

Cruel, Mean, or Lavish? Economic Analysis, Price Discrimination and Digital Intellectual Property

*James Boyle**

I.	INTRODUCTION	2007
II.	ECONOMIC RHETORIC AND INTELLECTUAL PROPERTY:	2010
III.	PRICE DISCRIMINATION: A PRIMER	2021
IV.	PRICE DISCRIMINATION IN ECONO-WORLD	2027
V.	BEYONDECONO-WORLD.....	2035

It is not because of the few thousand francs which would have to be spent to put a roof over the third-class carriages or to upholster the third-class seats that some company or other has open carriages with wooden benches What the company is trying to do is to prevent the passengers who can pay the second-class fare from travelling third class; it hits the poor, not because it wants to hurt them, but to frighten the rich And it is again for the same reason that the companies, having proved almost cruel to third-class passengers and mean to the second-class ones, become lavish in dealing with first-class passengers. Having refused the poor what is necessary, they give the rich what is superfluous.¹

I. INTRODUCTION

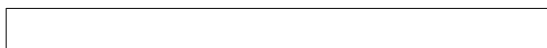
This is an essay about economic analysis, price discrimination, and the world of digital content.² In the interest of full disclo-

* James Boyle © 2000. Thanks go to Ian Ayres, Yochai Benkler, Julie Cohen, William Fisher, David Lange, Neil Netanel, Stephen Parr, and Jerome Reichman. Kim Life and Kristi Severance researched expertly.

1. **JULES DUPUIT, ON TOLLS AND TRANSPORT CHARGES** 23 (International Economic Papers No. 11, Elizabeth Henderson trans., 1962).

2. Two bodies of work deserve particular acknowledgment as inspirations for this Essay. First, the writings of Hal Varian on differential pricing for information goods. *See* Hal R. Varian, *Differential Pricing and Efficiency*, 1 **FIRST MONDAY** (Aug. 5, 1996), <http://www.kstmmon->

2007



sure, I should warn the reader that in this Essay I will take a slightly different attitude towards the economic analysis of intellectual property than most, though perhaps not all, of the contributors to this fascinating symposium issue; I will be focusing on economic analysis as a type of rhetoric. By rhetoric, I do not mean bluster, nor do I mean to suggest that economic analysis is merely an *apologia* for conclusions arrived at for other reasons.³ I use the term “rhetoric” in a way closer to one of its positive classical senses: something between Aristotle’s deliberative rhetoric and the looser sophistic concept, a way of interpreting and understanding “an incomplete, ambiguous and uncertain world.”⁴ Thus, to focus on economic analysis as a form of rhetoric is not an insult to economic

day.dk/issues/issue2/different; Hal R. Varian, Pricing Information Goods 6 (June 15, 1995), available at <http://www.sims.berkeley.edu/~haYPapers/price-i-o-g~ds.p>; Hal R. Varian, Versioning Information Goods, 1-2 (Mar. 13, 1997) (unpublished manuscript), available at <http://www.sims.berkeley.edu/~hallPapers/version.pdf>. Second, William Fisher’s influential article on price discrimination and the responses to it. See William W. Fisher III, Property and Contract on the Internet, 73 CHL-KENTL. REV. 1203, 1234-40 (1998); Yochai Benkler, An Unhurried View of Private Ordering in Information Transactions, 53 Vm. L. REV. 2063 (2000); Julie Cohen, The Perfect Curve, 53 Vm. L. REV. 1799 (2000); Wendy J. Gordon, Intellectual Property as Price Discrimination: Implications for Contract, 73 CHI-KENT. L. REV. 1367, 1387-88 (1998). I should note that Professor Fisher’s article has as its goal using the lure of the profits available from state-backed price discrimination to induce the content industries to accept limitations on their rights in the public interest. Thus, though some of my criticisms would apply to the efficiency and innovation benefits he claims for price discrimination, his work runs counter to the expansionist intellectual property agenda I describe here.

3. That is sometimes true of any form of analysis, of course. In intellectual property policy, the Congressional Record is particularly full of dubious economic studies; odes to the importance of providing incentives to the dead and supposedly scientific lists of reasons why the policy predilections of content providers must necessarily be enacted as law. Yet, such a characterization hardly describes the erudite and frequently critical account of the implications of economic analysis for intellectual property offered in this volume. More generally, those forms of economic analysis that measure social welfare in terms of ability and willingness to pay certainly have an apologetic aspect, though perhaps not an apologetic intent; absent a justification for the initial distribution of rights and wealth, their analyses both track and reinforce existing institutions and patterns of wealth distribution, and do so without a normative reason for us to think that such a result is good. Under Chicago school analysis, for example, rights are given to those who are willing and able to pay the most for them, prior wealth increases one’s ability to pay and thus one’s utility, higher valuations which result from greater wealth (at least in consumptive, rather than productive valuations of assets) will make it more likely that one will be granted rights, and hence still greater ability to pay in the future. See C. Edwin Baker, The Ideology of the Economic Analysis of Law, 5 PHIL. & PUB. AFF. 3, 11-22 (1975). It is irresistible to note also that the Chicago school’s preferred criminal justice system seems to be one where those who can afford it pay less rather than suffering prison terms. Thus, it is literally true to say that under a Chicago school analysis, “the rich will get richer and the poor will get prison.” While there are many kinds of economic analysis, most but not all rely on the “ability and willingness to pay” measure.

4. SONJAK, FOES ET AL., CONTEMPORARY PERSPECTIVES ON RHETORIC 3 (2d ed. 1991); see also GEORGE A. KENNEDY, A NEW HISTORY OF CLASSICAL RHETORIC 51-63 (1994); James B. White, Law as Rhetoric, Rhetoric as Law: The Arts of Cultural and Communal Life, 52 U. CHI. L. REV. 684, 687-88 (1985).



analysis, though it *is* a signal that I **think** that the answers it provides are more partial, in both senses of that word, and more indeterminate than many economists and most policy-makers seem to believe. In particular, I will be focusing in this Essay on the way in which some of the most important issues in digital intellectual property policy are decided by a pre-reflective process of categorization from which the analysis flows. Information economics as a discipline does indeed enlarge our understanding of some very important intellectual property questions, but I believe that the answers it offers are, on both empirical and theoretical grounds, much more open than is generally accepted. Indeed, one of its main contributions may be in offering us plot-lines and econo-dramas, ready-made images of types of dysfunction in information markets that sharpen our perceptions of potential risks and benefits. Unfortunately, it tends to offer them in antagonistic and mutually annihilating pairs.

Three further caveats are in order. To say all of this is not to say that the economic analysis of information issues is *perceived* by economists as having the openness and manipulability that I describe here. Indeed, quite the opposite is true, though I would argue that the source of that certainty has to be sought outside the walls of the discipline itself in less obvious and less scientific processes of classification. Nor is it to say that the consensus among real, as opposed to law-office, economic analysts of intellectual property always aligns with a particular set of economic interests or market institutions; readers will find in this volume a large number of criticisms of both the current agenda of the content industries, and considerable skepticism that the existing institutions of world trade actually offer the benefits to the developing world claimed for them by their defenders. Finally, though I argue that economic analysis is both more open and more indeterminate than some of its practitioners seem to believe, not all viewpoints are equally easy to express in economic rhetoric,⁵ nor is all economic rhetoric equally pleasing to the public ear.

Having said all of this, I hasten to add that economically minded readers impatient with such folderol about rhetoric should find my discussion perfectly conventional in most of its analysis; the only way to make my point is internally, within the structure I am describing.

5. "When one of these non-economic categories is threatened, and if we happen to love it, we invent subterfuges to give it economic importance. . . It is painful to read those circumlocutions today." ALDO LEOPOLD, *A SAND COUNTY ALMANAC* 210-11 (1949).



11. ECONOMIC RHETORIC AND INTELLECTUAL PROPERTY

The question I wish to study is this: Will the economic analysis of price discrimination provide the new economic rhetoric to justify the next stage of intellectual property expansionism in the United States? Over the last twenty years, there has been an enormous extension of intellectual property; a far-ranging enclosure movement over the public domain, paralleling the eighteenth century's enclosure of common lands. Intellectual property rights have been broadened to cover more subjects, deepened to cover them for a longer time, widened to cover them in more ways. Current law is actually nibbling at the two areas that supposedly could never be owned, facts and ideas respectively.⁶ Given the inventiveness of the lawyers and lobbyists for the holders of intellectual property, this may seem like an unwise challenge to issue, but at a certain point they will run out of commons to enclose. Alexander is reported to have wept when he found had no new worlds to conquer. Jack Valenti and Hilary Rosen are unlikely to do the same.⁷ Where will they turn when they run out of new areas to commodify and how will they just& themselves to policy-makers and to the public?

The plan is fairly easy to work out. After claiming new, larger and longer intellectual property rights, the next step is to engage in much more fine-grained regulation of how that intellectual property can be used. Owners of content will rely on shrink-wrap contracts and technological restraints to strip users of the standard rights offered by intellectual property systems: the right of fair use, first sale and so forth. Software, music, e-texts, and movies will be licensed rather than sold to users. As a result, some of the privileges people take for granted with a book—the ability to lend it, resell it, criticize it, parody it and so on—will be explicitly waived by contract.⁸ Technological encryption and watermarking

6. *See, e.g.*, *State Street Bank & Trust Co. v. Signature Fin. Group, Inc.*, 149 F.3d 1368, 1373 (Fed. Cir. 1998) (holding that data transformed by a machine's calculations into a share price produces a useful result and is therefore not necessarily unpatentable); *Collections of Information Antipiracy Act*, H.R. 354, 106th Cong. (1999); *Collections of Information Antipiracy Act*, H.R. 2652, 105th Cong. (1998); *Database Investment and Intellectual Property Antipiracy Act of 1996*, H.R. 3531, 104th Cong. (1996).

