Too Many Markets or Too Few? Copyright Policy toward Shared Works

Michael J. Meurer*

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* Associate Professor of Law at Boston University School of Law, meurer@bu.edu. I thank Bob Bone, Harry First, Wendy Gordon, Mark Lemley, Peter Menell, Maureen O'Rourke, Dianne Zimmerman, and participants at the Canadian Law and Economics Association meeting, the Intellectual Property Scholars Conference at Cardozo Law School, the International Industrial Organization Conference, the George Washington Law School IP workshop, the NYU Law School Colloquium on Innovation Policy, the Society for Economic Research on Copyright Issues (2003 Congress), the USC Law, Economics & Organization workshop, the University of Toronto Faculty Workshop, and the Washington University Law School Faculty Workshop for their helpful comments. I also thank Tariq Ashrati for able research assistance.

INTRODUCTION

The lawfulness of "sharing"[1] copyrighted works has always been contested,[2] but never so hotly as it is today. The marriage of digital technology and information products creates remarkable opportunities for digital file-sharing,[3] and new disputes asking when copyright law should give copyright owners control over sharing of copies of their works.[4] This Article broadens the terms of the sharing debate by recognizing file-sharing is just one member of a diverse set of sharing behaviors that occur in copyright protected markets. Books and recorded movies are shared by lending — books are lent by public libraries at no charge, while movies are rented for a fee. Owners of copyrighted works often share their copies by performing them for an audience. The audience might be children listening to a bedtime story, friends watching a recorded movie together, patrons at a bar listening to recorded music, etc. Finally, users share many sorts of works via private reproduction using computers, video and audio recorders, photocopiers and scanners.

Copyright law specifies a mixed pattern of rights over sharing. Copyright owners have worked effectively to gain control of many forms of sharing, but powerful business groups have defended users' sharing rights as a means of advancing their business interests.[5] The two sides have wrestled in Congress and the courts over the scope of

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[1] Part I of the Article defines sharing and discusses examples in more detail. It also comments on the relationship of sharing to piracy.

[2] Before the internet, sharing controversies arose because of reproductions made with photocopiers and videotape machines, *see infra* text accompanying notes x, because of commercial music, software, and videotape rental, *see infra* text accompanying notes x, and because of public performance of music, *see infra* text accompanying notes x.

[3] Music file-sharing is the most popular new form of sharing. An estimated 40 million Americans swapped music over the internet in March 2003. *See* Ipsos-Insight, *Legal Issues Don't Hinder American* Downloaders (Mar. 14, 2003), *at* http://www.ipsos-pa.com/dsp_displaypr_us.cfm?id_to_view=1763. Movie file-sharing is becoming popular and video files now account for an estimated 21 % of all shared files, but such movie sharing is currently limited by the fact that a movie file can take from one to twelve hours to download. *See* Associated Press, *Getting Illegal Movies For Free Has Never Been Easier* (May 25, 2003), *available at* http://www.macon.com/mld/macon/news/local/5943833.htm. Movies and music are also copied and exchanged on CDs and DVDs. *See id*. Software is copied and shared over the internet and over local computer networks. *See* Andrew Graham *Illinois State U.: Study Examines Technology Piracy Worldwide,* The Daily Vidette, Jan. 2, 2002 *available at* 2002 WL 100287912. Finally, "individuals can create personal online 'radio' stations, transmitting their music selections to anyone on the Internet who cares to listen." *See* Neil Weinstock Netanel, *Impose a Noncommercial Use Levy to Allow Free P2P File-Swapping and Remixing,* Public Law and Legal Theory Research Paper No. 044, Univ. Tex. L. Sch., Nov. 2002, *available at*: http://ssrn.com/abstract_id=35256025.

[4] Lawsuits by the music industry have derailed Napster and other music file-sharing services, *see* A&M Records v. Napster, Inc., 284 F.3d 1081 (9th Cir. 2002); In re Aimster Copyright Litigation*,* No 01 C 8933, 2002 WL 31006142 (N.D. Ill. Sept 4, 2002), nevertheless music file-sharing continues apace, *see supra* note 3. Copyright owners hope that digital rights management technology aided by the Digital Millennium Copyright Act will eventually control file-sharing. *See infra* text accompanying notes x. They are also pressing Congress to require digital equipment makers to build safeguards into consumer products that discourage copying and sharing of copyrighted works. *See infra* text accompanying note x. Equipment makers and internet service providers indirectly benefit from sharing because it increases demand for their products and services. They have resisted measures to control sharing; they characterize the measures as costly and intrusive regulation. *See infra* note x.

[5] x.

various copyright provisions,[6] especially the fair use doctrine, the main arena for conflict over sharing rights, and the main focus of this Article.[7]

The received wisdom regarding copyright policy toward sharing explains fair use as a response to market failure.[8] Wendy Gordon illustrated the logic of the market failure analysis with the example of a teacher who makes last-minute photocopies of a text to share with her class.[9] Gordon argued the teacher should be protected from a copyright infringement suit by the fair use defense because there is no market for spontaneous photocopies. Insurmountable transaction costs prevent a teacher from seeking permission from the copyright owner and therefore cause market failure.[10] Fair use is socially desirable in this case because the seller does not lose any profit from sharing and consumer surplus rises because of the unauthorized use. The transaction cost theory has been embraced by courts and commentators,[11] but lately has come under attack on the view that digital technology is removing impediments to transactions, and thus undercutting this rationale for fair use.[12] The rationale is also limited by the possibility that fair use will discourage the development of licensing markets and institutions that reduce transaction costs.[13]

This Article presents a new account of sharing and fair use that incorporates the transaction cost approach but discards the market failure orientation.[14] An emphasis on market failure is misleading. The absence of a market for spontaneous photocopies does not represent a market failure, if (as seems likely) librarians indirectly account for the

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[6] The reproduction right, the performance right, the first sale doctrine, and rights regarding circumvention of copyright protection systems.

[7] x.

[8] *See generally* Wendy Gordon, *Fair Use as Market Failure: A Structural and Economic Analysis of the Betamax Case and Its Predecessors*, 82 COL. L. REV. 1600 (1982) (applying market failure theory to sharing and also a variety of individual uses) [hereafter Gordon, *Betamax*]; Wendy J. Gordon, *The "Market Failure" Trope and the Future of IP Scholarship: A Response to Professor Lunney,* 82 B.U.L.REV. 1031, 1031-34 (2002) (noting the central role of market failure in fair use analysis and urging commentators to remember that market failure includes more than high transaction costs) [hereafter Gordon, *Trope*].

[9] *See* Gordon, *Betamax*, *supra* note 17, at 1628.

[10] *Id*. Gordon argued that the law should allow buyers to share without permission when: (1) transaction costs block a market transaction with one of the sharing users; (2) the use made possible by sharing is socially desirable; and (3) sharing does not have deleterious consequences for the incentive to create the copyrighted work. *Id.* at 1614-22. She has relaxed her insistence on the third factor, and might now support a finding of fair use even if there a substantial injury to the copyright owner from the use in question. *See* Wendy J. Gordon, *The "Market Failure" Trope and the Future of IP Scholarship: A Response to Professor Lunney,* 82 B.U.L.REV. x, x (2002).

