedy for a plaintiff's inequitable conduct -- its "unclean hands" -- is to deny relief in that case. Beginning in the 1940s, however, the Supreme Court developed a much more draconian remedy for patent misuse, making the patent unenforceable against anyone until the misuse was "purged." Of course, that may be the effect if the inequitable conduct serves to make the patent unenforceable as a general matter, but that is hardly always the case.

Interestingly, the courts did not really need misuse to pursue what they believed to be antitrust violations such as tying. Already in 1909 the Supreme Court had recognized antitrust illegality as a defense to a breach of contract action. The Court held that a contract that was part of a price-fixing conspiracy could not be enforced. There was no obvious reason that an antitrust violation could not be asserted as a defense to a patent infringement claim. Had the Supreme Court pursued that route the law of misuse might have taken a much different course.

By mid-century Congress was rightfully unhappy with the patent misuse doctrine, and the 1952 Patent Act limited its reach. The list of limitations was expanded in 1988 to preclude tying claims unless market power in the tying product was shown, and to clarify that a refusal to license could not be misuse. More recently the courts have begun construing the doctrine so narrowly that it barely exists, although somewhat more room remains for a doctrine of copyright misuse. In general, the courts have moved from a framework that evaluates misuse claims by considering whether the conduct extends the patentee's power "beyond the scope" of the patent, to a framework that limits misuse to conduct that would otherwise violate the antitrust

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375 Id. at 262:
   The plaintiff comes into court admitting that it is an illegal combination whose operations restrain and monopolize commerce and trade among the states, and asks a judgment that will give effect, as far as it goes, to agreements that constituted that combination, and by means of which the combination proposes to accomplish forbidden ends. We hold that such a judgment cannot be granted without departing from the statutory rule, long established in the jurisprudence of both this country and England, that a court will not lend its aid, in any way, to a party seeking to realize the fruits of an agreement that appears to be tainted with illegality,

376 35 U.S.C. § 271 (d) (1-3)
378 E.g., Princo Corp. v. Int'l Trade Comm'n, 616 F.3d 1318, 1330 (Fed. Cir. 2010) (en banc).
379 E.g., Assessment Techs., LLC v. WIREdata, Inc., 350 F.3d 640, 647 (7th Cir. 2003) (using copyrighted software to "sequester" uncopyrighted data was a practice "akin to misuse") (Posner, J.). See also Dan L. Burk, Anticircumvention Misuse, 50 UCLA L. REV. 1095, 1108, 1109, 1139 (2003).
The limitation makes misuse almost irrelevant. Further, it serves to take misuse out of patent policy where it belongs. The result has been largely to remove the federal judge's equitable powers to limit a patent remedy unless the patentee is violating the antitrust laws, breaking an explicit provision of the Patent Act or making clear misrepresentations during patent prosecution.

This story is unfortunate because room remains for a doctrine of misuse that reaches patent practices that are not authorized by the Patent Act and that fall short of being antitrust violations. Attempts to restrict the public domain via patent practices, to restrain innovation by others, to engage in tortious but nonmonopolistic conduct such as misrepresentation, or to enforce patents under circumstances that harm competition while doing nothing for innovation, still deserve a remedy. For example, a clause in a license agreement forbidding a licensee from developing any technology in competition with the plaintiff's technology might not be a sufficient exercise of power to violate the antitrust laws, but patent law itself is concerned about practices that restrain innovation even if they are not antitrust violations. The same thing can be true of patent license agreements that forbid reverse engineering or that foreclose competing technologies. As the Supreme Court has noted, reverse engineering is an "essential part of innovation."

One value of misuse doctrine in such settings is that the remedy can be limited. Rather than assessing treble damages, as antitrust does, or making a patent completely unenforceable, a court could simply enjoin an abusive practice or deny relief to the plaintiff in a particular case.

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380 E.g., USM Corp. v. SPS Techs., Inc., 694 F.2d 505 (7th Cir. 1982) (Posner, J., holding that antitrust exhausts the full range of anticompetitive conduct, leaving no residual for misuse claims).

381 For a fuller catalog, see BOHANNAN & HOVENKAMP, CREATION WITHOUT RESTRAINT, supra note __ at 258-289.


383 Cf. Lasercomb Am. v. Reynolds, 911 F.2d 970, 973 (4th Cir. 1990) (finding copyright infringement in licensor's clause that “[l]icensee agrees during the term of this Agreement and for one (1) year after the termination of this Agreement, that it will not write, develop, produce or sell or assist others in the writing, developing, producing or selling computer assisted die making software, directly or indirectly without Lasercomb’s prior written consent.”).

384 On the latter, see U.S. Philips Corp. v. Int’l Trade Comm’n, 424 F.3d 1179, 1190, 1193 (Fed. Cir. 2010).

"Misuse" is fundamentally a doctrine of equity, nearly always raised as a defense to a patent infringement action. Seen in this light, the Supreme Court's eBay decision could provide the basis for rethinking misuse. eBay rejected a line of Federal Circuit decisions making an injunction more-or-less automatic in patent infringement actions, largely in disregard of the Patent Act provision. Rather, entitlement to an injunction against patent infringement should track ordinary principles of equity, including a query whether an injunction under the circumstances is in the public interest. The courts have a legitimate role in policing conduct that is not expressly authorized by the patent act and that serves to restrain innovation, sequester the public domain, imposes competitive harm disproportionate to innovation effects, or that involves improprieties in the patent procurement process.

Antitrust policy responded to a half century of overreaching by developing extremely strict rules for establishing competitive harm. Beginning in the 1970s and continuing to this day antitrust has undergone a revolution in thinking that has disciplined and narrowed its focus and made its rules more consistent with its underlying goals. Patent law could benefit significantly from such a process, one that reflects consumer interests more strongly and that takes our economic knowledge of innovation and its relationship to competition and economic growth more fully into account.

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388 See 35 U.S.C. § 283 (2012): "The several courts having jurisdiction of cases under this title may grant injunctions in accordance with the principles of equity to prevent the violation of any right secured by patent, on such terms as the court deems reasonable."
389 See Ebay, 547 U.S. at 391. In order to be entitled to an injunction the plaintiff must show that:

1. that it has suffered an irreparable injury; 2. that remedies available at law, such as monetary damages, are inadequate to compensate for that injury; 3. considering the balance of hardships between the plaintiff and defendant, a remedy in equity is warranted; and 4. the public interest would not be disserved by a permanent injunction.

390 See discussion supra, text at notes ____.