7. Jack Valenti is the President and CEO of the Motion Picture Association of America; Hilary Rosen is President and CEO of the Recording Industry Association of America.

8. *See* J. H. Reichman & Jonathan A. Franklin, *Privately Legislated Intellectual Property Rights: Reconciling Freedom of Contract with Public Good Uses of Information*, 147 U. PA. L. REV. 875, 943-47 (1999). Whether those contracts will be enforceable is another matter and a problematic one, bringing up constitutional issues of pre-emption and First Amendment protection. *See* Mark A. Lemley, *Intellectual Property and Shrinkwrap Licenses*, 68 S. CALIF. L. REV. 1239, 1248-53 (1995). The current trend has been towards the enforceability of such contracts,

schemes will be used to tie digital objects to particular people and computers, so that there are physical as well as legal restraints on the use of those objects. These schemes will prevent (or at least hamper) not only black market “piracy” of intellectual property, but also “gray market” resale, non-market gift, or loan transactions and competitive attempts at decompilation and reverse engineering.

The creation of new (or extension of old) intellectual property rights requires state intervention. Yet many of the measures I have just described sound as though they could be achieved by private parties acting alone; rewriting contracts, changing encryption schemes, and so forth. Of course, the legal system would still be strongly implicated because the rules of contract and property would form the background to the transaction. But is a rule change, rather than merely rule enforcement, required to achieve this level of control of both goods and users after the initial market transaction? The answer is yes. Many things stand in the way of the measures I have described. Contracts of adhesion are sometimes unenforceable under current law. State law rules affecting intellectual property rights might be pre-empted by federal copyright and patent law. Antitrust rules affect the ability of companies to engage in resale price-maintenance agreements. Privacy protections might interfere with companies’ ability to monitor the use of their products. Fair use gives privileges to decompile software for competitive purposes and so on. The progress of surmounting these “obstacles” has already begun with the Digital Millennium Copyright Act,⁹ the model Uniform Computer Information Transactions Act (“UCITA”),¹⁰ and a variety of court decisions, but it still has some way to go. How will the content providers move from persuading the legislature to grant them new property rights over information goods, to persuading the legislature to facilitate their ability to control those products in the after-market?”

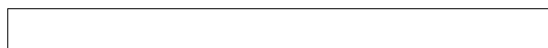
To answer this question I want to start with a thought experiment. Imagine a world very like our own except for the fact that economists have much greater power and respect. Call it Econo-World. Public debate there is almost exclusively in economic terms, and the level of sophistication is high. Lobbyists make careful eco-

but it has been much criticized. *See generally* Symposium, *Intellectual Property and Contract Law in the Information Age: The Impact of Article 2B of the Uniform Commercial Code on the Future of Information and Electronic Commerce*, 13 *BERKELEY TECH. L.J.* 809 (1998).

9. Digital Millennium Copyright Act, Pub. L. No. 105-304, 112 Stat. 2877 (1998).

10. *Unif. Computer Information Transactions Act* (1999).

11. Obviously, in any Hohfeldian analysis, the two stages overlap. What do we mean by “property right?” Still, the distinction captures something important.



conomic arguments (rather than straightforward economic *payments*), to a respectful legislature eager to wrestle with the fine details of the analysis. Imagine also, that the arguments come in two stages. First, lobbyists come to the legislature asking for new, increased intellectual property protection, relying in part on the threats posed by the new digital technologies and the Internet in particular. Second, having been granted at least some of their wishes, they return to ask the legislature to relax those rules that interfere with their ability to control intellectual property goods in the after-market: to validate contracts of adhesion and shrink-wrap licenses, declare that it is a crime or at least a tort to break through a digital fence even if your conduct was otherwise privileged, to allow resale price-maintenance agreements, limit fair use, abolish first sale, and so on.

The economic analysis used to justify the first stage is familiar, though much more controversial in practice than many policy-makers seem to understand. The argument goes something like this. Information is a public good, non-excludable and non-rival. It is hard to stop one unit from satisfying an infinite number of users at zero or close to zero marginal cost. Under such conditions, producers of information and information goods will have inadequate incentives, leading to under-production. If I could create a useful digital restaurant guide at great expense but can sell only one copy before my whole market disappears, then I will hardly make the effort in the first place. The solution to this public goods problem is intellectual property. By creating a limited monopoly called an intellectual property right, we can give producers an adequate incentive to create. This basic argument has been used again and again to justify the creation and then the extension of the intellectual property system; new media such as the Internet are claimed to take content even closer to the image of a perfect public good, because costless copying and global networks mean that the software, digital text, or music in question is even less excludable and even less "rival." I don't even have to give up my book or movie for the time that it would have taken to duplicate it; digital objects already reside on a global network. As the subjects of intellectual property approach asymptotically to being perfect public goods, goes the argument, so must intellectual property protection increase in strength.

Though this argument is paraded in both economic textbooks and congressional testimony, it turns out that things are not so



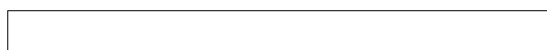
simple at either the theoretical or the empirical level. After **all**, an intellectual property right is a monopoly, is it **not**?¹² Economists normally think of monopolies as imposing deadweight losses.¹³ So at the very least one might expect some skepticism that the benefits in terms of encouraging innovation and the production of information goods would be offset by the costs of the monopoly. When one goes deeper it turns out that the issue is even more complicated. First, economists such as Grossman and Stiglitz point out that there is a fundamental conflict between the incentives needed to produce information and the efficiency with which that information is disseminated. In an article entitled *On the Impossibility of Informationally Efficient Markets*, they point out that the marginal cost of information is zero, but if information is distributed at zero cost, as required in an efficient market, producers will not have an adequate incentive.¹⁴ On the other hand, if information producers *are* rewarded, information is not costless and market decisions made using that information cannot be perfectly efficient. Since the cybernetic, self-organizing rationality of markets depends precisely on the distributed analytical processing power of market participants who digest information and make choices accordingly, this point is of central importance. It seems to suggest that the idea of a perfect market in information is internally contradictory even in theory. It lends new force to the idea that monopolies over information and information goods may lead to dynamic inefficiencies, as well as merely to the normal passive welfare losses associated with monopoly pricing. In practice, it also helps to explain a fundamental difference in economic outlook. Certain individuals and even certain organizations, seem to approach economic issues with particular sensitivity to the public goods problems I described above.¹⁵ They focus on the necessity of ensuring adequate incentives, and tend to minimize or ignore both the welfare losses involved in monopoly pricing and the possible costs to efficiency and innovation. Other individuals and organizations are more focused on efficiency, cos-

12. This point is disputed, as we will see later. See *infra* note 20 and accompanying text.

13. Under standard assumptions, the monopolist will receive the greatest return by pricing at a level that excludes a part of the market that is willing and able to pay above marginal cost for the product.

14. Sanford J. Grossman & Joseph E. Stiglitz, *On the Impossibility of Informationally Efficient Markets*, 70 *AM. ECON. REV.* 393 (1980).

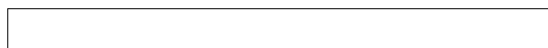
15. The Patent and Trademark Office ("PTO") is a good example. See James Boyle, *Intellectual Property Policy Online: A Young Person's Guide*, 10 *HARV. J.L. & TECH.* 47, 58-111 (1996) (debating the wisdom of the administration's intellectual property policy with Bruce Lehman, then head of the PTO).



tless information flows, and the dangers of market concentration.¹⁶ To them, *innovation is more likely to suffer when the inputs for innovation are over-priced or monopolistically controlled, than when the outputs of innovation fail to receive legal protection.* Though economics is supposed to be the science of tradeoffs, this theoretical conflict is deeper than merely the need to balance speed with safety or eating pleasure with waistline size. The argument is that informationally efficient markets are impossible *in theory*, and though this claim has been rejected, generally without discussion, it has not yet been refuted. On a more practical level, though, one might imagine pragmatic economists judiciously weighing the incentive effects of intellectual property against the possible static and dynamic efficiency costs. This does happen of course, but it is remarkable how fundamentally the choice of the starting point seems to affect the analysis. Some who look at fair use, for example, see a limited exception, a defense for actions that otherwise would violate a property right. This defense is instituted largely to avoid the transaction costs of getting permission for every piddling use. The “paradigm case” for fair use here would be quoting a few lines of an article. The increasing efficiency in information systems could make even this limited exception unnecessary by lowering transaction costs: for example, by instituting an Internet copyright permissions clearing center. Others see an affirmative privilege on the part of users and future creators, protecting against both the dangers of monopolistic pricing and the dangers that future innovation would be chilled. The paradigm case for fair use here would be something like parody or the privilege of software developers to decompile software in order to assure interoperability. The protagonists of each view rarely ignore the other view *completely*, but the structure of the analysis is built up around opposite pictures of the core problem and of the penumbral issues to be skirted in solving it. The issues do not come ready-labeled, and the process of pre-theoretical classification is a fascinating one. “Balancing” does go on, but it is a balancing the outcome of which has been strongly affected by the way the issue is constructed in the first place.