[11] *See* Amer. Geophysical Union v. Texaco, 60 F.3d 913 (2nd Cir. 1994); Princeton University Press v. Michigan Document Services, Inc., 99 F.3d 1381, 1392 (6th Cir.1996); Gordon [I'm not sure which Gordon paper you wanted me to insert here] *supra* note 17. *Cf.* Agreement on Guidelines for Classroom Copying in Not-for-Profit Educational Institutions with Respect to Books and Periodicals, H.R.Rep. 94-1476 at 68-71(1976), *reprinted in* U.S.C.C.A.N. 5659, 5681-5684.

[12] *See* Gordon, *Betamax, supra* note 17, at 1621 (noting that transaction costs might decline over time). *See infra* note x.

[13] *See* Gordon, *Betamax*, *supra* note 17, at 1620-21. *See infra* note x.

[14] *Cf.* Gordon, *Trope*, *supra* note 17, at 1034 (expressing disappointment with "the way the market failure approach has grown-up, or rather grown-down, since the publication of my original piece.") Glynn Lunney objects to the market failure approach to fair use and argues for a public goods approach to fair use. *See* Glynn S. Lunney, Jr., *Fair Use and Market Failure: Sony Revisited,* 82 B.U.L. REV. 975, 996 (2002) ("Because of the public good character of copyrighted works, the private rights that copyrights creates will lead inevitably to market failure.")

value created by spontaneous photocopying when they purchase texts for the library.[15] The library as a locus of sharing also plays an important role in reducing transaction (and other) costs.[16] If teachers faced high transaction costs when they tried to make a last-minute photocopy in a library, then it would be proper to say there was a market failure. The real issue is whether copyright owners have the right to compel direct negotiations with each teacher, or whether instead they have to be content to deal with an intermediary.[17] In other words, application of fair use impairs the ability of a copyright owner to control sharing and shape the market.[18]

Proper analysis of sharing requires attention to the ways copyright law shapes markets.[19] It also requires an analytic framework that identifies the gains and losses to

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[15] The introduction of the photocopier increased sharing of academic journals in libraries which caused publishers to increase the price of library journal subscriptions relative to individual subscriptions. *See* Stan J. Leibowitz, *Copying and Indirect Appropriability: Photocopying of Journals*, 93 J. POL. ECON. 945 (1985).

[16] *See infra* text accompanying notes x.

[17] *See* Amer. Geophysical Union v. Texaco, 60 F.3d x, x (2nd Cir. 19xx). *Cf.* Gordon, *Betamax*, *supra* note 17, at 1649 (discussing collective rights organizations and noting "conventional one-on-one bargaining is not the only alternative…").

[18] Fisher analyzes the market effect of sharing in Sony and raises the question of how broadly the market should be defined. *See* William W. Fisher, III, *Reconstructing the Fair Use Doctrine*, 101 HARV. L. REV. 1661, 1669-70 (1988). The facts of Sony contain two complications I want to sidestep. First, *Sony* presented a question about personal copying and not a question of sharing. The time-shifting use emphasized by the *Sony* Court involved reproduction for the direct benefit of the viewer, not for the purpose of sharing the movie with a friend or family member. Second, viewers do not pay for television broadcasts. Casette audio taping of music is easier to discuss. Copyright scholars assume that it is fair use for a consumer who purchases a record to make a cassette tape recording of the record. The consumer can use the cassette in her car or give the cassette to a friend. The first use is outside the scope of this Article, because there is no sharing. But the same copyright policy question is present. Should copyright law give the seller the right to control the space-shifting? Should there be a space-shifting market? Once again, it makes no sense to say the market fails to exist. The consumer purchased the record. The real question is whether the consumer should have to transact separately for the record and the right to make a cassette recording. These issues are discussed in Michael J. Meurer, Intellectual Property and Vertical Restraints: Beyond Antitrust, Minn L. Rev. (2003).

The market failure issue was addressed by the Supreme Court in the context of the public performance right. In two cases decided before the 1976 copyright revisions, the Court held that cable systems did not perform by retransmitting television signals and hence they did not violate the copyright performance right. *See* Fortnightly Corp. v. United Artists Television, Inc., 392 U.S. 390 (1968); Teleprompter Corp. v. CBS, Inc., 415 U.S. 394 (1974). As a result of these decisions, movie copyright owners could not negotiate directly with cable television companies over cable television movie transmissions. They were limited to negotiations with television broadcasters. The 1976 statute overturned these decisions by imposing liability on cable companies, and also creating a compulsory licensing scheme. "From the point of view of the copyright holders, such market changes will mean that the compensation a broadcaster will be willing to pay for the use of copyrighted material will be calculated on the basis of the size of the direct broadcast market augmented by the size of the CATV market." Teleprompter at 413. (rejecting copyright owner's concern about the "deleterious impact of such retransmission upon the economics and market structure of copyright licensing.") Teleprompter at 410-11. Teleprompter at 411-12 (emphasizing that increasing the audience for commercial television through cable retransmission was beneficial to copyright owners).

[19] Certain forms of sharing have been thoughtfully analyzed under the copyright fair use doctrine, *See infra* text accompanying notes x, but failure to appreciate fully the economic implications of sharing has impeded policy analysis. Recognition that sharing is regulated by other copyright doctrines (such as the first sale doctrine, and the public performance right) is also very recent. *See* Meurer, *Price Discrimination,*

copyright owners and users operating under the different market forms that can be sustained by different versions of copyright law.[20] My framework will help judges avoid two mistakes that a market failure orientation invites. First, some judges overemphasize transaction costs and fail to appreciate the reasons to apply fair use to sharing even when negotiation and payment costs are zero.[21] One reason is well known; sharing that generates positive externalities may be treated as a fair use in order to subsidize it.[22] This Article shows that fair use can be justified even in the absence of transaction costs and positive externalities.[23] Second, some judges lose track of copyright's objective, encouraging production and distribution of works of authorship, and concentrate too much on simply curing market failure. In some cases it is appropriate to deny fair use to encourage the development of institutions that reduce transaction costs and cure market failure.[24] In other cases fair use should be used to discourage the development of socially

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supra note 5, at 109-16 (public performance right); Meurer, *Vertical Restraints, supra* note 5, at x (first sale doctrine).

[20] Judicial and scholarly analysis of sharing is fragmented and incomplete. Copyright commentators barely recognize the extent and importance of sharing. For recent discussions of sharing copyrighted works *see* Michael J. Meurer, *Price Discrimination, Personal Use and Piracy: Copyright Protection of Digital Works,* 45 Buff. L. Rev. 845, 880-82 (1997) [hereafter Meurer, *Digital Works*]; Michael J. Meurer, *Copyright Law and Price Discrimination,* 23 CARDOZO L. REV. 55, 132-40 (2001) [hereafter Meurer, *Price Discrimination*]; Michael J. Meurer, *Vertical Restraints and Intellectual Property: Beyond Antitrust,* 87 MINN. L. REV. forthcoming (2003) [hereafter Meurer, *Vertical Restraints*]; Michael J. Madison*, Sharing and Copyright: Language and Practice,* unpublished manuscript on file with author (2002). For two articles in the economic literature that exploring sharing broadly *see* Yannis Bakos, Eric Brynjolfsson and Douglas Lichtman, *Shared Information Goods*, 42 J. LAW & ECON. 117 (1999) and Hal Varian, *Buying, Sharing and Renting Information Goods*, 48 J. INDUSTR. ECON. 473 (2000). The extensive literature on copyright law and file-sharing generally does not discuss sharing of copyrighted works outside the file-sharing context. *See e.g.,* Deborah Tussey, *From Fan Sites to Filesharing: Personal Use in Cyberspace*, 35 GA. L. REV. 1129 (2001); Raymond Ku, *The Creative Destruction of Copyright: Napster and the New Economics of Digital Technology,* 69 U. CHI. L. REV. 263 (2002).

