

Vanderbilt Law Review

Volume 53

Issue 6 *Issue 6 - Symposium: Taking Stock: The Law and Economics of Intellectual Property Rights*

Article 1

11-2000

Elementary and Persistent Errors in the Economic Analysis of Intellectual Property

Edmund W. Kitch

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Edmund W. Kitch, Elementary and Persistent Errors in the Economic Analysis of Intellectual Property, 53 *Vanderbilt Law Review* 1727 (2000)

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Elementary and Persistent Errors in the Economic Analysis of Intellectual Property

*Edmund W. Kitch**

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The literature on the economic analysis of intellectual property rights evidences a broad scholarly consensus on a number of central and important issues. First, intellectual property rights enable economic actors to capture some of the benefits of the investment they make in establishing a good reputation, creating expressive works, and inventing new and improved technology. Absent intellectual property rights, copiers are free to take for themselves a significant part of the economic benefit generated by these types of investment and to undermine the incentive to make these investments in the first place. Second, the investment activities induced by intellectual property rights—developing a positive reputation with consumers, creating expressive works that consumers want to read, view, or hear, and developing improved technology—are efficient investments up to the point that consumers are willing

* Joseph M. Hartfield Professor of Law, the University of Virginia.

re efficient investments up to the point that consumers are willing to pay for their fruits. Third, a decentralized system of incentives such as that created by a system of intellectual property rights will over time produce results better preferred by consumers than will any kind of centrally directed subsidy system. Fourth, intellectual property rights systems have costs, costs involved in identifying, defining and enforcing the subject matter of the rights. Fifth, the intellectual property regimes of the United States, in particular, and of the developed economies are, as a general matter, economically sensible, no matter what particular details may concern a particular author. Even Justice Stephen Breyer, that once youthful Harvard skeptic,¹ has said that the issue is not whether to have intellectual property rights, but what form they should take.²

Scholars made considerable progress over the last century understanding the economics of intellectual property rights.³ Yet, much remains to be done. There is ample room for additional progress in the literature. Indeed, it seems likely that this progress will result in part from the work of the scholars who assembled for this conference.

1. See Stephen Breyer, *The Uneasy Case for Copyright: A Study of Copyright in Books, Photocopies, and Computer Programs*, 84 HARV. L. REV. 281, 284 (1970) (arguing that Congress, when considering the Copyright Revision Bill of 1969, should refrain from abolishing copyright protection, but also hesitate to extend or strengthen protection).

2. See Stephen Breyer, *Copyright: A Rejoinder*, 20 UCLA L. REV. 75, 80 (1972) ("The important debate . . . is not whether copyright should be abolished, but whether, and how, copyright strictures should be modified."). Then Harvard Professor (now Supreme Court Justice) Breyer was responding to Barry W. Tyerman, *The Economic Rationale for Copyright Protection for Published Books: A Reply to Professor Breyer*, 18 UCLA L. REV. 1100 (1971).

3. Compare Arnold Plant, *The Economic Theory Concerning Patents for Inventions*, 1 ECONOMICA 30 (1934) (arguing that the economic evidence available provides no justification for the patent system), reprinted in ARNOLD PLANT, *SELECTED ECONOMIC ESSAYS AND ADDRESSES* 35 (1974), and *The Economic Aspects of Copyright in Books*, 1 ECONOMICA 167 (1934) (arguing that there is no economic evidence that supports the contention that output produced by monopoly is preferable to output that emerges from competitive bidding on the open market), reprinted in ARNOLD PLANT, *SELECTED ECONOMIC ESSAYS AND ADDRESSES*, supra, at 57, with RICHARD A. POSNER, *ECONOMIC ANALYSIS OF LAW* § 3.3, 43-50 (5th ed. 1998), Nicholas Economides, *Trademarks*, in 3 THE NEW PALGRAVE DICTIONARY OF ECONOMICS AND THE LAW, 601 (1998) (contending that the distortions created by legal monopolies and perception advertising of trademarks are outweighed by the benefits trademarks provide), Edmund W. Kitch, *Patents*, in 3 THE NEW PALGRAVE DICTIONARY OF ECONOMICS AND THE LAW, 13 (1998) (arguing that, absent a worldwide patent system, licensing agreements are necessary for single firms to enlarge the markets in which they can operate beyond those available as a result of the patents that they are issued), Bruce H. Kobayashi, *Performance Rights*, in 3 THE NEW PALGRAVE DICTIONARY OF ECONOMICS AND THE LAW, 27 (1998) (asserting that anti-trust regulation may force the use of direct appropriability, which increases transaction and litigation costs), and Leo J. Raskind, *Copyright*, in 1 THE NEW PALGRAVE DICTIONARY OF ECONOMICS AND THE LAW, 478, 482 (1998) (noting that the current impetus in shaping the copyright debate and regulation is the development of global markets and the institutions that monitor them).

