

Vanderbilt Law Review

Volume 53

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

Article 23

11-2000

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Recommended Citation

Rochelle C. Dreyfuss, *Games Economists Play*, 53 *Vanderbilt Law Review* 1821 (2000)

Available at: <https://scholarship.law.vanderbilt.edu/vlr/vol53/iss6/23>

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Games Economists Play

*Rochelle Cooper Dreyfuss**

When Professor Reichman called me about this symposium, I was intrigued. With the successive introduction of the photocopy machine, the videotape, computerization, digitization, the Internet, as well as a host of biotechnological discoveries, the problems facing the creative industries have changed dramatically. This accumulation of developments has altered the economic foundations on which intellectual property law is based and has pushed those of us in the field into a period of reconceptualization in which economic analysis is particularly fruitful. Thus, I was quite taken with the idea of bringing intellectual property and economics scholars together to promulgate a research agenda and I was, of course, delighted to be asked to contribute my thoughts.

Before I set these out, I would like to begin with a question that may seem far afield, but which will, I believe, shed light on the agenda I propose. The question is this: why are there no continental lawyers here? Given Professor Reichman's prominence in international—particularly European—circles, it should seem quite puzzling. Or rather, it would be quite puzzling to me, but for my experience at the Max Planck Institute for Foreign and International Patent, Copyright and Competition Law in Munich, Germany. The Institute does wonderful, insightful work, including excellent empirical studies. But while there, I was struck by the paucity of interest in economic theory among its scholars. As one of my colleagues there explained, continental legal theorists certainly examine economic *facts*, but they are not of the view that economic

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theory has a large role to play in lawmaking. This thinking is, of course, very much at odds with the core premises of those assembled here, and I would like to take a moment to explore its basis.

One reason for the difference in views on economic analysis may be specific to intellectual property. The argument here would be that although Europeans can be as theory-oriented as Americans, continental thinking about intellectual property has traditionally focused on moral arguments—claims about the personality of the author and his intimate connection to his work.¹ In contrast, intellectual property regimes in the United States are constitutionally defined as resting on instrumental—economic—precepts.² As a result, economic analysis arguably has more to contribute here than it does abroad. But this cannot be the whole answer. It does not, for example, explain apparent continental indifference to the use of economic theory with respect to other legal issues, such as tort questions. Moreover, the rationales underlying intellectual property regimes are coalescing: as Professor Thomas Dreier has pointed out, there is more economics in continental rationales for protection than is usually acknowledged,³ and the TRIPS Agreement has brought these systems into even closer alignment.⁴ Thus, a mode of analysis that is utilized in the U.S. should now be relevant to Europe, even if it lacks intuitive appeal there.

A more general reason for the difference may have something to do with civil versus common law traditions. In civil law countries, judges are expert fact finders, but as to law, they are said to do no more than apply what the legislature has set out; there is no need for economic thinking because there is no room to deviate from statutory directives.⁵ Here, the situation is quite different:

1. See, e.g., Neil Netanel, *Alienability Restrictions and the Enhancement of Author Autonomy in United States and Continental Copyright Law*, 12 CARDOZO ARTS & ENT. L.J. 1 (1994).

2. See U.S. CONST. art. I, § 8 (authorizing Congress to enact exclusive rights to promote progress); *Mazer v. Stein*, 347 U.S. 201 (1954) (suggesting that economic incentives are set not to reward authors, but to serve the constitutional goal).

3. Thomas Dreier, *Balancing Proprietary and Public Domain Interests: Inside or Outside of Proprietary Rights*, in EXPANDING THE BOUNDS OF INTELLECTUAL PROPERTY: INNOVATION POLICY FOR THE KNOWLEDGE SOCIETY (Rochelle Cooper Dreyfuss et al. eds., forthcoming (hereinafter EXPANDING KNOWLEDGE)).

4. See Marrakesh Agreement Establishing the World Trade Organization, Annex 1C: Agreement on Trade-Related Aspects of Intellectual Property Rights, Dec. 15, 1993 [TRIPS Agreement], 33 ILM 81 (1994), reprinted in THE RESULTS OF THE URUGUAY ROUND OF MULTILATERAL TRADE NEGOTIATIONS—THE LEGAL TEXTS 6-19, 365-403 (GATT Secretariat ed., 1994); see also Uruguay Round Agreements Act, Pub. L. No. 103-465, 108 Stat. 4809 (1994).