[21] *See infra* text accompanying notes x.

[22] *See* Sony, 446 U.S. at 477-480 (J. Blackmun? dissenting); Gordon, *Betamax*, *supra* note 17, at 1630; Robert P. Merges, *The End of Friction? Property Rights and the Contract in the "Newtonian" of On-Line Commerce,"* 12 BERK. TECH. L. J. 115 (1997); Lydia Pallas Loren, *Redefining the Market Failure Approach in an Era of Copyright Permission Systems,* 5 J. INTELL. PROP. L. 1, 49-53 (1997).

[23] *See infra* text accompanying notes x. Fair use has been justified on a variety of other grounds. *See* Gordon, *Betamax*, *supra* note 17, at 1632 (anti-dissemination motive); Neil Netanel, *Locating Copyright Within the First Amendment Skein*, 54 STAN. L. REV. 1 (2001) (protection and promotion of speech and the press); C. Edwin Baker, *First Amendment Limits on Copyright,* 55 VAND. L. REV. 891 (2002) (same); Sega v. Accolade, 977 F.2d 1510 (1992) (promotion of efficient market structure); Pamela Samuelson & Suzanne Scotchmer, *The Law and Economics of Reverse Engineering*, 111 YALE L.J. 1575 (2002) (same); Ben Depoorter & Francesco Parisi, Fair Use and Copyright Protection: A Price Theory Explanation, 21 Int'l Rev. L. & Econ. 453 (2002) (inefficient pricing of complementary copyrighted inputs). None of these justifications seems to apply to sharing that is allowed as fair use. Wendy J. Gordon, *Excuse and Justification in the Law of Fair Use: Commodification and Market Perspectives*, in THE COMMODIFICATION OF INFORMATION: SOCIAL, POLITICAL, AND CULTURAL RAMIFICATIONS 149 at x (Neil Netanel & Niva Elkin-Koren eds.) (2002)

On the other hand, fair use may be inappropriate even though transaction costs are high. Corporate photocopying generally should not be fair use despite the presence of high transaction costs created by spontaneous use within a corporation. *See infra* text accompanying notes x.

[24] The Copyright Clearance Center is a valuable institution for administering corporate photocopying licenses. *See infra* text accompanying notes x.

wasteful institutions and redundant markets. Too many markets can be as harmful as too few.[25]

The Article contains six parts. Part I describes different ways that users share copyrighted works, and how copyright law influences sharing. Parts II and III explore the relationship between sharing and profit. Part II builds a model of sharing and uses it to identify four aspects of sharing that effect a copyright owner's profit.[26] Part III examines the historical record for evidence indicating when sharing increases or decreases profit. The results from part II and part III will improve the market effect analysis required in fair use cases. Courts tend to focus too narrowly on lost sales (and licensing revenue) when they assess market effects. Sharing usually does cause sales to fall, but the effect on profit is not so clear. Sellers can raise their price in the face of sharing because consumers are willing to pay more for products that can be shared.[27] A seller's price response to sharing offsets the effect of lost sales, and profit can rise or fall.[28] The easiest way to see this point is to suppose that all potential end-users of a product have the same valuation, V, for the product. Also suppose that the marginal cost of producing and distributing the product is zero. In a world without sharing, the seller could set a price of V and earn a profit of V per end-user. In a world in which every potential end-user paired up and shared with one other end-user, the seller could set a price of $2V$ and once again earn a profit of V per end-user. Despite cutting sales by fifty percent, the combined effect of sharing and the pricing response is to leave profit unchanged.[29] Parts II and III flesh out this simple story and show that sharing can be a blessing or a curse for copyright owners.

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[25] *See* Texaco, 60 F.3d. at 937 (dissenting). For a background discussion of the concept of market failure and an explanation why creating too many markets is socially harmful *see* John O. Ledyard, *Market Failure,* 187 in THE NEW PALGRAVE: ALLOCATION, INFORMATION, AND MARKETS, eds. JOHN EATWELL, MURRAY MILGATE, & PETER NEWMAN (1989) ("Curing one form of market failure can lead to another.") This is different from the tragedy of the anti-commons that arises when too many property rights are created. *See* Michael A. Heller & Rebecca S. Eisenberg, *Can Patents Deter Innovation? The Anticommons in Biomedical Research,* 280 SCIENCE 698 (1998). The tragedy of the anti-commons causes under-utilization of intellectual property because of hold-out problems and other costs arising from assembling fragmented property rights. The inefficiencies discussed in this Article arise from concentrating "too many" rights in the hands of a single copyright owner.

[26] This Article develops a simple economic model that unifies the analysis of copyright policy toward sharing. My approach is similar to that used in two earlier articles. *See* Bakos, et al., *supra* note 5; Varian, *supra* note 5. Bakos, Brynjolfsson and Lichtman analyze sharing of software and digital content. Varian analyzes sharing of copyrighted works via video rental, resale, site licensing, and library lending. This Article mainly addresses the copyright policy implications of sharing. The earlier articles mainly address the positive question of what effect does sharing have on profit. This Article also incorporates a more extensive treatment of transaction costs and price discrimination than the earlier articles.

[27] *See* Colin C. Haley, *Buyers Would Pay More to Copy Digital Music,* INTERNETNEWS.COM, Mar. 14, 2003, *available at:* http://boston.internet.com/news/article.php/2109811 (reporting that survey of 1700 consumers by Jupiter Research reveals that consumers are willing to pay significantly more for movies and music that can be copied).

[28] *See* Stan J. Leibowitz, *The Impact Of Reprography On The Copyright System*, Copyright Revision Studies, Bureau of Corporate Affairs, Ottawa, 1981, *available at:* http://papers.ssrn.com/sol3/papers.cfm?cfid=565423&cftoken=13632430&abstract_id=250082; Leibowitz, *supra*, note 23, at 56; Meurer, *Digital Works*, *supra* note 5, at 881; Meurer, *Price Discrimination, supra* note 5, at 138-40; Tussey, *supra* note 5, at 1177-78.

[29] If the users who receive shared copies were not in the market before sharing, then sharing does not hurt profit and might increase it. *See* Stan Leibowitz, *Policing Pirates in the Networked Age*, CATO POLICY ANALYSIS No. 438 at 4 (May 15, 2002) *available at*: http://www.cato.org/pubs/pas/pa-438es.html.

Parts IV, V and VI explore the limits of a presumption favoring copyright owner control of sharing that arises from economic analysis.[30] Copyright owners favor control over sharing because control adds to their profit. They can justify this policy on the grounds that it maximizes the incentive to create copyrighted works. Furthermore, the profit motive usually guides owners to make socially optimal decisions about whether to authorize sharing. Generally, socially valuable forms of sharing increase the size of the copyright pie, and owners will allow such sharing and claim a larger portion of the pie. Similarly, owners will block socially harmful forms of sharing that shrink the size of the pie and threaten profit.