A continuing problem is that the literature contains a number of elementary but persistently repeated errors.⁴ The literature, by many different authors from a number of different fields and with different perspectives, has over a long period of time not infrequently (1) analyzed intellectual property rights on the assumption that they confer an economic monopoly on their owner, (2) analyzed intellectual property rights one at a time, rather than as part of a system, (3) analyzed the rights as issued and ignored the recontracting possibilities, and (4) tended to consider only a limited number of the possible policy variables available in the design of intellectual property rights. This Essay will discuss each of these four errors.

The first of these errors—the monopoly error—is a different type from the other three. It has been the cause of much unnecessary complication and distraction for an enterprise that is quite difficult enough to begin with. The other three are errors of oversimplification, errors that might be methodologically useful if they helped lead to clearer but relevant analysis. Unfortunately, their simplification comes at a high cost—a lack of reality.

I. INTELLECTUAL PROPERTY RIGHTS ARE ECONOMIC MONOPOLIES⁵

Numerous authors begin their analysis of intellectual property rights with the assumption that the important case for analysis is the one in which the owner of an intellectual property right possesses an economic monopoly. Not just a monopoly in the sense of an exclusive right—an intellectual property right, like all property rights, is an exclusive right which enables the owner to exclude

4. This literature actually has two different strands. One is the economic analysis of intellectual property rights. See, e.g., William W. Fisher III, *Property and Contract on the Internet*, 73 CHI.-KENT L. REV. 1203 (1998); Edmund W. Kitch, *The Nature and Function of the Patent System*, 20 J.L. & ECON. 265 (1977) (arguing that the patent system increases the output from resources used for technological innovation); M. Landes & Richard A. Posner, *An Economic Analysis of Copyright Law*, 18 J. LEGAL STUD. 325, 327 (1989); William Mark A. Lemley, *The Economics of Improvement in Intellectual Property Law*, 75 TEX. L. REV. 989 (1997); Plant, *supra* note 3. The other is the economic analysis of antitrust doctrines as applied to intellectual property rights. See, e.g., WARD S. BOWMAN, JR., *PATENT AND ANTITRUST LAW: A LEGAL AND ECONOMIC APPRAISAL* (1973); Lewis Kaplow, *The Patent-Antitrust Intersection: A Reappraisal*, 97 HARV. L. REV. 1815 (1984).

5. I previously made the point made in this Section in relation to patents, in Edmund W. Kitch, *Patents: Monopolies or Property Rights?*, 8 RES. L. & ECON. 31 (1986) (asserting that a patent confers a property right which is subject to competitive market pressures), and in Kitch, *Patents*, *supra* note 3. The issue of whether the important case for analyzing intellectual property rights is competition or monopoly is largely undiscussed in the literature, no matter what position any particular author takes on the question.

others from the use of the subject matter of the right—but a monopoly in the sense that the owner of an intellectual property right is protected from competition and able to sell into a market with a downward sloping demand curve.

This assumption is most commonly made in connection with patents. Patents, which confer the exclusive right to make, use or sell the invention covered by the claims of the patent, are the intellectual property right most plausibly characterized as a monopoly. But this is true only if the claims cover all of an economically relevant market, i.e., there is no alternative way for competitors to provide the same economic functionality to their customers without infringing the claims. Trademarks, which protect the exclusive right to commercial identity, are much more difficult to characterize as a monopoly, since the ability of a firm to identify itself would seem to be an essential prerequisite for competition, not a limit on competition. Copyrights protect the exclusive right to “original works of authorship fixed in any tangible medium of expression.”⁶ However, they do not provide an exclusive right “to any idea, procedure, process, system, method of operation, concept, principle or discovery”⁷ and are infringed only by actual appropriation of the protected expression. Because of these limitations, copyrights do not prevent competitors from creating works with the same functional characteristics, as evidenced, for example, by the numerous dictionaries available, by the many television shows, novels, and movies with similar themes and characteristics, or by the many competing software programs.