5. See, e.g., Ottavio Campella, *The Italian Legal Profession*, 19 J. LEGAL PROF. 59, 60 (1994). Cf. *id.* at 62-63 (noting that Italian legal education is through lecture, not practice in applying law to facts).

common law judges do make law, and they have come to realize that it cannot be done well without input from other disciplines.⁶ But this cannot be the whole of the matter either. Judicial activism is another thing that is not often acknowledged abroad but exists anyway. Particularly as new technologies are introduced, continental judges are faced with questions that their legislatures could not have anticipated. Without an acknowledged law-making tradition to fall back on, economic thinking should be rather attractive to them, especially when the need for new law derives from the economic upheavals currently experienced by the information industries. Besides, legal scholars do not confine their influence to courts: the policymakers and bureaucrats writing new law for the European Union are rather obvious targets for economic analyses.

Of course, the enterprise of creating a union might itself account for some of the difference. In that environment, concerns about such matters as currency equalization and free movement of goods may crowd out the kind of economic analysis prevalent in U.S. circles. But since even the European Union's primary concerns would benefit from economic elucidation, it remains a mystery why economic theory has so little traction for Europeans.

My own view is that the explanation lies in another aspect of the civil versus common law distinction—a difference in the mode of reasoning which makes the formalism of certain kinds of economic theory more congenial to common law lawyers than to their civil counterparts. The kind of analysis I am thinking about starts with a model or a game: a stylized version of the facts, to which legal rules are applied, outcomes examined, and policy implications developed. Argument largely centers on whether the application of the rules to the model actually yields the results suggested, and on how to structure law to make the best use of the insights the model offers. The assumptions are then “relaxed”—that is, the facts of the model or game are altered—to see how far the insights of the model extend.⁷ From a formal standpoint, this enterprise actually has a great deal in common with the sort of appellate advocacy for which common law legal scholars, judges, and even most legislators, are trained. A trial court finds the facts; the appellate court tests a va-

6. See, e.g., MORTON J. HORWITZ, *THE TRANSFORMATION OF AMERICAN LAW, 1870-1960: THE CRISIS OF LEGAL ORTHODOXY* 169-92 (1992); KARL LLEWELLYN, *JURISPRUDENCE: REALISM IN THEORY AND PRACTICE* (1962); JOHN H. SCHLEGEL, *AMERICAN LEGAL REALISM AND EMPIRICAL SOCIAL SCIENCE* (1995); Herbert Hovenkamp, *Knowledge About Welfare: Legal Realism and the Separation of Law and Economics*, 4 MINN. L. REV. 805, 854-56 & n.162 (2000).

7. See, e.g., Lewis A. Kornhauser & Richard L. Revesz, *Multidefendant Settlements: The Impact of Joint and Several Liability*, 23 J. LEGAL STUD. 41 (1994).

riety of legal rules on the facts and chooses the one that best furthers policy. Outcomes are questioned in just the same way as the outcomes of modeling: were they properly assessed; was the best way to further policy chosen? And, just as economists relax assumptions to see how far their analyses stretch, so too common lawyers use a series of fact-altering hypotheticals to determine how far the chosen legal rule should extend.

Presenting common law lawyers with a model is, in other words, not too different from presenting them with a case. The model's teachings are easily incorporated into the common law because acting on the basis of a model feels little different to a common law jurist from being persuaded—or bound—by a prior case. Civil lawyers are not as accustomed to case-by-case adjudication; they do not explicitly consider how the outcome of one case affects another. Reasoning there is more deductive than analogical, and so it should be no surprise that they would find it hard to incorporate economic modeling into their lawmaking.⁸

If this is true—if economic analysis appeals to American lawyers partly because of its kinship to common law methodology—then there are several implications for law and economics. One is that the subjects of modeling need to be chosen carefully: if models have special salience for legal thinkers, then it is important to be offering models that are geared to the issues lawyers are thinking about. To put this another way, the field of intellectual property has, in one sense, been especially blessed by the attention of economists. But the attention has come from features of intellectual property law (such as its clear economic basis) that make for “cool” models; the questions examined are the ones where the mathematics has been worked out or the economic data necessary to use the model are most readily available.⁹ These are not, unfortunately, always the areas where a readily utilizable analysis is especially needed. Thus, a great deal of work has been done on the economics of motivating people to engage in risky innovation—to move from the conception of a difficult problem to the commercialization of an end product.¹⁰ Much less effort has been devoted to the more prosaic

8. I do not mean to say that this is the entire reason that American legal theorists are currently so attracted to economics; for a more comprehensive intellectual history, see Hovenkamp, *supra* note 6.