Despite the merit of these arguments, copyright law allows users to engage in many types of sharing without getting permission.[31] Consider, for example, sharing made possible by the VCR. Hollywood lost two contests for control over videotape in the 1980s. First, the Supreme Court decided private videotaping of televised movies is not infringing under the fair use doctrine.[32] And second, Congress refused to prohibit unauthorized commercial rental of videotapes.[33] This Article will show that a more sophisticated economic analysis of sharing largely explains these departures from a policy of owner control.

Sound analysis sets aside the presumption in favor of owner control when there is reason to believe that the copyright owner's profit incentive is misaligned with the social interest in social welfare maximization.[34] Unfortunately, copyright owners may exercise control over sharing in a way that raises their profit but also decreases the size of the pie. Owner control may be socially harmful (1) when the owner blocks socially valuable sharing because it is unprofitable and (2) when the owner inefficiently distorts the nature of sharing to gain more profit.

Misalignment of private and social incentives is necessary but not sufficient to make the case for users' right to share. A complete case for a right to share requires attention to the trade-off between the social value from broad access to copyrighted

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[30] The presumption arises from the standard view in economics that a seller will choose marketing practices that maximize total surplus so that the seller can maximize profit. For an example of an electronic publisher that explicitly permits certain kinds of sharing in it license see the BNA Internet Law registration form at http://www.bna.com/ilaw/terms.htm. ("BNA will distribute one (1) direct E-mail message per registered recipient. The recipient may forward the E-mail Service(s) to colleagues, students and friends and encourage them to register to receive their own personal copy of this complimentary e-mail service.") Whether this presumption forms a good foundation for policy toward sharing is debatable. Perhaps copyright owners are not always rational when making decisions about sharing. The movie industry opposed video rental, but has profited enormously from that form of sharing. *See* Retail Industry *Video Rental and Sales Revenue Statistics* (last visited Jun 5, 2003) (Americans spent $7 billion on VHS rentale and $1.6 billion on video rentals in 2001) *at* http://retailindustry.about.com/library/bl/02q3/bl_vsda071502.htm?terms=video+rental+statistics. Perhaps there are other important social values that are not captured by the total surplus measure of social welfare. See Netanel, Cohen, Boyle, Benkler, Meurer, Lunney. I see merit in these criticisms, but they are not so serious that they dissuade me from using the standard economic approach as my starting point.

[31] *See infra* Part I.

[32] *See* Sony Corp. of Amer. v. Universal City Studios, Inc., 464 U.S. 417, 433, 456 (1984).

[33] *See infra* text accompanying note x.

[34] *See* Bakos, et al., *supra* note 5, at 148 ("Profitability and social efficiency need not go hand in hand: sharing can be profitable [for sellers] in situations where it is not efficient, and efficient in situations where it is not profitable.")

works,[35] and the need to provide a profit-based incentive to stimulate creation and distribution of those works.[36] At its very core, copyright law recognizes the importance of owner control as a source of productive incentive. Copyright law tolerates and even promotes access restrictions imposed by copyright owners in order to assure adequate incentives.[37] Thus, copyright law should recognize a right to share when the profit-based incentives of copyright owners are misaligned with the social incentive in maximizing ex post total surplus, *provided* the social cost in terms of lost productive incentive is not too great.[38] This Article elaborates this policy approach and applies it to the fair use doctrine in Part IV. Part V discusses the strategies used by copyright owners to influence the pattern of sharing, and the optimal role for copyright law in encouraging selective enforcement and encryption. Part VI addresses copyright policy toward the technology and institutions that facilitate sharing. Specifically, it covers regulation and taxation of technology used for copying, and indirect copyright infringement by parties who facilitate sharing.

I. THREE TYPES OF SHARING

I define sharing[39] to be any activity such that (1) a single copy of a work provides utility to more than one end-user; and (2) the number of sharing users is relatively small.

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[35] *See* Sony, 464 U.S. at 455 n.40 (emphasizing consumer access as an important policy goal of copyright law).

[36] *See* William M. Landes & Richard A. Posner, *An Economic Analysis of Copyright Law*, 18 J. Legal Stud. 325, x (1989) (discussing the trade-off between incentives and access); Jonathan Weinberg, *A New Legal Paradigm? Hardware-Based ID, Rights Management, and Trusted Systems*, 52 STANF. L. REV. 1251, 1277 (2000) (sharing must be limited to assure adequate productive incentives).

[37] *See* Sony, 464 U.S. at 429. It is difficult to calibrate policy copyright policy with little empirical evidence on how production of copyrighted works responds to profit incentives. If existing incentives for creation are too large, then it might be socially desirable to reduce profit (and the accompanying incentive to create). *See* Meurer, *Price Discrimination, supra* note 5, at 95-97; Glynn S. Lunney, Jr., *Fair Use and Market Failure: Sony Revisited,* 82 B.U.L. REV. 975, tan 142 (2002) (contending the high rents for popular TV shows do not produce much of an incentive because they are dissipated in transfers to the stars); Michael Abramowicz, *Copyright Redundancy,* unpublished manuscript (2003).

[38] My use of the term "lost productive incentive" is problematic, because there are two different choices for a benchmark. One choice compares the profits and incentives in a market with unregulated sharing to a market without sharing. The other choice compares the profits and incentives in a market with unregulated sharing to a market in which the copyright owner controls sharing. The choice of benchmark is not likely to matter much when sharing has a relatively small effect on profit and total surplus. The choice could make a difference when the effects are large. In theory, the second choice is better, in practice the first choice is easier to implement. Comparing profit levels before and after the introduction of a new type of sharing might understate the incentive effect. If a new type of sharing significantly increases total surplus, then a significant increase in profit-based incentives might be socially desirable. On the other hand, comparing profit levels with and without copyright owner control asks a court to compare a market subject to a recent shock, to a counterfactual market.

[39] The political struggle over copyright protection of digital works influences usage of the term sharing, with the two sides in the struggle emphasizing alternative definitions of sharing. The American Heritage Dictionary, 2nd College Edition (1982) offers two definitions of the transitive verb *share*. "**1.** To divide and parcel out in shares; apportion. **2.** To participate in, use, or experience in common: *share responsibilities; share an apartment,*" (emphasis in original). The first definition suggests a fixed resource, thus the act of sharing causes the benefactor to give something up. File-sharing and performance are not sharing in this sense, but lending and re-sale are. In many contexts, the second definition suggests non-rivalry in consumption, thus the act of sharing brings an enjoyable experience to another at no detriment to

Three types of sharing occur in markets protected by copyright: consecutive use through lending or resale; joint use through performance; and reproduction and simultaneous use.[40]

Consumers often buy, sell, and lend used books, movies and music.[41] Public libraries are the locus of much sharing; they lend books and other copyrighted works to the public at no charge. Video stores rent and sell used videotapes and DVDs. Music rental made a brief appearance in the U.S. market but disappeared after a copyright amendment barred unauthorized commercial rental of music.[42] A similar amendment prohibits unauthorized commercial software rental.[43] The first sale doctrine of copyright law allows owners of books, movies, and music to sell their copies in the used market. This doctrine shelters intermediaries in the business of buying and selling used copyrighted works. In contrast, we rarely see the sale of used software. Software publishers license rather than sell their product so they can block resale. The Uniform Computer Information Transactions Act and some case law sanctions licenses that bar resale.[44] Other case law characterizes purported licenses as sales and refuses to enforce resale restrictions.[45]

Copyrighted works can be shared by performance. Children's books are shared when a parent reads aloud to his children. The owner of recorded video or music can share a performance of the copyrighted work with an audience.[46] Private performances of copyrighted works are outside the reach of copyright law, but public performances are subject to control by the copyright owner under Sections 106(4) and 106(6) of the Copyright Act.[47]

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the benefactor. All three modes of sharing are covered by the second definition. A cartoon by Hilary B. Price captures the essence of this debate. The cartoon pictures a teacher standing before a kindergarten class and she announces: "Class, today's lesson on sharing has been canceled. It will be replaced by a lesson called 'protecting intellectual property.'" *See* Hilary B. Price, RHYMES WITH ORANGE, (Jan. 23, 2000) *Intellectual Property*, *available at:* www.rhymeswithorange.com/.