Because the scope of the patent right makes it the strongest candidate for the monopoly case, it is useful to explain why patents that confer monopoly market power are rare. The scope of a patent is determined by the claims, and the claims must be on elements that are both new and non-obvious. In examining a patent, the patent office examiner identifies prior art that falls within the claim, and the patent applicant has the opportunity to narrow the claim to exclude the prior art. What is left to be claimed in the issued patent are the new elements in the inventor’s work, which may or may not be elements of market significance. A patent issued in a well-developed field of technology will inevitably contain narrow claims. There is an opportunity for broad claims in patents on inventions in new fields—sometimes called basic or pioneer patents. In such

6. 17 U.S.C. § 102(a) (1994).

7. *Id.* § 102(b).

cases, much of the work may be truly novel and a broad claim is appropriate. However, in these cases, another factor is at work. Since the technology is new, there is usually very little demand for it. In order to achieve commercialization, much more work remains to be done before a commercial product can be placed on the market. So the claims may be broad, but they cover an invention for which there is little present demand.⁸

To argue that the monopoly case is not the appropriate one to use when analyzing intellectual property rights generally is not to argue that no intellectual property rights confer an economic monopoly. Whether a particular right, or combination of rights, confers an economic monopoly is an empirical question. To take examples from the current news, the trial judge in the Microsoft anti-trust case has found that the copyright on the Windows operating system confers a monopoly.⁹ And critics charge that the Unocal patent on the method of making gasoline that complies with environmental regulations gives Unocal a monopoly.¹⁰ The issue is whether the monopoly case is the exceptional case, and thus not appropriate for the basic analysis of intellectual property rights in general, or whether the monopoly case is the general case, and thus the one on which an analyst should focus.

It is also important to make a distinction between the issue of whether intellectual property rights confer an economic monopoly, and thus impose the social welfare cost associated with monop-

8. The transistor, the invention of which was announced in June 1948, had some use in IBM mainframe computers, telephone relays, and equipment sold to the Department of Defense in the 1950s and 1960s. It did not become a significant commercial product until the 1960s, when Sony introduced a consumer radio using transistors. See <http://www.lucent.com/minds/transistor/history.html> (last visited Oct. 4, 2000); <http://www.pbs.org/transistor/album1/index.html> (last visited Oct. 4, 2000). The laser patent, U.S. Patent No. 2,929,922, issued to M.L. Schawlow and C.H. Townes on March 22, 1960, expired in 1977. The first commercial lightwave telecommunications system was installed in Chicago in 1977. See <http://www.bell-labs.com/history/laser/> (last visited Oct. 4, 2000). The Cohen-Boyer patents on recombinant DNA, issued in 1980 through 1984, owned by Stanford and the University of California at San Francisco, have been licensed inexpensively and on a non-exclusive basis for research use. The first patent, U.S. Patent No. 4,237,224 on Process for producing biologically functional molecular chimeras issued on Dec. 2, 1980. U.S. Patent No. 4,237,224 on Biologically functional molecular chimeras, issued August 28, 1984. Both patents are now expired. The resulting biotechnology industry is still in its infancy. See *Case Study I: Recombinant DNA*, in INTELLECTUAL PROPERTY RIGHTS AND RESEARCH TOOLS IN MOLECULAR BIOLOGY, SUMMARY OF A WORKSHOP HELD AT THE NATIONAL ACADEMY OF SCIENCES, FEB. 15-16, 1996 (1997), available at <http://www.nap.edu/html/property/5.html> (last visited Oct. 5, 2000).