9. Cf. e.g., Zvi Griliches, *Productivity, R&D, and the Data Constraint*, 84 AM. ECON. REV. 1, 14 (1994).

10. See, e.g., F.M. Scherer, *The Innovation Lottery: The Empirical Case for Copyright and Patents*, in EXPANDING KNOWLEDGE, *supra* note 3; Henry G. Grabowski & John M. Vernon, *Pio-*

businesses of marginal (or, as Reichman puts it, small grain¹¹) advances or moving product from lab bench to marketplace—investments that cannot be protected with patents.¹² Emerging industries attract attention;¹³ the needs of maturing industries—indeed the question whether mature industries have different legal needs from emerging ones—have been largely ignored.¹⁴ Phenomena that generate data, like collective rights organizations, are amply studied;¹⁵ amorphous doctrines, such as fair use, which have enormous legal significance but little by way of hard facts, do not receive as much attention from pure economists.¹⁶ Revising the criteria for choosing projects to make the need for attention a paramount consideration would go a long way to putting economists' input to better use within the legal community.¹⁷

There is a second, and to my mind, more important implication of seeing common law jurisprudence as particularly susceptible to economic analysis. It lies in making sure that the common features of the formalism in common law and in economics do not ob-

neers, *Imitators, and Generics—A Simulation Model of Schumpeterian Competition*, 102 Q. J. ECON. 491 (1987).

11. See Jerome Reichman, *Of Green Tulips Legal Kudzu: Repackaging Rights in Subpatentable Innovation*, 53 VAND. L. REV. 1743 (2000).

12. See, e.g., Ignatius Horstmann et al., *Patents as Information Transfer Mechanisms: To Patent or (Maybe) Not to Patent*, 93 J. POL. ECON. 837 (1985) (noting that, generally, non-patent oriented behavior is not studied enough); Brian D. Wright, *The Economics of Invention Incentives: Patents, Prizes, and Research Contracts*, 73 AM. ECON. REV. 691 (1983).

13. See, e.g., Rebert P. Merges & Richard R. Nelson, *On the Complex Economics of Patent Scope*, 90 COLUM. L. REV. 839, 884-97 (1990) (discussing the effect of broad-scoped pioneer patents on subsequent innovations in various industries); Lloyd L. Weinreb, *Copyright for Functional Expression*, 111 HARV. L. REV. 1149, 1151 n.4 (1998) (surveying the extensive literature on the copyrightability of computer programs).

14. See generally Steven Klepper, *Entry, Exit, Growth, and Innovation over the Product Life Cycle*, 86 AM. ECON. REV. 562 (1996).

15. See, e.g., Stanley M. Besen et al., *An Economic Analysis of Copyright Collectives*, 78 VA. L. REV. 383 (1992); Rebert P. Merges, *Contracting into Liability Rules: Intellectual Property Rights and Collective Rights Organizations*, 84 CAL. L. REV. 1293 (1996).

16. For example, a search on "fair use" in the economics journals in the JSTOR database (which is, admittedly, limited and time bound) provides 19 hits—many fewer than virtually any issue in patent law. This is not to say that there is a lack of economic analysis in the legal literature. See, e.g., William W. Fisher III, *Reconstructing the Fair Use Doctrine*, 101 HARV. L. REV. 1661 (1988); Wendy Gordon, *Fair Use as Market Failure: A Structural and Economic Analysis of the Betamax Case and Its Predecessors*, 82 COLUM. L. REV. 1600, 1602-05 (1982).