[40] I can think of a fourth type of sharing: joint purchase of a bundle that is unbundled and distributed among the joint purchasers, for example, kids might share trading cards by jointly buying a packet and distributing the cards. I exclude this category because I cannot think of significant copyright related examples. Notice this Article analyzes end-users sharing end-products, not sharing by creators — for example, the sort of sharing in the open source software movement.

[41] *See* Charles C. Mann, The Heavenly Jukebox, The Atlantic Monthly 39, 57 Sep. 2000 (editors guess that four or five people read every copy of popular books and magazines); David D. Kirkpatrick, *Online Sales of Used Books Draw Protest,* N.Y. Times, April 10, 2002, (used book sales account for 15% of the activity on Amazon.com; these sales are among the most profitable for Amazon.com).

[42] *See* 17 U.S.C. §109.

[43] *See Id*.

[44] Uniform Computer Information Transactions Act (UCITA), 7 U.L.A. 200 (2002), *available at* http://www.law.upenn.edu/bll/ulc/ucita/ucita_99.htm (last visited June 6, 2003); cites.

[45] SoftMan Prods. Co. v. Adobe Sys. Inc., 171 F. Supp. 2d 1075 (C. D. Cal. 2001) (characterizing a software transaction as a sale despite language in the end-user license agreement stating the transaction was a license). Antitrust law may restrict the ability of some sellers to block resale. *Cf.* U.S. v. United Shoe Machinery Corp., 110 F.Supp 295 (D. Mass. 1953) (invalidated lease-only policies applied to patented machinery).

[46] In a sense, movie exhibitors, television networks, and radio stations share copyrighted works with the public. I do not consider those activities because the scale of dissemination is so large.

[47] Similarly, visual art can be shared by display. Copyright distinguishes between public and private display, and places only limited restrictions on the buyer's right to display a work.

The terms sharing and piracy are both used to describe small-scale reproduction and distribution of a copyrighted work.[48] The piracy label is used too broadly when applied to every act of copying, but it is appropriate when applied to certain kinds of sharing that pose an especially great threat to profits.[49] This Article identifies conditions when sharing severely erodes profit, and so makes a contribution to the debate about how to characterize these activities. I categorize small-scale reproduction and distribution as sharing to emphasize its similarity to joint use and consecutive use in terms of economic effects.

All three types of sharing feature a variety of organizational forms that I will call *coalitions*. End-users who share copies organize into local, institutional, or anonymous coalitions. Local coalitions are formed among friends and family. Membership in these coalitions is fixed by social factors unrelated to the market for the particular work. Two examples of local coalitions that reproduce and distribute copyrighted works are family members who share copies of recorded music, and friends who share copies of entertainment software.[50]

Institutional coalitions are formed among users within businesses, schools, and other organizations. To a large extent, membership in these coalitions is fixed by institutional rules unrelated to the market for the work. For example, every member of a university community gets access to the university library and can use a photocopier to copy text borrowed from the library. Similarly, every employee on a firm's local

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[48] *See* Michael J. Meurer, *Price Discrimination, Personal Use and Piracy: Copyright Protection of Digital Works*, 45 BUFF. L. REV. 845, 852 (2001) (distinction between sharing and piracy); Nicole B. Casarez, *Deconstructing the Fair Use Defense: The Cost of Personal and Workplace Copying After American Geophysical Union v. Texaco, Inc.*, 6 FORDHAM. INTELL. PROP., MEDIA & ENT. L. J. 641, 714 (1996) (linking personal use to making a single copy and distinguishing it from competitive use which involves making multiple copies); Stan Leibowitz, *Policing Pirates in the Networked Age*, CATO POLICY ANALYSIS No. 438 at 6-8 (May 15, 2002) available at http://www.cato.org/pubs/pas/pa-438es.html (describing the role of the photocopying, videotaping, and audio taping in making copies for sharing).

Similar sharing occurs with certain patented inventions like seeds. Seeds may be protected by a utility patent or by a plant variety certificate. When a farmer plants patented seed, and later harvests the offspring, he might sell the seed as a food crop or livestock feed, or he might save it for replanting. Farmers often sell some of the seed they save for replanting to their neighbors. Such sales are called brown bag sales because farmers often send the seed to a processor who cleans the seed and packages it in brown bags. The Plant Variety Protection Act once permitted sharing of brown bag seeds.

[49] *See* Deborah Tussey, *From Fan Sites to Filesharing: Personal Use in Cyberspace*, 35 GA. L. REV. 1129, 1136-37 (2001) (distinguishing small-scale sharing from large-scale redistribution of digital works via the Internet); LAWRENCE LESSIG, THE FUTURE OF IDEAS: THE FATE OF THE COMMONS IN A CONNECTED WORLD 254-55 (2001) (noting the contested use of "theft" and "property" in relation to music file sharing, and advocating a compulsory license); *Sega Cracks Down on Software Pirates*, N.Y. TIMES, July 21, 2000. Sega stopped dozens of Internet sites from selling pirated versions of its videogames. The Sega videogames were reputed to have the strongest encryption among consumer software, nevertheless pirates decoded and distributed the games. *Id.* Lunney, Sony Revisited, tan 10; Sony Corp., 464 U.S. at 450 n.33 (distinguishing time-shifting of movies using a videotape machine from stealing a jewel). Gopal and Sanders (beginning of discussion section) (summarizing studies showing that whether a person believes copying software is piracy or sharing correlates with social and demographic factors).

[50] *See* Ann Bartow, *Libraries in a Digital and Aggressively Copyrighted World: Retaining Patron Access through Changing Technologies*, 62 OHIO ST. L. J. 821, 824-25 (2001) (copyrighted works are shared in homes, educational institutions, workplaces, and libraries).

computer network gets to share licensed software installed on the network server.[51] In these examples, membership in the university community or employment in the firm determines who participates in the coalition.[52]

Anonymous coalitions are formed by strangers using the Internet or the market often with the aid of an intermediary. For example, Napster provided software and services that facilitated the distribution of digital music files among Napster users. Despite an adverse judgment in the Napster case, online file sharing is now well-established as a form of anonymous small-scale[53] reproduction and distribution. Anonymous sharing of digital copyrighted works was common even before Napster introduced its peer-to-peer file-sharing technology as Internet users relied on bulletin boards or chat rooms to facilitate trading of photographs, music and software. Before the Internet, photocopying was probably the only significant form of anonymous reproduction and small-scale distribution of copyrighted works.[54]

II. A THEORETICAL FRAMEWORK FOR ANALYZING THE IMPACT OF SHARING ON PROFIT

Sharing affects profit through four distinct pathways: production and distribution costs; demand dispersion; price discrimination; and willingness to pay. Positive and negative profit effects are possible through each of these pathways. Sharing tends to increase profit when it reduces production and distribution costs, reduces demand dispersion, makes price discrimination more profitable, and increases buyers' willingness to pay. For example, sharing software on a local computer network reduces distribution costs and thereby increases profit from the sale of software. Sharing on local networks also increases the dispersion of demand which reduces profit to a seller who charges the same price to every buyer. I will explain that dispersion tends to hurt profit because it amplifies the deadweight loss associated with monopoly pricing. However, the dispersion created by local networks is a source of profit if the seller can price discriminate by offering a site license, i.e., a schedule of fees that rises with the number of users on the local network. Finally, sharing over a local network reduces the number of sales, but it increases the willingness to pay of the person who purchases on behalf of the local

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[51] A comparable example of a shared invention is provided by scientists in a university who share a patented strain of microorganism or patented research mice. This practice is the life science version of brown bag sales.