But even if we focus mainly on the incentives necessary to produce information, applying public goods theory to intellectual property turns out to be a little more complicated. First, what pub-

16. The Justice Department seemed to take exactly this attitude in the recent Microsoft trial, showing skepticism towards Microsoft's claims that it was merely doing that which its intellectual property rights allowed it to do.



lic goods problem are we talking about, the production of information or the production of innovation? Both have some of the characteristics of public goods, they tend to be linked in practice, yet they also have significant differences. Existing intellectual property law protects some of each, but in the United States, at least, it is constitutionally focused on originality. In practice, however, that requirement is both minimal and increasingly irrelevant for reasons that I will discuss later.

Beyond the question of whether intellectual property is protecting innovation or information, an issue that would deserve its own article, there are other difficulties. Are the subjects of intellectual property actually “non-excludable,” so that it is impossible to exclude non-purchasers from consuming the good? Indeed is “non-excludability” actually part of the definition of a public good at all?

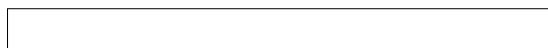
Frequently there is confusion between the public good concept as I understand it, which states that it is possible at no additional cost for an additional person to enjoy the same unit of a public good, and a different concept that might be identified as a collective good, which imposes the stronger condition that it is *impossible* to exclude non-purchasers from consuming the good.¹⁷

Whatever the definition used, in practice, it is far from clear that information or information goods are indeed non-excludable, on or off the Internet.

Information goods do not exist in isolation. The good (e.g., the knowledge of how to make a new type of self-developing photographic paper, a software program, the data stream of an unencrypted network TV broadcast) comes “bundled” with a large number of other customer needs, social implications, market effects, and business opportunities. These linked or bundled phenomena may well be excludable to a greater degree than the information good itself. Absent an intellectual property right, the good itself (the invention, say) may be hard to exploit without revealing information about it, and thus potentially losing one’s position of market advantage. But, as Hirshleifer points out, the inventor is in a privileged position in terms of another piece of information—the effects that the invention will have on the existing industries in the market—and this piece of information can be exploited profitably before revelation destroys the market.¹⁸ (For example, by selling short the

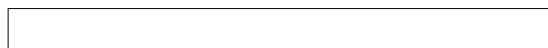
17. See Harold Demsetz, *The Private Production of Public Goods*, 13 J.L. & ECON. 293, 295 (1970).

18. See Jack Hirshleifer, *The Private and Social Value of Information and the Reward to Inventive Activity*, 61 AM. ECON. REV. 561, 570-72 (1971).



shares of competing companies whose revenues will decline.) Open source software companies distribute software that can be, and is, freely copied and redistributed by competitors. Nevertheless, they argue that their version comes with a set of associated features (documentation, support lines, assurance of continuity in development) which are much more excludable than the software itself, and which will support a viable business. Admittedly, some imagination may be required. The “product” itself may change so as to take advantage of different degrees of excludability. Consider an example from beyond the boundaries of intellectual property policy, broadcast network television. It appears to be a classic public good, non-excludable and non-rival. If one was designing such a business from scratch, one might choose to exclude by technical means (encrypting the signal), by legal means (imposing a licensing tax on television receivers and using the fees gathered to support the television channel), or by changing the business model altogether. It is hard to exclude any viewer with a set from receiving the signal. It is easy, however, to exclude an advertiser’s tape from one’s broadcast unless one has received adequate payment. By moving the business model from sale of content to viewers, to sale of eyeballs to advertisers, the excludability problem is “solved.”

One cannot focus on excludability alone, however. It is important to remember that in the absence of intellectual property there are changes in the economics of both the payment for outputs from, and the cost of inputs into, the creative process. The creator of the information good *may* find that the types of “bundled excludability” that I describe give less leverage, less ability to exclude, and therefore less pricing power to demand payment for access than an enforced set of intellectual property rights would give. (Obviously this is an empirical question, not susceptible to purely theoretical resolution.) However, operating in the absence of intellectual property, either in general, or over the particular resource in question, the cost of the inputs for the new creation may well also be lowered. (This, too, is an empirical question.) The creator need not pay as much in licensing fees for the raw materials (database extracts, programming tricks, prior lines of code, cell lines, fragments of prior songs, methods of conducting surgical operations) that are used to create the new product. At the end of the day, do the changes in excludability under the new regime *balanced against* the changes in the costs of inputs, together mean that there is no longer adequate incentive to future creators? Again, it would be strange to



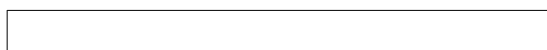
imagine that the question could be resolved at the theoretical level, but the debate itself proceeds with hardly any empirical evidence.¹⁹

Since intellectual property is a familiar and accepted part of both our world and Econo-World, these discussions tend to take place against the background of some suggestion that rights should be expanded, normally under the impetus of a perceived threat from some new technology of reproduction or distribution or both. But this merely adds an additional unknown element to the problems discussed above. Take the Internet as an example. The Internet certainly lowers the costs of copying. At the same time, it will lower the costs of distribution and advertising. Even a limited and static assessment of the effects of these changes would have to work out whether the losses to intellectual property owners from the increased ease of copying were greater or smaller than the benefits from ease of distribution, advertising, and reproduction. A more complex assessment would turn to the increased importance of network effects. If your computer is a stand-alone and you rarely exchange files, then the fact that most people use Microsoft Word is much less important to you than if you are on a global network constantly exchanging work with others. Are the losses to Microsoft from the increased ease with which Word could be pirated, greater or lesser than the benefits they get from network effects? We do not know the answer. What will be the effects on innovation of this increase in the importance of network effects? Does it argue for greater intellectual property protection or, to the contrary, a removal of protection from any protocol around which standardization could occur? Again, the issue is an extraordinarily complex one.

To be sure, the defenders of intellectual property do not lie quiet during this litany of doubts. Among other things, they argue that intellectual property rights are not monopolies, they are property rights.²⁰ *Most* property rights allow owners to refuse to sell

19. See WESLEY M. COHEN ET AL., *PROTECTING THEIR INTELLECTUAL ASSETS: & PROPRIABILITY CONDITIONS AND WHY U.S. MANUFACTURING FIRMS PATENT (OR NOT)* 2-3 (National Bureau of Econ. Research Working Paper No. 7552, 2000), available at <http://papers.nber.org/papers/>; BRONWYN HAU & ROSE MARIE HAM, *THE PATENT PARADOX REVISITED: DETERMINANTS OF PATENTING IN THE U.S. SEMICONDUCTOR INDUSTRY, 1980-94*, at 2-3 (National Bureau of Econ. Research Working Paper No. 7062, 1999), available at <http://papers.nber.org/papers/>; ADAM B. JAFFE, *THE U.S. PATENT SYSTEM IN TRANSITION: POLICY INNOVATION AND THE INNOVATION PROCESS* 1-2 (National Bureau of Econ. Research Working Paper No. 7280, 1999), available at <http://papers.nber.org/papers/>; Pablo Challd et al., *The Consequences of Pharmaceutical Product Patenting*, 15 *WORLD COMPETITION L. & ECON. REV.* 65, 115 (1991); Edwin Mansfield, *Patents and Innovation. An Empirical Study*, 32 *MGMT. SCI.* 173, 174 75 (1986).

20. "Rights to exclude are not monopolies just because the property involved is an intangible rather than something you can walk across or hold in your hand." Frank H. Easterbrook,



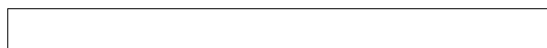
even when offered an amount greater than marginal cost. The question of whether a monopoly exists is one that is determined by the availability of substitute goods, not the shape of the legal entitlement. If there are substitute goods available for most intellectual property products, then competition will drive the price closer to marginal cost, and we will not have the static allocative efficiency losses typical of monopoly pricing. This argument is not so persuasive in dealing with the claim that intellectual property rights can also cause dynamic innovation losses, nor does it address the more basic question of whether intellectual property rights are necessary at all in a particular case. Still, it does attempt to take the blight of “monopoly” away from the intellectual property right, both in popular discussion and in economic debate. This argument over the question of whether intellectual property rights are monopolies will be ironically revisited when we turn to the question of price discrimination.

Let us say though, that our legislators are convinced of the need for expanded intellectual property protection, particularly in the digital arena. Citing the dangers of world-wide piracy, armed with search lists from Gnutella, and file lists from Napster, and clutching reports on the inadequate incentives provided to the compilers of databases, they agree to raise the level of intellectual property rights, Software will be covered by patent as well as copyright. The definition of copying will be broadened. Patent law will be applied to cover business methods and mathematical algorithms embodied in software form. Trademark will be expanded beyond its traditional ambit. The copyright term will be lengthened, civil and criminal penalties increased, and new rights created over compila-

Intellectual Property Is Still Property, 13 HARVJ.L. & PUB. POLY 108, 118 (1990). The classic statement of this proposition was made by Edmund Kitch. See Edmund W. Kitch, *Patents: Monopolies or Property Rights?*, 8 RES. L. & ECON. 31, 33 (1986); Edmund W. Kitch, *The Nature and Function of the Patent System*, 20 J.L. & ECON. 265, 274-75 (1977). The degree to which the dynamic innovation issue is addressed varies in the literature. Notice in the following example how the author goes from chiding others for their improper classification to assuming that more patent protection results in greater technological innovation.