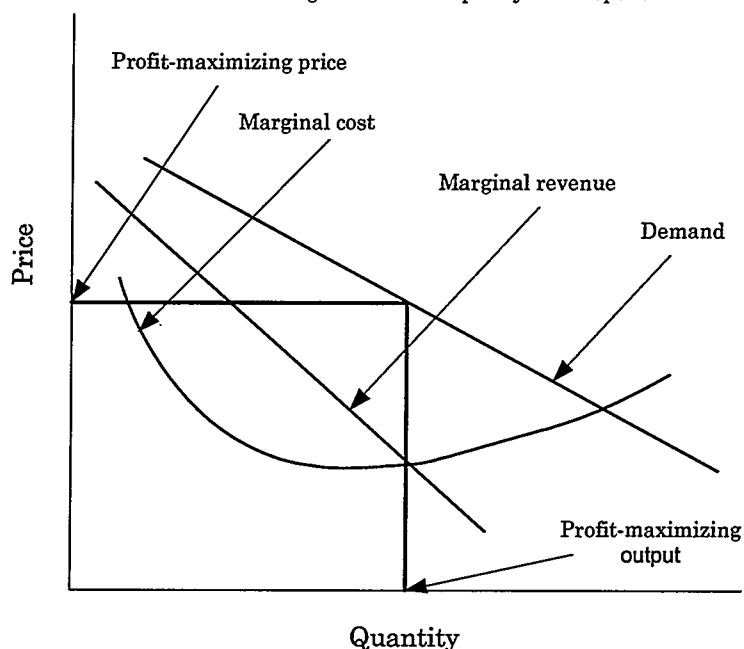
9. See *United States v. Microsoft Corp.*, 87 F. Supp. 2d 30, 34 (D.D.C. 2000).

10. See, e.g., *A Patent Fracas Pits Unocal Against Big U.S. Producers*, WALL ST. J., Aug. 17, 2000, at 1.

oly, and the fact that intellectual property rights systems have costs—as does any system of property rights. Any system of property rights involves costs in defining the scope of the rights, detecting and preventing trespass, and in foreclosing particular productive opportunities that might be possible if the property system did not exist. Any system of property rights is appropriately subject to examination as to whether the benefits of the property system outweigh these costs, but that examination has nothing to do with the social welfare loss caused by economic monopolies. Unfortunately, the monopoly issue has served to distract attention from this conceptually simpler, yet important, issue.

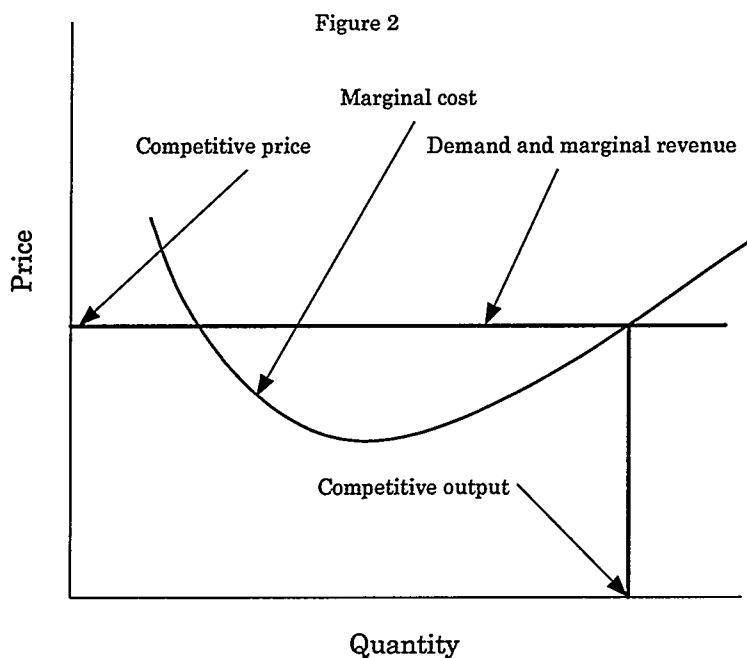
In many expositions, the assumption that an intellectual property right confers a monopoly is the justification for the use of the standard economic analysis of a monopoly to analyze intellectual property rights, and is based on the following graph:

Figure 1
Profit-Maximizing Price and Output by a Monopolist



The intuition behind this graph is that when purchasers are confronted by a monopoly, they have limited choice. As the price of the good rises, they cannot turn to other suppliers. All they can do is reduce the quantity purchased in response to their own limited budgets. Conversely, purchasers in a competitive market have choices. If any seller raises its price above its competitors, purchas-

ers will buy elsewhere. If a seller lowers its price below its competitors, it will be deluged by purchasers. To reflect this, the competitive market is graphed this way:



It is easy enough to draw these graphs and to illustrate from the monopoly graph that there is social loss because there is demand that will not be met even though it could be provided at a marginal cost less than the price the purchasers are willing to pay. When these graphs are used, however, it is usually unclear what good it is whose quantity is being measured on the X-axis and whose price is being measured on the Y-axis.¹¹ The horizontal X-axis is usually labeled, "Quantity," and the vertical Y-axis is labeled, "Price," but quantity and price of what? One thing is clear. The good is not the intellectual property right itself. There is only

11. As an illustration, consider the diagrams and discussion in Fisher, *supra* note 4. Fisher offers three versions of the standard diagram, Figure 1, at 1235, Figure 2, at 1236, and Figure 3, at 1238. Figure 1 is entitled "Profit-Maximizing Behavior by a Copyright Owner." (Note that Fisher simply assumes that a copyright confers a monopoly.) In each figure, the X-axis is labeled "Quantity." However, there is no indication what quantity is being measured. The text around Figure 1, however, suggests that the quantity is books, i.e. the X-axis is number of books and the Y-axis is the price per book. However, when Fisher goes on to discuss price discrimination, he suggests in note 84 that the quantity is portions of a newspaper viewed on the Internet, a different good.

one, and can be only one patent, copyright or trademark, so there is only one price for that one good. Yet the diagram depends on the assumption that the quantity of the good being sold can be increased; it is the increase in supply that causes the price to fall. So the market reflected in the diagram is not the market for the intellectual property right itself.

If the good being sold is not the intellectual property right itself, then it must be some good that has a relationship to the intellectual property right. It is a good with some feature or features covered by a patent claim, for instance. The strongest case for a patent conferring a monopoly would be a good whose economically distinctive features fell within the claims of the patent. Even here, the patent may not confer an advantage if alternative (even if inferior) technologies are available at lower cost, as will often be the case with older technologies where many of the costs are sunk costs.¹²

Whether or not any patent or other intellectual property right confers an economic monopoly is an empirical question, but it seems likely that all trademarks, almost all copyrights, and most patents are not monopolies. As Mark A. Lemley has written, "while some intellectual property rights may in fact give their owner power in an economically relevant product market, most do not; they merely prevent others from competing to sell copies of a particular product, not from selling different products that compete with the original."¹³ If this is so, then why is the assumption that intellectual property rights confer economic monopolies so persistent in the literature? This is a difficult question to answer, because the issue is seldom even addressed, or if addressed, addressed only in passing. For instance, William M. Landes and Richard A. Posner assume (of copyrights) that "[t]he demand curve for copies of a given book is . . . negatively sloped because there are good but not perfect substitutes for a given book."¹⁴ It is obviously true that one book is not an exact copy of another (for then it would infringe the copyright), but that does not mean that two or more books are not economic substitutes for each other. Landes and Posner then assert in a footnote that "[w]e maintain throughout our analysis [of copy-

12. I used a specific example of this phenomenon (Xerography) in Kitch, *Patents: Monopolies or Property Rights?*, *supra* note 5, at 40-46. Xerography was a wonderful new copying technology, but on introduction it faced significant competition of older, in-place technologies, which it did not fully displace for a substantial period of time.

13. Lemley, *supra* note 4, at 996 n.26.

14. Landes & Posner, *supra* note 4, at 327.

right] the assumption of a downward-sloping demand curve for copies of a given work.”¹⁵ However, thirty-four pages later they assert, with no apparent sense of contradiction, “[c]opyrights . . . rarely confer monopoly power.”¹⁶

The easiest explanation is that there is an underlying confusion about the meaning of the term “monopoly.” In ordinary speech, to monopolize or to have a monopoly can mean to have exclusive or dominant possession of something—as in “he monopolized the conversation.” This meaning of the term “monopoly” is not the same meaning as economic monopoly—to have the exclusive right to sell into a market without competition. Machlup made this point clearly:

A confusion which might encumber economic analysis if it were widespread is that between “property” and “monopoly.” There is the idea that “property” and “monopoly” are one and the same thing from the economic point of view, and that the “owner” of an invention has a monopoly of its use just as the owner of a house has a “monopoly” of the use of the house.¹⁷

In a footnote, Machlup explains the distinction:

From an economic point of view, “property” and “monopoly” have almost nothing to do with each other. A seller who owns his wares has property but no monopoly if many other people independently sell similar things in the same market. A seller who can control the price of what he sells, because no one seriously competes with him in the market, has a monopoly but not property if he does not own what he sells.¹⁸

Machlup then goes on to distinguish property and monopoly in a way that suggests, but does not quite say, that all patents are monopolies:

This idea [that “property” and “monopoly” are the same thing] runs counter to the fact that anyone who builds a house exactly like one built earlier by someone else will be permitted to use it or sell it—even if he has copied it—whereas anyone who develops a technology exactly like one developed earlier by someone else will be prohibited, by the patent rights granted to the “first inventor,” from using it or selling it—even if his work was entirely independent.¹⁹

This last point appears to confuse “exactly like” (which seems to be Machlup’s shorthand for “within the patent claim”),

15. *Id.* at 327 n.4.

16. *Id.* at 361.

17. SENATE SUBCOMM. ON PATENTS, TRADEMARKS, AND COPYRIGHTS OF THE SENATE COMM., ON THE JUDICIARY, 85TH CONG., AN ECONOMIC REVIEW OF THE PATENT SYSTEM 53 (Comm. Print 1958) (prepared by Fritz Machlup) [hereinafter Machlup, AN ECONOMIC REVIEW].

18. *Id.* at 54 n. 238.

19. *Id.* at 53-54. Architectural works are now protected by copyright. See 17 U.S.C. § 102(a)(8) (1994).

with anything that provides an economically equivalent functionality, and thus implies that patents confer economic monopolies.

The different meanings of the word "monopoly" sometimes make it difficult to tell in which sense an author is using the term. Is the author simply asserting that an intellectual property right is an exclusive right? Or is the author asserting that intellectual property rights are monopolies that lead to a social welfare loss? But many authors are quite clear, some because like Machlup they make the distinction explicitly, others because they make use of a graph with a downward sloping demand curve.

This linguistic confusion is encouraged by the fact that it is more interesting to analyze patents as monopolies than competitive property. Economists have a clever analysis of the social welfare costs of monopoly, which they like to deploy in relation to a plausible real life example, and intellectual property rights, particularly patents, are one of their favorite examples. And if the owner of intellectual property is the owner of an economic monopoly, it then becomes more plausible to interpret some pricing strategies as price discrimination, with the interesting point that price discrimination reduces the social welfare cost of the alleged monopoly.

It is possible that analysts who use the assumption that intellectual property rights confer economic monopolies are implicitly assuming that although most intellectual property rights do not confer monopolies, the intellectual property rights of importance are those that do. "Look," they might say, "we understand that there are many worthless patents whose technology is obsolete, trademarks owned by firms that have no customer good will, and copyrighted books that end up on the remainder tables. Those particular intellectual property rights are worthless, and because they are worthless they are unimportant for purposes of analysis. They are the mistakes in the system. The intellectual property rights that have economic consequences, that provide the incentives, are the ones that are worth something, and the ones that are worth something are worth something because they are monopolies." The problem with this argument is that the fact that some intellectual property rights have value does not show that they are monopolies. They may simply be property rights.

Another plausible argument is that because the marginal cost of making copies is close to zero, the fact that the price of many goods protected by intellectual property rights is significantly more

than zero shows that intellectual property rights are monopolies.²⁰ The problem with this argument is that the marginal cost of making copies is not the relevant marginal cost for the pricing of goods; the marginal cost should include all of the costs necessary to bring the good to market, and there are many other costs than the costs of making a single copy.²¹

One consequence, already mentioned, of the assumption that intellectual property rights confer economic monopolies is that it makes it plausible to interpret pricing schedules that depart from the form of a single up-front payment as forms of price discrimination. In a monopoly market, price discrimination is a strategy that enables the owner of the monopoly to sell additional output and capture additional revenue by discriminating among customers on the basis of what they are willing to pay. However, in a competitive market, there can be no price discrimination because all buyers are willing to pay only the competitive price. Those who might be willing to pay more in a monopoly market are not willing to do so in a competitive market since they know they can simply shift to a competitor and get the good at the competitive price.