[52] But membership in some institutional coalitions is sensitive to features in the market for the work or invention that is shared. For example, the administrator of a local computer network can take steps to make sure that users make no more than the authorized number of copies or simultaneous uses of software subject to a site license. The number authorized to share can be adjusted as the coalition size changes.

[53] I say "small-scale" because the number of files provided by any one source is small compared to the scale of a typical music pirate. No doubt the aggregate effect of Napster-style sharing can be quite large. Of course, the same comments apply to sharing facilitated by video rental stores and public libraries.

[54] Williams & Wilkins v. U.S., 487 F.2d 1345 (Ct. Cl. 1973) describes the role of the National Library of Medicine in making photocopies of journal articles upon request from anonymous library patrons.

In the realm of patented technology, brokers facilitated anonymous small-scale distribution of brown bag seeds purchased from one farmer and sold to another. Delta and Pine Land Co. v. Peoples Gin Co. 694 F.2d 1012 (5th Cir. 1983) describes the role of brokers who sold brown bag cotton seeds. Similarly, patented livestock can be sold for breeding purposes with the aid of a broker— possibly in violation of the patent license.

network, especially if there are positive externalities created by having everyone in an institution use the same kind of software.

A. *Cost Savings*

Sharing generally increases profit through cost savings, but the effect can go either way.[55] Sellers benefit directly by avoiding production and distribution costs on each foregone sale.[56] For example, photocopying journal articles is probably more efficient than producing and distributing a new journal, especially if a user only wants a few of the articles in a journal. Internet delivery of digital content and software is tremendously attractive because reproduction and distribution costs are trivial, and because it avoids the handling and inventory costs associated with physical media. Unauthorized file-sharing offers this cost advantage over traditional music and movie distribution, but the advantage will largely disappear when authorized internet delivery becomes routine. Fair use generally provides a cost advantage by eliminating negotiation, payment, and enforcement costs, but blanket licenses reduce these costs in the absence of fair use. The advantage of fair use is further reduced if sellers substitute costly copy protection (or some other form of self-help) for enforcement.

B. *Demand Smoothing*

Sharing affects the dispersion of demand, and thereby affects profit. It is easy to choose an optimal price when every buyer holds an identical valuation — set the price at that valuation. When buyers are heterogeneous and have highly dispersed valuations profit suffers. A seller's ability to extract surplus from consumers is limited because consumers hold private information about their valuations. The more dispersion in valuations, the more valuable the private information is to consumers and the greater the challenge to the seller in extracting surplus. Sharing sometimes smoothes demand and makes it easier for a seller to extract surplus, and sometimes increases dispersion and makes it harder. Let me illustrate both phenomena in an example with three users who each want to use one unit of a copyrighted work. Each unit can be produced at zero marginal cost.[57] Suppose users *X* and *Y* have valuations of 3, and user *Z* has a valuation of 5. If no one shares then the seller will set a uniform price of 3 to maximize profit.[58] Three sales generate a profit of 9. Next suppose that *X* and *Y* form a coalition to share one unit,

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[55] Sharing raises profit when the transaction costs of sharing are less than the marginal cost of producing and distributing the copyrighted work. *See* Besen and Kirby, *Private Copying, Appropriability, and Optimal Copyright Royalties*, 32 J. L. & ECON. 225 (1989); Hal Varian, *Buying, Sharing and Renting Information Goods*, 48 J. INDUSTR. ECON., 473 (2000).

[56] It is important to recognize that sellers can profit indirectly from sharing that reduces transaction costs borne by users, because the cost reduction is likely to increase demand. *Cf.* Leibowitz, *supra* note x.

[57] This assumption is not essential, and it conveniently highlights the critical role that buyer demand plays in my analysis. Nevertheless, it is approximately correct in many copyright protected markets. Julie Holland Mortimer, The Effects of Revenue-Sharing Contracts on Welfare in Vertically-Separated Markets: Evidence from the Video Rental Industry, July 8, 2002. (The marginal cost of producing, packaging and shipping a pre-recorded video is about $2.) Richard Roehl & Hal R. Varian, *Circulating Libraries and Video Rental Stores,* FIRST MONDAY (2001) *available at:* http://www.firstmonday.dk/issues/issue6_5/roehl/ (the marginal cost of a video is about $1).

[58] The only other sensible pricing choice is 5 which leads to one sale and a profit of 5.

and they are willing to pay any price up to their combined valuation of 6.[59] Then the new monopoly price is 5, and the sale of two units increases profit to 10. Sharing increases profit in this example because it reduces the dispersion of valuations held by potential buyers.[60] In the case with no sharing, *Z* enjoyed a surplus of 2 = 5 - 3. Because the seller could not identify *Z*, and charge a higher price to her, there was no way for the seller to get more from *Z*. When *X* and *Y* share, the price rises to 5 and *Z's* entire surplus disappears. *X* and *Y* collectively enjoy a surplus of 1 = 3 + 3 - 5, which is better than the zero surplus they received when they were not sharing. The seller's gain of 2 from *Z* exceeds the loss of 1 to *X* and *Y*, thus profit is larger.

To see that sharing can increase demand dispersion and reduce profit suppose that *X* and *Z* form a coalition with a willingness to pay of 8, and *Y* acts alone. The seller knows that one buyer holds a valuation of 3 and the other holds a valuation of 8. Rather than setting a relatively low price of 3, the seller would set the price at 8, yielding a profit of 8 from the sale of one unit. Sharing reduces profit because it increases the dispersion of valuations; the seller caters to the coalition with two members and *Y* is priced out of the market.[61]

Bakos, Brynjolfsson, and Lichtman provide two analytic insights that help understand sharing and demand smoothing. They demonstrate that sharing reduces profit through a *coalition diversity effect*: when coalitions differ in size this heterogeneity tends to increase dispersion in demand.[62] They also demonstrate that sharing increases profit through an *aggregation effect*: coalitions aggregate individual valuations and reduce the dispersion in demand because aggregation works like averaging.[63] They conclude that sharing raises profit under a uniform price when the aggregation effect dominates the coalition diversity effect. In both of my examples sharing creates coalition diversity because one coalition is a singleton and the other is a pair. In the example in which *X* and *Y* share, the coalition diversity effect is more than offset by the beneficial effect of aggregating[64] the valuations of *X* and *Y*, thus profit increases because of sharing.