Improper categorization of intellectual property rights as monopolies in the negative sense is traceable to the ambiguity surrounding the term “monopoly.” This ambiguity has its roots in English common law, antitrust law, and the cyclical judicial hostility toward patents. It has created confusion that has resulted in courts’ crossing the line from ambiguously using the term “monopoly” to affirmatively labeling patent rights as anticompetitive and contrary to the public interest. This judicial mindset increases the likelihood of patents being held invalid during infringement litigation, which negatively impacts patent filings, thereby inhibiting technological innovation and economic growth.

Simone A. Rose, *Patent “Monopolyphobia”: A Means of Extinguishing the Fountainhead?*, 49 CASEW. RES. L. REV. 509, 526-27 (1999) (footnotes omitted).



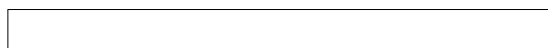
tions of facts.²¹ To all of these proposals, the government, and slightly less enthusiastically, the courts, agree. The legislature goes into recess and the economists and lobbyists on both sides take a deep breath.

In Econo-World, however, the content industries are relentless in their pursuit of legally guaranteed market advantage. When the next session of the legislature convenes, they return with a new set of demands. They argue that is not enough that they be given expanded intellectual property rights. There are still holes in the system after the user has made the contract; perfect control eludes them. The Econo-land legislature has left the “firstsale” rule intact so that users could actually sell their programs, e-texts, and music once they were finished with them. Digital objects could also be given away. I may no longer want the quilting program, or the Benedictine monks’ a-capella disco highlights. As far as I am concerned, they are just taking up space on my hard drive. In Econo-land, however, I may give them to you, provided I erase them from my hard drive, which is what I wanted to do anyway. Resellers may buy the product from the producer and then resell it at a lower price than the one the producer would like to maintain. All of these aspects of the law interfere with the producer’s ability to achieve the perfect pricing curve,²² selling to each user at a different price, carefully calculated by tracking users’ purchasing habits and buying practices using “cookies,” credit card reports, and other monitoring methods. Users also retain a troubling degree of freedom in other respects. Competitors may buy your products, strip out the uncopyrighted parts, and use them to compete with you.²³ This problem has been partly mitigated by the recent intellectual property reforms in Econo-World, of course, because there are now precious few components of any product that are *not* protected by intellectual property. Technology can also be used to embed identifiers in programs and digital content can be registered to particular users in ways that make it hard to transfer. Contracts can be writ-

21. See Federal Trademark Dilution Act of 1995, Pub. L. No. 10498, 109 Stat. 985 (1996) (codified as amended at 15 U.S.C. f 1125 (Supp. IV 1998)); No Electronic Theft Net Act, Pub. L. No. 105-147, 111 Stat. 2678 (1997) (codified as amended at 17 U.S.C. 55 101, 506-07, 18 U.S.C. §§ 2319, 2319A, 2320 (Supp. IV 1998)); *Collections of Information Antipiracy Act: Hearings on H.R. 2652 Before the Subcomm. on Courts and Intellectual Property, House Comm. on the Judiciary, 105th Cong. (1997)* (statement of Laura D’Andrea Tyson), available at <http://www.house.gov/judiciary/41118.htm>.

22. See generally Cohen, *supra* note 2.

23. Cf. *ProCD Inc. v. Zeidenberg*, 86 F.3d 1447, 1450-53 (7th Cir. 1996) (holding that a buyer of software containing data compiled from 3,000 phone directories was bound by shrink-wrap license limiting data use to non-commercial purposes).



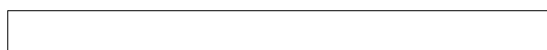
ten which require users to relinquish their rights under intellectual property law. In theory, the user can always go elsewhere, but lack of knowledge about the content of the licenses together with the lock-in exercised by network effects, all operate to make the market less than efficient in that regard. If Microsoft Word requires a particular licensing agreement, telling the user that they can always buy Boyle's word processing software is little consolation.

But the scheme is not yet foolproof. If the content provider builds a digital fence, then users would still have a privilege to break it down in order to exercise their fair use rights. If they broke it down and then violated one of the right-holder's exclusive rights they would, of course, be liable for that violation. However, in Econo-World the content owners have not yet been given a legal power to fence off portions of *the public domain* simply by expressing with their technology the wish that users not have access to it.²⁴ As for the licensing contracts, they are of uncertain validity and uneven legal effect because of constitutional pre-emption issues, and state law provisions invalidating certain contracts of adhesion. There are also occasional annoying, non-derogable, consumer protection guarantees which licenses cannot override. Finally, the growth in availability and sophistication of open source software means that consumers might one day have more of a choice, provided of course that the open source software can achieve interoperability, and thus do most of the things that closed, proprietary software can do; showing DVD movies, for example.²⁵

The answer to these flaws is to have the state step in and put its stamp firmly on the content industries' preferred trifecta: expansive intellectual property rights, digital fences, and enforceable click-wrap licenses. If it could be made a crime or at least a tort to break through a digital fence, regardless of whether one's purpose was licit or illicit, then technological restraints on use in the after-market would be that much more secure. More importantly, if it could be made a crime to create programs or devices that allowed others to get through the digital fence, then the only the most technically sawy consumers would be able to do so. Think of barbed wire. Ranchers want to use barbed wire to protect their herds, but the wire will enclose not only their lands but also portions of the commons. The state can do three things. It can forbid

24. Our world is more advanced than Econo-World in this regard.

25. See Amy Harmon, *Anarchic Commerce: Online Davids vs. Corporate Goliath*, N.Y. TIMES, Aug. 6, 2000, f 4, at 1; see also *Universal City Studios, Inc. v. Reimerdes*, No. 00-Civ.-0277,2000 WL 1160678, at *2 (S.D.N.Y., Aug. 17,2000).



the use of barbed wire. It can allow it, but also allow others to use wire cutters to get through it, punishing them if they rustle cattle but leaving them alone if they merely exercise their free range rights. Finally, it can make it a free-standing tort to cut barbed wire, regardless of one's purpose, and then it can outlaw the production of wire cutters. The content industries pick option three, and they also ask that the rules of contract, intellectual property, antitrust and a variety of other fields be changed so as to allow their preferred set of contractual restraints, resale price maintenance agreements, and so on. One happy result of this regime is that it will also make it harder for "interoperable" open source software to be developed; I can't get my open source software to work with your **DVD** format without either breaching your licensing agreement or breaking through your digital fence, or both. Thus it has the advantage of maximizing one's control of the existing market and beating off a challenge from a potential future competitor at the same time.

How is all of this to be justified? To be sure, one could point to the same threats from digital piracy that were used to justify the first round of expansion. Again, it could be taken on faith that existing forms of excludability are inadequate, that the extra leakiness of a digitally networked system more than offsets its advantages in lowering the cost of distribution and advertising, that increasing the rights of creators and content providers will produce greater innovation rather than raising the cost of inputs so much that future creation is hampered. But this argument is getting a little worn by now. In Econo-World, however, the content industries have a second string to their bow. They turn from the economic analysis of public goods problems to the economic analysis of price discrimination.

III. PRICE DISCRIMINATION **A** PRIMER

A little background may be helpful for those less familiar with the economics of price discrimination. Imagine a world where the economy consisted of a single supplier of a single good—Furbies—and of four young purchasers each with different degrees of willingness and ability to pay. Furbies cost \$10 to produce. The poor child can pay only \$15 for the Furby (though if she were richer, she would pay much more.) The two children of the middling class will pay \$25 each and the rich child would pay \$85. What happens if the supplier has to charge a single price? Selling the Furby at \$15 will



result in four customers and revenue of \$60. The manufacturer's profit would be **\$20.26** Selling at **\$25** each will lead to only three sales as the poor child drops out, unable to bid so high. Yet the revenue is **\$75** and the profit **\$45.27** Finally, selling at **\$85** will exclude everyone but the rich child, but the manufacturer will receive revenue of **\$85** and profit of **\$75.**²⁸ A rational manufacturer, therefore, will price at **\$85** and the middle and lower classes will go Furby-less. While economic analysis recognizes no exogenously determined right to the Furbied state, it would tell us to focus on the a net social loss produced in this case—namely the three Furbies that the supplier will not be able to sell, though the purchasers would be willing to offer more than the costs of production. The net social loss is **\$35,**²⁹ measured here according the standard assumptions of such analysis; that is to say, we measure worth or value individual by individual, reckoning each according to the amount that the individual is willing and able to pay.³⁰

If, however, the supplier (a) was somehow able to identify individual valuations and (b) could charge different prices for each customer, this social loss could be avoided. The poor child would pay \$15, the two middle class kids would pay **\$25** each, Richie Rich would fork out **his \$85**—all would get Furbies, the social loss would disappear, and the producer will gain a whopping profit of **\$110.**³¹ A happy ending, at least by the standards of economic analysis.

26. Cost of manufacture: $4 \times \$10 = \40 . Revenue: $4 \times \$15 = \60 . Profit: $(\$60 - \$40) = \$20$.

27. Cost of manufacture: $3 \times \$10 = \30 . Revenue: $3 \times \$25 = \75 . Profit: $(\$75 - \$30) = \$45$.

28. Cost of manufacture: $1 \times \$10 = \10 . Revenue: $1 \times \$85 = \85 . Profit: $(\$85 - \$10) = \$75$. Of course, this hypothetical is unrealistic in a variety of ways. For example, there are no economies of scale on production. The basic point, however, holds true if we shift to a more nuanced hypothetical dealing with marginal utility and marginal cost in which all these factors are included and the reader's eyes correspondingly more weary.