The fact that there is no price discrimination in a competitive market does not mean, however, that there are no complex pricing strategies followed in competitive markets. Sellers in competitive markets will offer pricing structures that depart from the form of a single up-front payment if their customers prefer them. The intellectual elegance of the price discrimination explanation at times obscures the fact that there is a much simpler possible explanation for the phenomenon: Customers prefer a more complex and

20. F.M. Scherer seems to be making this argument when he gives as an example of "monopolistic pricing" the markup of pharmaceutical companies over the cost of making and distributing a drug, without taking into consideration the cost of developing the drug and bringing it to market. See F.M. SCHERER, *INDUSTRIAL MARKET STRUCTURE AND ECONOMIC PERFORMANCE* 446-51 (1980).

21. A somewhat different but similar argument that is suggested in the economics literature and which I have heard asserted orally (but have not found in print) is as follows: Information is a public good because the acquisition of information by an additional person imposes no cost on the producer of the information. Therefore, the marginal cost of information is zero, and the price of information should be zero in a competitive market. Intellectual property rights protect information; therefore, the price of the right to use information protected by intellectual property rights should be zero. Since we in fact observe positive prices for intellectual property licenses, intellectual property rights must confer a monopoly. See, e.g., Kenneth J. Arrow, *Economic Welfare and the Allocation of Resources for Invention*, in *THE RATE AND DIRECTION OF INVENTIVE ACTIVITY: ECONOMIC AND SOCIAL FACTORS* 609 (1962) (suggesting the stops in this argument, although it does not formulate them in this way). The argument overlooks a number of important issues, including: (1) the cost of disseminating information, and (2) the fact that intellectual property rights do not protect against the acquisition of information, but only certain particular uses of information.

differentiated pricing structure because of advantages it confers on either the seller (lowering the seller's cost) or the buyer.

It is in connection with the discussion of price discrimination that the failure to clearly specify the unit of the good being priced in the monopoly-pricing diagram (Figure 1) becomes particularly important. Price discrimination is selling the same good at different prices to different purchasers, so it is very important in identifying price discrimination to specify what good it is that is being sold at different prices. For example, the classic price discrimination explanation for tie-in sales is that they are a form of pricing based on usage that results in a higher price for heavy users of a machine and a lower price for light users. This explanation works only as long as the quantity, reflected in the graph in Figure 1, is the number of machines sold. Convert the quantity to something else—number of hours of use, amount of throughput, or machine cycles—and the price becomes uniform;²² that is, there is a single price for each unit of quantity as defined.

Another consequence of the assumption that intellectual property rights confer economic monopolies has been in the anti-trust area. Because the assumption has been so commonly made, it has served to make more plausible theories that licensing arrangements may "leverage" the monopoly and violate the antitrust laws.²³

II. A SINGLE RIGHT IS THE APPROPRIATE UNIT OF ANALYSIS

Much of the analysis of intellectual property rights has proceeded on the basis of a very simple story. An author or inventor creates a work or an invention, and then wishes to exploit it commercially. How can the author or inventor do so if everyone is able to copy the work or invention for free? And if there is no possibility of commercial exploitation, what incentive does a would-be author or inventor have to write or invent in the first place?

In the last twenty years, there has been considerable progress in the literature in this area, much of it written by participants

22. Assume the extreme case of no up-front pricing component, so the price is entirely in the form of payment for the tied product. Note the importance of the quantity ambiguity in Fisher, discussed *supra* note 11.

23. In 1988, Congress amended the patent statute to make it clear that this doctrine should apply only to patents that have been specifically shown to confer monopoly power. See 35 U.S.C. § 271(d)(5) (1994).

in this symposium.²⁴ A number of different authors have recognized that writing and inventing are continuous processes, in which the past is very much linked with the future. Authors make use of existing cultural elements in their works; inventors build on the work of inventors who have come before. Thus, an analysis that considers only one author or inventor, and one work or invention, leaves out the interaction between the intellectual property rights on any one work or invention and the creation of other works and inventions.

Not only is there the connection between the past, present, and future, but an author or inventor, or their employers, will usually hold not one, but multiple rights, which will often be interrelated. The assembly of a portfolio of multiple intellectual property rights is one plausible way that an economic monopoly can be created. However, it is essential that firms are able to obtain multiple rights. A single copyright may cover only part of the material needed to make a film or TV show, for instance. A single patent claim, much less a single patent, often covers only a small part of the technology needed to market a commercially competitive device. A full identity and branding program may involve hundreds of trademarks. Indeed, in all three areas, the content of a single copyright, patent, or trademark is arbitrary, depending very much on how the originator of the right has chosen to package the material eligible for protection. To give a simple example, the author of a novel could copyright the entire novel, or he could separately copyright each of the chapters, or he could do both.