17. Of course, there is another problem with economic analysis: it misses the implications of nonmonetizable values. This is a problem that Laurence Tribe identified in environmental law literature. See Laurence H. Tribe, *Ways Not to Think About Plastic Trees: New Foundations for Environmental Law*, 83 YALE L.J. 1315 (1974). The issue, however, is for lawyers using economic analysis, not for economists themselves. Cf. James Boyle, *A Politics of Intellectual Property: Environmentalism for the Net?*, 47 DUKE L.J. 87 (1997) (arguing for a movement among user groups for effective regulation of the information "environment" akin to the movement that produced environmental protection legislation). See also Fisher, *supra* note 16, at 1697-98.

scure a crucial distinction between the two. Common law's analogic reasoning looks at how particular rules play on specified facts; it is not terribly relevant whether the facts leading up to the rule matched the historical truth about the case where the rule was articulated. This is not so when law is derived from models—there, underlying facts matter. Consider Case X, in which an appellate court articulated Rule 1. A court considering whether to apply Rule 1 to the facts of Case Y may review the facts of Case Y (probably on a deferential basis¹⁸). However, the wisdom of applying Rule 1 to the case is entirely independent of whether the facts of Case X were rightly determined. The court asks, given how Rule 1 was used under the facts as we have them in X, how should Y come out?

In contrast, the insights of a model are entirely contingent on what underlies it. Whether Rule 2, derived from an economic model, should be applied to Case Y depends on what underlies the *model*—whether it captures the critical elements of the issue common to X and Y, and whether its assumptions are valid. Thus, the court should not treat the decision to apply Rule 2 in exactly the same way as it treats the decision to apply Rule 1: it needs to examine the factual basis of Rule 2 in a way it does not need to examine the facts underlying Rule 1. To the extent the commonality of the formalism obscures that point to lawyers using models, the economists who develop the models must take up the slack. They must be the ones to examine the model's underlying facts and assumptions before they promulgate them as solutions to legal problems.

There are many examples of issues that could use further development along these lines. But where I would most like to see more scholarship focus is in work on bargaining. As it happens, there are many issues arising in intellectual property law—the need for compulsory licensing, the scope of patent claims, the standard of inventiveness—that would benefit from an understanding of when transactions are likely to occur. In a sense, there are now two camps: transactional optimists, exemplified by the likes of Professors Rob Merges and Suzanne Scotchmer,¹⁹ who believe that with strong, clear rights, bargaining will generally occur, and transac-

18. See, e.g., FED. R. CIV. P. 50, 52-53.

19. See, e.g., Robert P. Merges, *Of Property Rules, Coase, and Intellectual Property*, 94 COLUM. L. REV. 2655, 2675-58 (1994); Suzanne Scotchmer, *Protecting Early Innovators: Should Second-Generation Products Be Patentable?*, 27 RAND J. ECON. 322 (1996); Suzanne Scotchmer, *Standing on the Shoulders of Giants: Cumulative Research and the Patent Law*, 5 J. ECON. PERSPECTIVES 29 (1991).

tional pessimists, such as Professors Rebecca Eisenberg and Pamela Samuelson, who think law should be shaped by the concern that agreements will not always take place easily.²⁰ Right now, the state of play is that the optimists are winning. The Digital Millennium Copyright Act and the Uniform Computer Information Transactions Act are just two examples of laws structured on the optimistic view: they provide very little by way of public interest safeguards on the theory that access interests can be taken care of through bargaining.²¹ Yet there has been very little examination of the assumptions underlying the pro-transaction model.

What I believe has happened is that economists have done an excellent job analyzing prisoners' dilemmas—situations involving information asymmetries, where the models (correctly) predict that it will be difficult for participants to coordinate their efforts for mutual benefit. The success here has, however, led to a certain complacency about dealing with the converse situation, where information is symmetrically disposed. But the fact that informational asymmetry leads to transactional difficulty does not imply that transactions will always be easy so long as information is equally available to all participants.

In fact, many intellectual property situations involve such dealings—transactions between the owners of complementary patent assets, such as a pioneer patentee and the holder of a patent on an improvement; the patentee of a partial genomic sequence and the party with a patent on the other part, or on an effective delivery vector; the firm with a pharmaceutical patent and the holder of the orphan drug right on the same compound. Each situation involves, essentially, a bilateral monopoly. Because patents disclose, both sides have similar information about the inventions and their potential uses; there is no (or very little) private information. Most importantly, there are clear gains from trade. That is, both sides know there is value in putting their rights together to create a single monopoly, and both sides know that if they fail, the value is (near) zero. In these situations, transactional optimists (most of

20. See, e.g., Michael A. Heller & Rebecca S. Eisenberg, *Can Patents Deter Innovation? The Anticommons in Biomedical Research*, 280 SCI. 698 (May 1, 1998); Pamela Samuelson & Robert J. Glushko, *Intellectual Property Rights for Digital Library and Hypertext Publishing Systems*, 6 HARV. J.L. & TECH. 237 (1993).