29. In other words, the amount by which the value that the poor and middle class children put on the Furbies exceeds the cost of their production. Value: $(\$15 + \$25 + \$25) = \65 . Cost of Production: $\$30$. Under the single pricing schedule, willing buyers cannot purchase though their utility exceeds cost. The resulting loss is $(\$65 - \$30) = \$35$. Those who find this definition of social loss (particularly in the case of Furbies) to be ludicrous are asked to retain, but suspend, their skepticism at least until the next footnote, and ideally until later in the Paper.

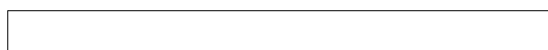
30. As many critics have pointed out, this raises some problems. Thus, for example, the glass of water is "worth" only \$1 to the person dying of thirst whose wallet holds but a single dollar. Indeed, there would be a social loss of \$3 if we gave him his drink instead of offering it to the slightly overheated rich person who would pay \$4 for it. More important perhaps, economic analysts tend to measure social value by aggregation of individual assessments; the idea of a value where the whole is more than the sum of the parts is hard to develop within this frame of mind.

31. Cost of manufacture: $4 \times \$10 = \40 . Revenue: $(\$15 + \$25 + \$25 + \$85) = \$150$. Profit: $(\$150 - \$40) = \$110$.



Before we continue, we should also notice the characteristics of the monopoly producer, under perfect price discrimination; most obviously, the producer never makes mistakes in its identification of ability/willingness to pay. (For example, the producer does not make the mistake of selling 4 \$15 Furbies to the poor kid—"Please sir, I am a poor purchaser and the other 3 are for my humble and equally penurious brothers and sisters"—only to have this budding arbitrageur turn round and resell to his peers at \$20, repaying his loan from the rich kid and reaping a tidy profit.) Let us take a small step outside the imaginary world I have constructed. Imagine a real-world firm that has some of the characteristics of a monopolist. Take the manufacturer of Furbies, for example. Partly because of a variety of intellectual property rights (trademark, trade dress, and perhaps patents) the manufacturer of Furbies is safe from direct competition. I cannot manufacture a competitor doll called a Furby; indeed, depending on the extent of trade dress protection and the extent of the patents on the underlying technology, I may be prevented from making *any* annoying, neotenous, talking furry doll with a "learning program" and a crude voice playback feature. The consumers of Furbies will also insist that there are *no* substitute goods and that the only limit on their parents' *willingness* to pay ought to be parental *ability* to pay. Interestingly, the manufacturer of Furbies actually chose to use a single standard price, for reasons that make the whole analysis more complex, but let us imagine that it wants to engage in price discrimination. How is it to do so? One possibility is to increase the difficulty of getting the low cost Furbies—selling them at inconvenient times in uncomfortable places. Only the poor child, who is willing to spend in time, discomfort, and stigma what he lacks in dollars, will buy them there. From the manufacturer's point of view, this segments the market nicely. Another possibility, called "versioning," is to produce goods with different qualities or features: a bare bones "pauper's model," perhaps, with a mutilated ear and a cough, a more luxurious Furby of the bourgeoisie, its pelt rich but modest, and a tycoon Furby with a larger vocabulary and a mink coat.

In both of these solutions the producer compensates for its lack of knowledge about the consumer's ability and willingness to pay by relying on knowledge of the characteristics of the more general classes of purchaser and by using external signs and signifiers to encourage self-selection into the appropriate pricing bracket. In addition, the market can be segregated by time, early release at a high price followed by a slow diminuendo designed to capture every combination of eagerness and resources. The methods can even be



amalgamated, for example, hardbacks are often issued before paperbacks. Versioning can look perverse; Varian quotes the example of a laser printer aimed at the business market that produced 8 pages per minute. In order to capture the personal computer market, a version was sold with a “wait chip” that reduced its speed to 4 pages per minute.³²

When we are talking about “optional” or luxury goods, or about minor differences in functionality or prestige, this process seems beneficial or at worst risible. Of course, when the goods get more necessary and the disparities in wealth distribution (and hence ability to pay) get more acute, the versioning process begins to look less benign, suggesting an underlying problem with the ability/willingness to pay metric of valuation—at least to those who were not entirely convinced by the basic axioms of the analysis. The quote from Dupuit with which I began this essay captures the process perfectly. “What the company is trying to do is prevent the passengers who can pay the second-class fare from traveling third class; it hits the poor, not because it wants to hurt them, but to frighten the **rich**.”³³ To be sure, this is a point by no means limited to discussion of price discrimination, and if this is the only way to get some important social good to the poor, we may swallow our qualms. What’s more, in the digital realm it is possible that this type of concern will not come up. Perhaps we will think that the products are less socially valuable, or jettison any concern that poor have access to them. Perhaps the differences between the high-end good and its low rent cousin will be small enough that our consciences can rest easy. Still, it is worth carrying with us **for** later the thought that this kind of concern might exist.

So far, the techniques used by monopolists to engage in price discrimination are relatively simple. But there are others, including ones that will be of more importance in the digital world. Imagine our Furby manufacturer again. Apart from versioning, or engaging in temporal segmentation of the market, the Furby manufacturer could use contract or technology as methods to ensure that Furbies do not leak across the price boundary. Buyers could be made to sign a contract saying that they were forbidden from reselling their Furby, or even from giving it away. Furbies could be technologically linked to some characteristic of their owners, perhaps through a

32. See CARL SHAPIRO & HAL R. VARIAN, *INFORMATION RULES: A STRATEGIC GUIDE TO THE NETWORK ECONOMY* 59 (1999).

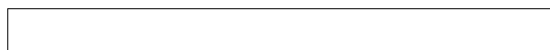
33. DUPUIT, *supra* note 1, at 23.



retinal or DNA scan, and primed to self destruct if they were sold or given away. Furbies could even be constructed so as to engage in self-help if the terms of the contract were being circumvented, perhaps taking the other toys hostage and refusing to release them unless some payment was made. While all of this seems bizarre, if not hallucinatory, these are exactly the kinds of techniques that will increasingly be used by content providers in the digital world. Programs might be tied to unique identifier numbers embedded in software or hardware. Content providers will declare that content is not being “sold,” merely licensed subject to numerous restrictions. Self-help sub-routines might be used to encrypt user-files in the event of contractual violation, with the key only being provided on payment of a fee and a return to proper behavior. Digital fingerprints and watermarks will help to identify texts. Encryption will be used to protect programs against decompilation, or to scramble source code so that it cannot be parsed.

Let us say, however, that through an ingenious use of market research, technological limitation, and licensing agreement, the Furby manufacturer manages to sell to each customer at precisely the maximum of his ability and willingness to pay. This is an efficient allocation of resources. Of course, the interesting aspect of this little thought experiment is that it is a story of a monopoly with perfect price discrimination. There are no competitors selling Furbies. What if there were? In a competitive market we would expect the price to move quickly towards the cost of production. All the kids would get their Furbies for \$10.00. Just as before, social loss disappears (there is no Furby-shaped hole at the center of each childish world of preferences) but now all of the \$110 “surplus” (the difference between what the good costs to make and what it is worth to the buyers) is in the pockets of the consumers, not the producer.³⁴ From a standpoint of economic efficiency, this result is just as desirable as the one above. We could be more precise. *Either perfect competition, or monopoly with perfect price discrimination will produce an optimal economic outcome. The differences are distributional. Perfect competition moves consumer surplus to the pockets of consumers. Monopoly coupled with perfect price discrimination*

34. In each case, the surplus is the degree to which the child's willingness to pay exceeds the costs of production and (in the case of perfectly competitive market) of sale. Thus, the rich kid actually has a larger “surplus” ($\$85 - \$10 = \$75$) because he would have been able (and willing) to pay so much while the poor kid has a smaller surplus ($\$15 - \$10 = \$5$) because he is able (and willing) to pay less. Such a method of analysis will thus tend to see greater social losses in the thwarted desires of the rich than those of the poor. This, of course, is merely a corollary of the point made earlier.



moves the surplus to the pockets of the producer. Now in the actual world, we live neither in a world of perfect competition, nor a world of monopoly and perfect price discrimination. We know however, that both ends of the spectrum are efficient. As informed policy makers, who have read our economics textbooks and reflected on the wonder of allocatively efficient markets, we are therefore faced with a choice. Towards which one do we push?

In the post-lapsarian world of transaction costs, law may actually make a difference. The allocation of property rights, the organization of antitrust law, and the delineation of enforceable contracts, may each have an effect on whether the market moves towards a monopoly with perfect price discrimination or towards perfect competition. For example, if we weaken antitrust laws or even grant state-enforced monopolies, allow contracts that bind third parties, diminish privacy protections, add to the legal toolbox by which manufacturers can prohibit resale, and even put the force of law behind their technological attempts to do so, we may make it easier for the monopoly to be created in the first place, for the monopolist to generate the information that he needs in order to engage in effective price discrimination and then to give him the tools, legal and technological, to make that price discrimination stick. If we turn the legal rules in the opposite directions, we may make the market more competitive. Let us return to our Furby example. Say that, at present, the Furby company enjoys a limited royal charter. Furby-competitors are legally restrained from making furry talking dolls that children consider good substitutes. At present also, say that the Furby company is forbidden to gather certain kinds of information on children's preferences, that contracts which prohibit resale are unenforceable, that price-maintenance agreements with suppliers are illegal, and that Furby-buyers are allowed to "hack" the software system that the manufacturers include in an attempt to make the Furby responsive to only one buyer. The law, therefore, is putting obstacles in the way of moving towards perfect competition (the royal charter) and also in the way of moving towards monopoly and perfect price discrimination (the privacy rules, the prohibition of resale price maintenance and restraints on alienation, the privilege of owners to circumvent technological restraints on transfer).