An understanding of the relationship between sharing and demand smoothing helps make better copyright policy only if we can predict whether the coalition diversity effect or the aggregation effect is likely to be more important, or more generally whether

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[59] Notice that this model is a suitable representation of the various forms of sharing described in Part I. When *X* and *Y* share they get a value of 6 because: (1) *X* purchases and lets *Y* copy; *X* is willing to pay up to 6 because (a) *Y* will pay one-half of the purchase price, or (b) *X* cares as much about *Y's* utility as her own; (2) *X* uses a unit and then resells or lends the product to *Y* at a price of 3; (3) *X* buys a unit and performs it for herself and *Y*, and *Y* either pays half of the price or *X* cares about *Y's* utility; and (4) some third party purchases a unit and either sells a copy to *X* and *Y*, or rents to *X* and *Y*, or performs for *X* and *Y*, and charges them each 3.

[60] Sharing smoothes demand and reduces deadweight loss from monopoly pricing. *See* Bakos, et al., *supra* note 5, at 123-25.

[61] If all three join a single coalition, then efficiency is restored. The price and profit and total surplus are all equal to 11.

[62] *See* Bakos, Brynjolfsson, & Lichtman, *supra* note 113, at 121.

[63] *Id*. at 120. The intuition between the aggregation effect derives from the law of large numbers. When a large number of independent random variables, like the buyer valuations for a copyrighted work, are averaged they tend toward a common value — the mean of the distribution. The sum (or aggregate) of a set of random variables is simply equal to the mean times the number of variables in the set, therefore sums of different sets also approach a common value.

[64] The law of large numbers and the aggregation effect do not really apply to these examples since only two values are being added, but the general idea of averaging through sharing does apply.

sharing is actually likely to smooth demand. We can make some predictions confidently, for example the great variance in the size of local computer networks means that sharing software on local networks results in a strong coalition diversity effect. It is not surprising that copyright law precludes unauthorized sharing of computer programs on local networks.[65] In contrast, when home software users share business software with each other or with a business user, the aggregation effect possibly smoothes demand because home users are likely to have small valuations compared to business users.

Attention to the endogenous nature of some coalitions is useful when predicting the impact of sharing on the dispersion of demand. The sort of sharing facilitated by a video rental store smoothes demand and raises profit. Video rental stores strive to hold an inventory of videotapes and DVDs such that each tape and DVD gets about the same amount of usage. In other words, they strive to eliminate coalition diversity by attempting to get the same number of eyeballs to fall on each movie copy in their inventory.[66] The video rental store acts as the purchasing agent for the "coalition" of renters and derives a valuation for each coalition that reflects the sum of the rental fees collected per copy owned by the store.[67] At the other end of the spectrum is much of the unauthorized file sharing facilitated by the Internet. The size of the coalitions that share digital music files, photographs, or movies probably varies enormously. There is potential for a severe coalition diversity effect.[68]

C. *Price Discrimination*

Price discrimination, the practice of charging different prices to different buyers of the same product, is common in markets for copyrighted works.[69] Sharing can increase profit by facilitating price discrimination and decrease profit by disrupting price discrimination. Sharing hurts profit by allowing buyers to arbitrage against types of price discrimination that are not connected to the act of sharing. Specifically, sharing can bring together two different classes of buyers that the seller would like to keep separate for the purpose of price discrimination. Software sellers often discriminate between the academic and business markets, or between the home and business markets. This sort of

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[65] The next section explains that software publishers allow sharing on local networks under the terms of a site license, that charges a price that increases with the number of users on the local network.

[66] Stores purchase enough copies of a movie so that the wait is not too long before a patron finds an available copy, and so that the copies do not depreciate too much from use. Assuming these factors are independent of the kind of movie, then stores should have a constant ratio between the number of copies of a movie and the expected number of renters for that movie. Julie Holland Mortimer, The Effects of Revenue-Sharing Contracts on Welfare in Vertically-Separated Markets: Evidence from the Video Rental Industry, July 8, 2002. A company called Rentrak "aggregates the demand of … independent retailers and negotiates and monitors revenue-sharing agreements with movie distributors on their behalf."

[67] Video rental stores offer another benefit. They are efficient distributors of the shared videotapes. Rental is also efficient because it displaces much of the less efficient resale market. Online auctions have improved the efficiency of resale.

[68] The problem is aggravated by the difficulty the purchaser of an original file has appropriating value from other members of the coalition. *See infra* note x.

[69] *See* Meurer, *Price Discrimination, supra* note 5, at x.

discrimination is less effective if business users routinely share with academic or home users.[70]

Price discrimination can ameliorate problems caused by the dispersion created by coalition diversity. Leibowitz documented such price discrimination in the market for academic journal subscriptions.[71] Publishers discriminate between libraries and individual subscribers, charging a higher price to libraries.[72] Leibowitz observed that the price differential between the two markets jumped after libraries introduced photocopiers.[73] Publishers found they could offset the effect of photocopying by increasing the differential in subscription prices between libraries and individual subscribers.[74]

Software sellers do even better because they implement a more sophisticated form of price discrimination called site licensing. A site license charges a fee that increases with the number of software users at a site, usually a local network.[75] A site license eliminates the effect of coalition diversity, and sharing coupled with a site license increases profit.[76] The aggregation effect still works to the benefit of the seller using a site license. Large coalitions have more predictable valuations and so profit is larger. Coalition diversity causes demand dispersion which hurts profit under a uniform price, but the harm disappears when the coalitions are charged different prices according to their size.

Consider an example. Suppose ten end-users all have a valuation of V and they are grouped into four coalitions of size one, two, three, and four. With no sharing the seller charges a price of V and earns $10V$. With sharing and uniform pricing the seller charges $3V$ and earns $6V$. Profit falls because the only effect is the coalition diversity effect. But given sharing and site licensing, profit returns to $10V$ because the coalition diversity effect is neutralized. The seller charges V to single end-user, $2V$ to a pair of end-users, and $3V$ or $4V$ to the larger coalitions.[77]

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[70] Similarly, the used book market interferes with the ability of book publishers to discriminate between the markets for hard-bound and paperback books.

[71] *See* Leibowitz, *supra* note x.

[72] Lippincott Williams & Wilkins, a leading publisher of medical journals, offers three subscription prices: an institutional price, an individual subscriber price, and an "in-training" price. The institutional price applies to libraries, hospitals, corporations, and partnerships of three or more people. *available at*: http://www.lww.com/customercare/uspricing.htm (last visited July 23, 2002).

[73] *See* Leibowitz, *supra* note x.

[74] *See id* at x.

[75] *See* Reuters, *Microsoft Details Pricing for New Customer Software,* N.Y. Times, July 12, 2002 available at: http://www.nytimes.com/reuters/technology/tech-tech-microsoft-crm.html (last visited July 12, 2002) (Microsoft offers the standard version of its Customer Relationship Management software at $395 per user plus $995 for the server, and a more advanced version for $1,395 per-user plus $1,990 for the server.)

[76] Assuming the cost of implementing this form of price discrimination is not too large.

[77] If the seller does not know the pattern of sharing, then sharing increases dispersion. This hurts profit under uniform pricing, and site licensing does not handle coalition diversity as well but it still increases profit over the case with no sharing. To understand why suppose there are three consumers with valuations of $x < y < z$. Suppose the optimal price when there is no sharing is x and therefore profit is $3x$. Suppose that any pair could share, and the seller does not which pair formed if any. A site license with a price of x for one unit and $2x$ for two units will give a profit of $3x$, thus the seller is guaranteed a profit that is at least as big as the profit without sharing. It is likely the seller will do better. Suppose for example that

Licenses similar to site licenses appear in other copyright protected markets. Music performance licenses link license fees to factors such as the size of a bar, the ticket revenue from a show, or the advertising revenue of a radio or television station. Photocopying licenses link royalties to the number of employees at a company.[78] Site licenses and similar forms of price discrimination are greatly facilitated by the threat of a copyright suit. Fair use removes the threat of suit and makes it more difficult for sellers to block arbitrage and get information about coalition size.