Although consideration of the way in which multiple intellectual property rights interact with each other over time and across markets makes the analysis of intellectual property rights systems more realistic, it also greatly complicates it, perhaps to the point where definitive conclusions are impossible to draw.

III. FAILURE TO CONSIDER THE IMPORTANCE OF LICENSING, TRANSFER, AND OTHER TRANSACTIONS BY WHICH INTELLECTUAL PROPERTY RIGHTS ARE SHARED

The subject of licensing has received its fullest attention in the literature on the economics of antitrust laws as applied to intellectual property rights.²⁵ Licensing agreements are private arrangements among firms and are not in the usual course of events

24. See, e.g., Kitch, *supra* note 4; Landes & Posner, *supra* note 4; Lemley, *supra* note 4; Suzanne Scotchmer, *Standing on the Shoulders of Giants: Cumulative Research and the Patent Law*, 5 J. ECON. PERSPS. 29 (winter 1991).

25. See, e.g., BOWMAN, *supra* note 4; Kaplow, *supra* note 4.

available to scholars to study. However, the antitrust enforcement process has brought some of these agreements to light, and both the courts and scholars have found it difficult to understand the economic consequences of particular arrangements. It is clear that the ability of the owners of intellectual property rights to transfer these rights in whole or in part to others is an important feature of the systems. The rights can easily arise in the hands of persons or firms who are not in the best position to exploit them. In order to involve others in the full exploitation of the economic potential of the right, the owners must be able to enter into a wide range of arrangements with other firms.

The ability to make such agreements creates the possibility that the agreements will be used to create economic monopolies. No matter how rare it might be for a single patent or other right to confer a monopoly, agreements which concentrate a number of single rights under common control have the obvious potential to create monopoly power. This, however, is not a problem peculiar to intellectual property rights. Other kinds of property ownership can similarly be concentrated, and this is a problem that antitrust has long struggled to address.²⁶

IV. FAILURE TO CONSIDER THE FULL RANGE OF POLICY VARIABLES

Some literature on intellectual property rights has tended to treat the policy question as one of whether to have or not to have the intellectual property right, without considering the full range of features that can be varied by the law in order to affect the operation of the right. Fritz Machlup's classic but inconclusive study²⁷ was in this vein, for he addressed the question: Should we have a patent system? He did not address the question: What sort of patent system should we have? Another economist wrote a whole book on the issue of the length of the patent term.²⁸ As recently as 1991 Susan Scotchmer could write: "Patent law is limited in its instruments: the main ones are the patent life and the breadth of protection."²⁹ The impact of an intellectual property rights system is af-

26. The problem arises most notably in cases involving mergers.

27. See Machlup, *AN ECONOMIC REVIEW*, *supra* note 17.

28. See WILLIAM D. NORDHAUS, *INVENTION GROWTH, AND WELFARE: A THEORETICAL TREATMENT OF TECHNOLOGICAL CHANGE* (1969).

29. Scotchmer, *supra* note 24. The qualifier "main" and a footnote discussing priority rules suggest that the author was aware that this statement was incomplete. The citations in the

ected by numerous variables, for example, the conditions of obtaining protection, the costs of obtaining protection, the scope and length of the protection obtained, the type and cost of the remedies available for infringement, and so on. Again, the inclusion of these additional possibilities in the analysis makes the project of fully understanding the economic consequences of intellectual property systems more difficult.

V. CONCLUSION

Progress in the literature on the economics of intellectual property rights would be helped if analysts would either address the central issue of the cost-benefit tradeoffs without the distraction introduced by the monopoly analysis, or better explain why the monopoly analysis should be used. Even without the distraction of the monopoly analysis, understanding the economic effects of the legal rights created by intellectual property systems is an important and challenging task, particularly when the analysis includes the realistic assumptions that the interaction between rights holders must be considered as part of the analysis, that rights holders can and must assemble portfolios of rights, that rights holders can and must contract with each other, and that a wide range of policy parameters are available to the legal system.

article suggest she was referring to the main policy instruments that had been discussed by economists, not all of the policy instruments available to the patent system.