We know that *either* perfect competition or monopoly with perfect price discrimination will produce Pareto optimal results. (No change in the distribution of entitlements will produce a gain large enough for the "winners" under such a change, to compensate the "losers" and still come out ahead.) We believe that there will be

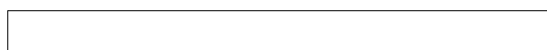


Pareto superior results if we approach very close either to perfect competition or perfect price discrimination, (although it is not clear what the shape of the curve is on either side). Do we try to swing the market towards one or the other and, if so, towards which one? The question, of course, is impossible to answer in the abstract. We would have to know what the supposed benefits of the royal charter were so that we could estimate the costs of weakening it. We would have to put a valuation on the privacy protections that prevent manufacturers from gathering all the information they need to engage in accurate price discrimination. We would have to consider the dynamic effects of any rule-change on innovation in future products. We would also have to have some sense, as an empirical matter, of how "far" we were from the perfect price-discrimination model on the one hand and the perfectly competitive market on the other, and the legal, administrative, and other costs of actually making the change. After all, it is quite possible that we might actually push the system into a Pareto *inferior* equilibrium; after the rule change, the winners might not be able to compensate the losers and still come out ahead. We might actually have ethical or distributional commitments that changed the result of the analysis; exogenously determined rights to privacy and free speech, for example. We might believe that surplus in the hands of (generally poorer) consumers was more valuable than surplus in the hands of (generally richer) producers, because of the diminishing marginal utility of wealth, or the ethical logic of the original position. In short, the empirical uncertainties, ethical quandaries, and theoretical questions are manifold. Yet the legal and economic literature on intellectual property and information goods shows a consistent predilection to argue in favor of the necessity and desirability of price discrimination³⁵ and this predilection is extremely attractive to the lobbyists of Econo-World.

IV. PRICE DISCRIMINATION IN ECONO-WORLD

Remember that the question for the legislators of Econo-World was, to what extent should the law forbid, allow, or actively promote the process of producer control over users and digital objects beyond the initial transaction? The wonderful, the truly splendid thing about the economic analysis of price discrimination is that *it seems to tell us that it is economically necessary for the pro-*

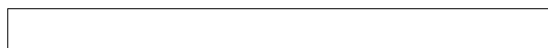
35. See, for example, Fisher, *supra* note 2, at 125455, and the Varian sources cited *supra* note 2.



viders of digital content to control the after-market use of all of the technological and contractual methods that I described. Here is the perfect argument to make to legislators. Legislators have to step in to remove legal impediments to price discrimination, in fact to criminalize attempts at arbitrage. They do so, not to confer another huge chunk of monopoly rent on the content providers (though this will be a byproduct of their actions), but instead to make sure that the market is allocatively efficient. It is socially good for the newspaper to be able to price high when selling to the high-valuation-high-resources user, and low to the penurious student. If the student could resell her discounted digital text to the wealthy reader, the newspaper publisher would lose the incentive ever to publish at the low price. Like the manufacturer forced to depend on a single price for Furbies, the publisher would set the price at a level that guaranteed optimum return, leaving a tragic triangle of unmet need below that price. We are actually *helping the poor* by allowing producers to control the after-market and to capture the entire consumer surplus.

Now we get to a lovely irony of the debate. When intellectual property rights were being justified using the economics of public goods problems, the very first tactic of opponents was to yell “monopoly” and to conjure up both the economic and the social evils associated with monopoly control. Intellectual property rights would lead to classic monopoly pricing, they suggested, with a deadweight social loss: customers who are willing and able to pay more than marginal cost, but who cannot afford to pay the monopolist’s optimal (single) price. In reply, the defenders of intellectual property rights pooh-poohed the talk of monopoly. Copyright and patent are simply property rights that give producers an ability to exclude. Market circumstances might make a monopoly. The grant of an intellectual property right did not. Competition with other substitute goods (also protected by intellectual property) would drive the price down to a position much closer to marginal cost, so that the deadweight loss would be much smaller.

But now we have reached the second stage of the debate. Should the state facilitate the process of price discrimination? Let us start just by looking at allocative efficiency, without getting into a more complex analysis of dynamic innovation effects. If we truly have a market that exhibits the classic downward sloping demand curve under monopoly pricing, then there is a strong argument that the state should step in and aid the producers in their attempt to price discriminate—for all the reasons discussed in the Furby example. Monopolies with perfect price discrimination are efficient, by



definition. If on the other hand, the market distribution of the product under the existing regime gets it to lots of consumers at marginal cost or close to it, then we are closer to the kinds of results produced by a competitive market and no change of legal regime is necessary.³⁶ Even if the state were able to change the rules in a way that would transform the marketplace, the change would be purely distributional. Consumer surplus would simply be shifted away from consumers to producers.

Notice what has happened. Suddenly, the defenders of intellectual property expansion have an incentive to argue that this is *already* a monopoly (and so we need to move to price discrimination in order to achieve efficiency) while the critics of intellectual property expansion move towards saying that, even with intellectual property, the existing market often actually already distributes the good at very close to marginal cost. The positions have completely switched from the first stage of the analysis.

So what *does* the current pattern of market distribution look like? The marginal cost of information is zero. So the alternative to the monopoly-plus-perfect-price discrimination model is one where producers are granted a return adequate to achieve future production, and then the good is available free. Now there are a number of proposals to achieve exactly this kind of system, the most recent being that of Steve Shavell and Tanguy van Ypersele for an optional system of state rewards to inventors, followed by distribution at marginal cost.³⁷ But what about the existing framework of intellectual property in the digital arena? As Wendy Gordon points out, intellectual property doctrine itself can be seen as a rough form of price discrimination.³⁸ The rights handed out to copyright holders, for example, allow segregation of high intensity/high valuation uses (performance, reproduction) from lower valuation uses (distribution), and the existence of first sale rights and fair use rights allows some users to buy the good at a reduced price or even obtain it free. Beyond this world is an after-market very different from the perfectly controlled one imagined by the content industries. Libraries,

36. For reasons expanded on in a moment, the question is not whether the market is a perfectly competitive one, but rather whether it achieves a distribution fairly close to the one that a perfectly competitive market would produce. With information goods, which have a marginal cost of zero, this is actually possible in a market that lacks some of the characteristics economists normally assume in a perfectly competitive market.

37. See STEVEN SHAVELL & TANGUY VAN YPERSELE, REWARDS VERSUS INTELLECTUAL PROPERTY RIGHTS 20-27 (National Bureau of Econ. Research Working Paper No. 6956, 1999), available at <http://papers.nber.org/papers>.

38. See Gordon, *supra* note 2, at 1375-78.

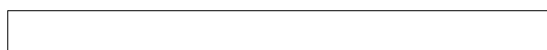


fuzzier uses (copies made for the laptop, for the car), petty illegal uses (copies made for friends), Napster-like “sharing” outside the permissible limits of the copyright law, and straightforward piracy, all combine to get information products to many people at very close to marginal cost. The system is a leaky one in two respects; the intellectual property owner’s rights are not absolute (yet) and the mercurial quality of the product itself means that both gray and black markets supply the good at very close to marginal cost—zero. Now it is unlikely that the legislature will be enormously receptive to the claim that piracy isn’t such a bad thing, but even so this situation is tolerable as long as (a) there are adequate incentives, cultural, criminal, and commercial, to ensure the continuation of a large lawful market and thus to (b) provide adequate incentives to the producer of the information good. Under those situations, we offer no cheers for the pirate, but no tears either. Leakiness is built into the system. If society has provided the producer with an adequate incentive to ensure future production, claims to scarce law enforcement and legislative services to ensure heightened returns, and the capturing of all consumer surplus, are economically questionable.

We are, in other words, in an even more ambiguous position than the Furby manufacturer who has a royal charter, but who cannot prevent reverse engineering, competition, and resale. Information has a marginal cost of zero and limited excludability, and yet is bundled and tied to other goods, services and cultural meanings that have a higher degree of excludability. Older intellectual property law provided a deliberately messy and leaky system that actually seems like it might get information to many users at a price adequate to ensure future production, while others got it free.³⁹ To be sure, there is little hard empirical evidence, but that failing is shared equally by both sides of the argument. And while price discrimination works neatly in the hypotheticals about Furbies, which have a marginal cost above zero, the case for price discrimination is weaker with pure information goods, when marginal cost falls to zero.

As Yochai Benkler points out in this volume, with perfect price discrimination we know that the producer of information would have no incentive to distribute it to that group of consumers who could only pay marginal cost (zero) for it. Yet if those users would be willing to give their attention to zero-cost information,

39. See generally *id.*



there is a welfare loss if we fail to provide it to them. What's more, any analyst who is even a little uneasy about the "ability and willingness to pay" metric of valuation would find it particularly hard to say that the poor should not get access to a social resource with zero marginal cost simply because they cannot afford to pay for it.