21. Digital Millennium Copyright Act, Pub. L. No. 105-304, 112 Stat. 2860 (1998) (adding 17 U.S.C. §§ 1201-05); Uniform Computer Information Transactions Act ("UCITA"), available at http://www.law.upenn.edu/bll/ulc/ulc_frame.htm. See generally, Raymond T. Nimmer, *Breaking Barriers: The Relation Between Contract and Intellectual Property Law*, 13 BERKELEY TECH. L.J. 827 (1998).

whom are economists) predict a bargain will be struck; yet (as the lawyers who largely make up the pessimist camp know), we do not always observe these trades occurring.²² Often there is no agreement at all, or the agreement is much delayed. In the case of patents, it is sometimes so far into the patent term that significant value is dissipated.

There are several reasons why lawyers' and industries' actual experiences might differ so sharply from what economic analysis would predict. Clearly, one problem is valuation. Prisoners' dilemmas are not very sensitive to the values each player attaches to outcomes. Over a broad range of values, these models will correctly predict when there will be a problem coordinating behavior (indeed, the uncertainty over value probably increases the likelihood of a problem). But as Eisenberg's work tends to show, it may be that in "nondilemmas"—that is, when outcomes (the inventions produced by experimentation) are known, valuation problems matter a great deal.²³ Current models may not be accounting for this level of sensitivity to accuracy.

Outlook is another factor that might make a difference. Transactional optimists tend to base their views on experiences with tangibles, such as water and cattle.²⁴ The participants in these arrangements share expectations and enjoy a common understanding of background rules. These factors may make it easier for them to reach agreement than it is for actors in the innovation industries, who will often come from different disciplines and not be situated in geographic proximity.²⁵

And then there is the issue of repeat play: models that count on repetitive situations (the kind that produce standard contracts, tailored solutions, and an etiquette for bargaining) may not be apt for analyzing innovation, where there are many one-off deals and where it may not make financial sense to invest effort in predicting what could happen or in negotiating over every contingency.

22. Cf. Steven Shavell & Tanguy Van Ypersele, *Rewards versus Intellectual Property Rights* (proposing a system of federal payment for patentable inventions as a way to avoid transaction problems of the type described in text), available at http://papers.ssrn.compaper.taf?ABSTRACT_ID=145292.

23. See Heller & Eisenberg, *supra* note 20.

24. Frequently cited are works such as ELINOR OSTROM, *GOVERNING THE COMMONS: THE EVOLUTION OF INSTITUTIONS FOR COLLECTIVE ACTION* 1 (1990) (water rights) and Robert C. Ellickson, *Of Coase and Cattle: Dispute Resolution Among Neighbors in Shasta County*, 38 *STAN. L. REV.* 623 (1986) (land and cattle).

25. See, e.g., Rochelle C. Dreyfuss, *Collaborative Research: Conflicts on Authorship, Ownership, and Accountability*, 53 *VAND. L. REV.* 1161 (2000).

In any event, my point here is not to criticize particular models and certainly not to offer instructions on how to conduct economics research (it is not my field, and likely there are many features that I have not discussed that will turn out to matter). Nor do I think there is a real choice between transactional pessimism and optimism. Rather, I want to suggest that if greater attention is paid to bargaining in the presence of information symmetry, it should be possible to figure out when optimism is justified and when it is not, and to find ways to facilitate transactions when circumstances warrant the adoption of a pessimistic attitude. Such an understanding would be a big help to those in the legal community who have taken on the task of fashioning rules that promote the optimum usage of intellectual production.

CONCLUSION

Many of the advances posing great challenge to intellectual property theory result from the confluence of developments within previously separate disciplines—biology and chemistry, computer science and business. Meeting these challenges will likewise require cross-disciplinary interchange. This symposium is, hopefully, the beginning of that process for intellectual property lawyers and economists interested in innovation.