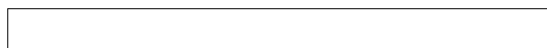
If there is an argument over the efficiency justification for having the state step in and help producers in their attempt to achieve more perfect price discrimination, are there other factors that break the tie, so to speak? What of more dynamic concerns about the encouragement of innovation? Some analysts clearly find this point to be persuasive. William Fisher's article, which I mentioned at the beginning of this Essay, advocates using the lure of the profits promised by legally aided price discrimination to get producers to accept a variety of socially conscious limitations on their intellectual property rights.⁴⁰ Thus his argument hardly fits into the maximalist intellectual property agenda I am describing. But it is clear that he believes that price discrimination would have positive effects not only on efficiency but also on innovation. As he puts it,

the ratio of the monopoly profits enjoyed by the author to the concomitant dead-weight losses [under price discrimination] is *much* larger So what? That means, first of all, that social welfare losses have been reduced. In addition, we are getting much more bang for our buck—a much larger incentive for creative activity per unit of social cost.⁴¹

Now while there is much to agree with in Professor Fisher's article, I think the implications of this argument are troublesome. True, the incentive would be larger in the sense that producers of information goods would receive more money (though for both creative and non-creative activity; price discrimination measures could give additional protection to each.) But would this give us more bang for our buck in terms of actually producing more innovation, and more information goods? To answer that question, we would have to know about the effect of price discrimination on the cost of *inputs* into the productive process as well as the price of *outputs* from the productive process. Under price discrimination, after all, producers of information goods might well be paying more for inputs than they do now under the current leaky system, with limited enforceability of contracts of adhesion, first sale, fair use, and so on. Producers would have strong incentive to identify and restrict potential competitors through technology and contract, or at least to charge them

40. See Fisher, *supra* note 2, at 1212-16.

41. *Id.* at 1240.



very high prices.⁴² It would also be important to study the importance to innovation of that subset of information that content producers cannot currently control, and which is available as a result at its marginal cost of zero, but which they would be able to control under the legally sanctioned price discrimination regime.

To put it simply, the assumption that increasing the pricing power of the producer increases the amount of innovation and information produced is similar to the assumption that increasing the level of intellectual property rights produces more innovation. Intellectual property policy has to focus on the input side of the table as well as the output side of the table. In *Econo-World*, the critics of intellectual property expansion did this by focusing on the inhibiting effects of *monopolies* such as intellectual property rights on future innovation, and the deadweight loss they impose upon pricing decisions. When it comes to the price discrimination argument, however, the critics of intellectual property expansion will stress the way in which the current system is leaky enough to get the goods to many people at zero marginal cost. "Curing" that leakiness, they argue, may well result in both welfare loss and innovation loss. If the marginal cost of a good is zero, increasing contractual and technical control may simply make sure that a portion of the market is no longer served at all. We lose leakiness without gaining perfect distribution.

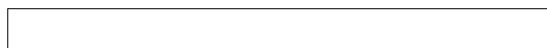
The defenders of intellectual property expansionism in *Econo-World*, on the other hand, initially argued that intellectual property rights were simply property rights, not monopolies. When it comes to price discrimination, however, their argument was simple: "Well, since we already have a monopoly, the only efficient market is a monopoly with perfect price discrimination. What's more, the greater the amount of consumer surplus captured by the producer, the greater the incentive to create future information

42. Professor Fisher is one of the few who attempt to address this point, essentially reintroducing a fair use privilege for decompilation, future production, and so on. See *id.* at 1208-09. However, while these limitations on the total control regime move in the right direction, they only deal with innovation inputs in the final stages of creation—excluding the subtler contributions for which future creators can claim no creative fair use privilege, precisely because they involve serendipitous creativity, rather than planned construction. Thus judgements about the relative effect of perfect price discrimination on innovation will depend on judgements about whether or not more relevant information is likely to be available at marginal cost under such a regime or under the messier, leaky system we have now. Analyses that focus only on the output/incentive side of the table will miss this point, just as analyses that focus only on the incentive effects of intellectual property miss the importance of the public domain.

goods.” Once again, the arguments are mirror images of one another.

Two further arguments about price discrimination deserve further notice, though neither of them would be particularly compelling in Econo-World. The first returns to the “ability and willingness to pay” metric. There are particularly strong reasons for doubting this way of valuing information goods. The endpoint of the perfect price discrimination plan is a pay-per-view world where each of us gets to see, use, and consume only those information goods for which we would be willing to pay, even if at a very low level per page. The idea of consumer sovereignty rests on the compelling argument that people know what is good for them and can value it accordingly. Whether or not one accepts that premise everywhere else, and I would argue that *no one* accepts it everywhere else, it is particularly hard to say that information can be valued in such a way.

With other goods we price partly by gathering more and more information about the value of the product. The paradox of information pricing is that, to know what it is worth to you, you would need to know what it is, but if you know what it is, then you no longer need to purchase. More importantly, the valuation we put on apparently random, irrelevant information is shaped by our experience as “consumers” of such information in the past. The assumption of endogenous preferences notwithstanding, legal regimes can affect preferences and valuations. Most of the people who read this Article are the products of a leaky and imperfectly controlled system, an information ecology, in which they could get access to large quantities of apparently irrelevant information because it was “free.” They learned that the book next to the one you are supposed to be researching for your paper is always the most interesting, and that the accumulation of apparently useless information pays dividends in the long run. What kind of preferences will be formed in the generation that comes of age in the world of perfect price discrimination, with the Visa card symbol always spinning in the background, and the micro-charges always ticking? Would they spend fifteen minutes (and some number of cents) reading about Caesar’s campaigns when they were supposed to be studying cesarean sections, about the Manhattan Project when they were supposed to be learning about Manhattan? It is possible, of course, that a world of perfect price discrimination would offer just as much free information, and just as much ability to experiment, to come to new understandings of one’s self and thus of one’s preferences. But we have no data either way, and both the economics and the business



plans of the world of state-backed price discrimination point in exactly the other direction.⁴³ The vision of “worth,” “usefulness,” and “welfare” offered by the conjunction of ability and willingness to pay is a problematic one in general, but it is particularly problematic if used as the metric for allocation of rights over information.

The second problem with the image of perfect state-backed price discrimination is that it would require massive information-gathering on the part of producers and, perhaps ultimately, of the state. Perfect price discrimination requires more information about customers than can be revealed by mere self-selection and more information-gathering (to prevent illicit arbitrage, lending, or gifts). Do we really want to commit ourselves to a regime that will offer companies major assistance in the form of state power, assistance that will yield them big bucks, but only if they monitor their customers superlatively well? This seems like a rather perverse set of incentives. On dubious theoretical and empirical evidence, it sets up a system that more or less guarantees an unpleasant form of invasive monitoring. Even if we establish legally enforceable privacy principles (which would be hard to reconcile with the basic premise of the system) **all** the incentives run in one, anti-social direction. Along with the threat to privacy comes the threat to free architecture. Many of the Internet’s attractive features as a speech technology—its openness, its resistance to filtration by both public and private power, its anonymity—seem like bugs rather than features from the point of view of perfect price discrimination. The regime of price discrimination would function far better in a network which had unique identifiers coded into hardware (as with the chip that Intel recently released)⁴⁴ and software,⁴⁵ and in which the entire “clickstream” was monitored from moment to moment. If payment is required for even very small sips of information, of course,

43. To get a sense of what the world might look like, one should probably turn to Hal Varian’s work. I would argue that Fisher’s work with its public spirited and thoughtful attempts to leverage price discrimination into “semiotic democracy” does not predict the actual practice of a state-sponsored regime of price discrimination nearly as well as Varian’s cheerful advice to business people on how they can milk their customers and block their competitors. Compare Fisher, *supra* note 2, at 1217, with Carl Shapiro & Hal R. Varian, *Lock ‘em Up! What You Should Know About Customer Loyalty and the Competitive Concept of Lock-in*, CIO, at 72, 75-76 (Oct. 15 1998), available at http://www.cio.com/archive/101598_book.html, and Hal R. Varian, *Priceline’s Magic Show: The Name-your-price Retailer Has an Old Trick Up its Sleeve*, THE INDUSTRY STANDARD (Apr. 17, 2000), <http://www.thestandard.com/article/display/0,1151,14015,00.html>.

44. See *Intel Drops Processor Serial Numbers*, 7.08 ELECTRONIC PRIVACY INFO. CENTER ¶ 3 (May 2, 2000), at http://www.epic.org/alert/EPIC_Alert_7.08.html.

45. See John Markoff, *Microsoft Will Alter its Software in Response to Privacy Concerns*, N.Y. TIMES, Mar. 7, 2000, at A1.

many of these problems will be “taken care of,” though not in any way we would like.

Once again, however, the legislators of Econo-World were unimpressed by these arguments. They voted for the entire package of price discrimination measures, adding the force of law to the digital fences, abolishing the exclusions on contracts of adhesion, and repealing the prohibitions on resale price maintenance. “At last,” they declared, “we have evolved from the messy and unpropertized world of the past into an era in which information and information goods will be moved to their highest use-value.” A few critical and disconsolate economists claimed that the plan had merely piled bad economics on top of bad economics. First, they claimed, the legislature had expanded intellectual property rights unnecessarily, showering the content providers with economically unjustified monopolies in the new medium and completely neglecting the importance of the public domain. Then, in the second stage of the analysis, they claimed that the legislature had looked at the unnecessary monopolies it had created and, on the claim that the only efficient monopolistic market is a monopoly with perfect price discrimination, had handed over *another* huge slice of rights to the content providers. Once again, the powerful economic arguments against the move had been ignored. Error had been premised on error. These economists, however, were distinctly in the minority and their criticisms did not receive very good coverage. The lobbyists retired to their chambers to plan again.

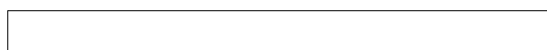
V. BEYOND ECONO-WORLD

Econo-World is not our world. The critic would say that this is because our legislature is interested less in economic arguments than in more straightforward economic contributions. While I do not agree with the Chicago and Virginia School portrayals of all legislation as rent-seeking behavior by particular interests, it would be hard to find a more perfect example of rent-seeking than intellectual property legislation.⁴⁶ Why bother exploring the economics of

46. As one commentator observed,

Copyright legislation in the United States has for at least a century been drafted not by the Congress, and not by the executive branch, but by multilateral negotiations among private industry representatives, sometimes with the assistance of the legislative branch. Copyright bills that have been drafted by some other process—by members of Congress, Congressional staffers, or agencies in the executive branch—have failed to achieve enough support for enactment.

Jessica Litman, Copyright and the Internet in the United States, Address Before the International Association for the Advancement of Teaching and Research in Intellectual Property (July



intellectual property at all, then? Campaign contributions and not downward sloping demand curves will determine the results. Can you really explain the Sonny Bono Copyright Term Extension Act economically, perhaps as an attempt to offer incentives to the dead?⁴⁷ The answer, I think, is that the economic analysis does still matter, and not just the economics of public choice theory.⁴⁸ It matters in the debates, shifting the participants' perceptions of what constitutes a reasonable opening position. It matters enormously in implementation, when administrators and judges try very hard to make good public policy out of the legislation they have been handed. It may matter in constitutional litigation as judges assess whether the recent crop of intellectual property legislation can be construed in any way as an attempt to encourage authors and inventors.⁴⁹ And finally, it matters in more utopian ways, because we cannot know what proposals to support and what to criticize without some sense of their likely economic effects.

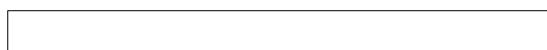
In this Article, I have tried in a very, very short space to lay out some of the basic economic arguments for and against the creation of intellectual property rights and then for and against the institution of price discrimination. From my point of view, the same pairs of arguments appear again and again, from the highest level of analysis (are informationally efficient markets possible?) to the lowest (would price discrimination reduce innovation by raising the price of information inputs into future products)? Economists like to imagine a cool process of "balancing," or a game theoretic analysis of strategy and counter-strategy, in which we try to find the efficient frontier between the need for incentives and the need for the free flow of information. I argued here, by contrast, that much of the important work is done before the balancing or the gaming even begins, in the construction of the issue to be analyzed. I deliberately set up my analysis in rhetorically loaded terms; a tale of relentlessly grasping content industries, persuading legislators to grant

7-10, 1999) (footnotes omitted), available at <http://www.msen.com/~litman/atrip.htm>. See generally Jessica D. Litman, *Copyright, Compromise, and Legislative History*, 72 *CORNELL L. REV.* 857 (1987).

47. Sonny Bono Copyright Term Extension Act, Pub. L. No. 105-298, 112 Stat. 2827 (1998) (codified as amended at 17 U.S.C. §§ 301-304 (1999)).

48. To be sure, other things matter as well, including more romantic ideas of authorial creation, implicit ideas of the importance of information to the public and private spheres, and so on. But I have tried to deal with those issues elsewhere. See generally JAMES BOYLE, *SHAMANS, SOFTWARE, AND SPLEENS: LAW AND THE CONSTRUCTION OF THE INFORMATION SOCIETY* (1996).

49. See Yochai Benkler, *Constitutional Bounds of Database Protection*, 15 *BERKELEY TECH. L.J.* 535, 558 (2000).

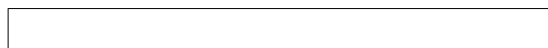


them larger and larger monopoly rents on the basis of poor economic analysis. I did this for two reasons. First, because it is true, or at least closer to truth than the cooler language of the little economic parables used to explain public goods problems. Second, such an overt loading of the scales triggers the very sophisticated rhetorical filters that **all** of us have developed to deal with arguments about public policy in other areas—the environment, say. And if there is one thing that intellectual property policy needs it is more careful scrutiny of the rhetoric of economic analysis.

More substantively, the debate in *Econo-World* casts some light, I think, on the real history of intellectual property policy over the last twenty-five years, a history that could be summed up as the failure to consider the input side of the input-output table. Intellectual property policy has consistently under-valued the public domain, over-emphasized the threats and under-emphasized the opportunities presented by new technologies, ignored the extent to which information and information goods are actually bundled with other more excludable phenomena, exaggerated the role that incentives have in producing innovation while minimizing their negative effects, and so on.

The price discrimination debate adds some nice twists to the story. Two ironies are glaringly apparent. First, I argued that the move to price discrimination is a move that, in our world at least, is partly premised on the creation of unnecessary monopolies. To put it another way, there is something truly perverse about the idea that once the legislature has created an unnecessary and counter-productive intellectual property right over databases, they then have to turn around and give a second heaping slice of monopoly rent to the content-providers, because the only two types of efficient markets are perfect competition and monopoly with perfect price discrimination. The popular definition of *chutzpah* is the child who kills his parents and then throws himself upon the mercy of the court because he is an orphan. The economic definition of *chutzpah* is the industry that demands a legalized monopoly, and then, once given it even though the evidence was weak, insists on the state's aid in price discrimination, the better to wring every last cent of consumer surplus out of their customers.

Second, and this is an irony that cuts as much against me as for me, I would predict a lovely inversion in arguments, as economists turn their attention to the advantages of price discrimination in digital markets. In the debate over the *creation* of intellectual property rights, critics yell “monopoly” and conjure up the image of both the static welfare losses and the dynamic innovation losses



that result from monopoly. The other side of the argument counters with the claim that intellectual property rights are not monopolies, merely property rights the exercise of which is chastened by the availability of substitute goods. When we turn to the argument over state aid for price discrimination, the critics switch sides, pointing out the many ways in which the leakiness of existing law and technology and the privileges given to users by intellectual property rights allow much information to be available at the price it would fetch in a perfectly competitive market; its marginal cost, namely zero. Defenders of price discrimination on the other hand, I would predict, will start from the assumption of strong monopolies and inadequate substitute goods; with these features, only price discrimination can prevent welfare losses.

So will the economic defense of price discrimination provide the justificatory rhetoric for the next (or perhaps the current) phase of intellectual property expansion? Certainly the fit is a beautiful one. The agenda of the content industries is to use state-backed digital fences to enclose both their own products and large chunks of the public domain, to use licensing contracts to increase their control of digital objects after the consumer gets access to them, and to rest these two methods on a new menu of expansive intellectual property protections. The economic analysis of price discrimination provides a cool and apparently objective reason why state aid for the first two projects would be not only profitable but efficient. I would predict therefore that among the mandarin class of policy analysts we will see much more of it, generally without the carping objections raised here.

What about more popular public debate? As I have tried to demonstrate elsewhere,⁵⁰ the romance with which we view authorial creation and the incentives/public goods story combine to provide a very powerful public rhetoric in support of expansive intellectual property rights. Will the analysis of price discrimination be the rhetorical superstructure for the public justification of the content industries' current initiative? There, I think the answer is probably no, though I am prepared to be surprised. Lay people often react to differential pricing for the same good with a sense of unfairness. No matter how many times they are lectured by the economists that it is actually to the benefit of all that producers be able to charge different prices to groups with different ability and willingness to pay, the popular reaction is normally "that's not fair."

50. See generally BOYLE, *supra* note 48.



Economists have tended to view this as a sign of the public's naive failure to understand market mechanisms. If the drug company can charge the poor nation a low price and the rich nation a high price for the same drug, all **will** be better off.⁵¹ It is better, then, that gray markets, parallel imports, and resale be prohibited. Popular resistance can be branded as a kind of economically illiterate Jacobinism.

There is certainly some truth to this depiction; there are indeed benefits to price discrimination under certain circumstances. But I would like to think that the popular skepticism towards price discrimination also reflects something much more rational. Lacking time to educate themselves in every aspect of market and culture, the public tends to be skeptical when an industry claims that expert opinion shows that what is good for the company will also be good for the nation, and that state aid in enforcing its desires will produce an economically efficient result. And you know what? Given the arguments reviewed in this Paper, I would say that the public has a point.

51. The actual world of drug patenting and pricing turns out to be less benign. Poor countries do not in fact necessarily pay less; pricing power may have something to do with volume discounts, the range of alternative drugs in different countries, and the degree of regulatory control with which the state can threaten the drug company. Sometimes at least, the story involves the very pattern I described in this Article; the granting of unnecessary intellectual property rights in the first place is then used as the premise that the drug company also deserves the support of the state and the international community in milking those rights. Critics can be described as economically illiterate, though the real option is not just arbitrage, but a competitive market in the production of a public domain drug. See Gregory Palast, *Keep Taking Our Tablets, (No One Else's)*, THE OBSERVER, July 23, 2000, at 7. Ironically, the United States, which has long argued that other countries should prohibit "parallel imports" and other attempts to get around price discrimination, is now moving towards allowing parallel imports of prescription drugs. See Lawmakers Mull Measures to Ease Imports of Prescription Drugs, CHEMICAL MARKET REPORTER, Sept. 25, 2000, at 36, 36.