D. *Willingness to Pay*

Sharing poses a particular threat to profit when authorized purchasers do not appropriate (or otherwise account for) much of the value derived by other users in a coalition.[79] To understand this threat, recall the example in the Introduction. I assumed potential users of some copyrighted work all had the same valuation V. Absent sharing, the seller sets a price of V and extracts a profit of V per user. If the users all migrate into two-user coalitions and each coalition fully accounts for the valuations of both members, then the seller could set a price of $2V$ and earn a profit of V per user. In this case the seller indirectly appropriates the entire surplus of both coalition members. At the other extreme, the buyer for each coalition behaves as if she holds a valuation equal to her personal valuation of V. Then the seller would fail to indirectly appropriate any value from the second coalition member and the seller would earn a profit of $V/2$ per user.

Several factors determine the degree to which a coalition purchaser will account for the valuations held by other members of the coalition. In coalitions of friends or family, purchasers care directly about the welfare of each member, and so the coalition's valuation should be close to the sum of the members' valuations.[80] Likewise, institutions like firms probably instruct purchasing agents to fully account for the valuations of all users in the firm. Organizers of some coalitions appropriate value by charging other

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the valuations are 3, 4, and 5, and there is a one-quarter probability that any pair will share, and a one-quarter probability of no sharing. Then a uniform price of 3 gives a profit of 9 absent sharing. Optimal price discrimination calls for a price of 4 for one unit and a price of 7 for two units which gives a profit of 9(1/4). This profit is obtained because one quarter of the time there is no sharing and two units are sold at a price of 4, one quarter of the time the two high value users share and pay 7 for a two-person site license, and one half of the time the low valuation consumer shares with one of the other two users and a single unit is sold at a price of 4 and a two person site license is sold at a price of 7, hence $9(1/4) = (1/4)(2)(4) + (1/4)(7) + (1/2)(4+7)$.

[78] The beneficial effect on profit of a photocopy license was mentioned above in the discussion of transaction costs.

[79] Stan J. Leibowitz, *Copying and Indirect Appropriability: Photocopying Of Journals*, 93 J. POL. ECON., 945, x (1985). Limited appropriability cuts profit and diminishes the productive incentive. This might be offset by the presence of strong network effects. *See* Lisa N. Takeyama, *The Welfare Implications of Unauthorized Reproduction of Intellectual Property in the Presence of Demand Network Externalities*, 42 J. INDUSTR. ECON., 55 (1994); Conner K. R, and R. P. Rumelt *Software Piracy - An Analysis Of Protection Strategies*, 37 MANAG. SCI. 125 (1991).

[80] In addition, sharing with friends and family can raise the direct utility of members of the coalition. In the language of economics, a consumption externality applies to many copyrighted works because people like to consume cultural products that other people are consuming. For examples of economic models incorporating this preference *see* Edi Karni and Dan Levin, *Fixed Preferences and Changing Tastes (in The Formation of Economic Values*), 80 AMER. ECON. REV. 262 (1990); Gary S. Becker, *A Note on Restaurant Pricing and Other Examples of Social Influences on Price*, 99 J. P. ECON. 1109 (1991).

coalition members.[81] A loose-knit coalition that does not charge fees normally creates a severe appropriability problem for the seller of the copyrighted work.[82] The purchaser for a loose-knit coalition may have difficulty discovering the valuations of other members, and may not have any desire to account for those valuations when making a purchase.[83]

The average willingness to pay falls because of appropriability problems, but three other aspects of sharing tend to increase it. Sharing may create network effects that increase willingness to pay and profit. Software users often get more value from a product because it is used by others.[84] Also many consumers enjoy entertainment more if they can share it with friends and family.[85] Additionally, sharing helps users avoid negotiation and payment costs. For example, a teacher can avoid the cost of transacting with a copyright owner by making a spontaneous photocopy from a school library. Finally, sharing may be an effective marketing tool that increases demand and profit.[86]

Table One

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[81] Since the organizer usually cannot capture all the consumer surplus of other coalition members, fee based coalitions have an aggregate valuation less than the sum of individual valuations. *See* Stan J. Leibowitz, *Copying and Indirect Appropriability: Photocopying of Journals*, 93 J. POL. ECON. 945, 947 (1985) (noting buyers incorporate resale price into their valuations).

[82] Conner and Rumelt, *supra* note x, at 127, attribute the indirect appropriability in Besen and Leibowitz to the assumption that copies can only be made from originals. That assumption is not realistic for software or digital content, it may not even be realistic for photocopied text, or analogue tapes.

[83] Glynn Lunney stresses that file sharing on the Internet is subject to a severe free rider problem. Glynn S. Lunney, Jr., *The Death of Copyright: Digital Technology, Private Copying, and the Digital Millennium Copyright Act*, 87 VA. L. REV. 813 (2001). *See also* John Markoff, More Taking Than Giving on the Web, Aug. 21, 2000, N.Y.Times (Eytan Adar and Bernardo A. Huberman from Xerox PARC surveyed Gnutella users and found that 1% of users provided 40% of the files. Such big providers could be a target for a lawsuit.) *available at:* www.parc.xerox.com/istl/groups/iea/papers/gnutella. For a general discussion of the problems with private provision of a public good *see e.g.*, Jordi Brandts & Arthur Schram, *Cooperation and Noise in Public Goods Experiments: Applying the Contribution Function Approach*, 79 J. PUB. ECON. 399 (2001); Charles Bram Cadsby & Elizabeth Maynes, *Voluntary Provision of Threshold Public Goods with Continuous Contributions: Experimental Evidence*, 71 J. PUB. ECON. 53 (1999); Paul Pecorino, *The Effect of Group Size on Public Good Provision in a Repeated Game Setting*, 71 J. PUB. ECON. 121 (1999).

Uncertainty about whether a buyer will share, or how many people she will share with does not necessarily create an appropriability problem. A rational buyer facing uncertainty would compute the expected value from sharing and incorporate that into her valuation.

[84] *See* Kathleen R. Conner & Richard P. Rumelt, *Software Piracy: An Analysis of Protection Strategies*, 37 Mgmt. Sci. 125, 133, 136 (1991) (sharing may increase profit because of network effects); Lisa Takeyama, *The Welfare Implications of Unauthorized Reproduction of Intellectual Property in the Presence of Network Externalities*, 62 J. Industr. Econ. 155 (1994) (same); Oz Shy & Jacques-Francois Thisse, *A Strategic Approach to Software Protection*, 8 J. Econ. & Manag. Strategy 163 (1999) (a strong network effect causes duopolists to reject copy protection).

[85] Glynn S. Lunney, Jr., *Fair Use and Market Failure: Sony Revisited,* 82 B.U.L. REV. 975, 1024 (2002) ("Consumers are more likely to seek and more likely to find popular works when they engage in private copying because the enjoyment of copyrighted works exhibits network externalities.")

[86] *See* Leibowitz *Patents and Copyrights*, *supra* note x, at 191 (photocopying allows a researcher to sample journals in the library perhaps ultimately increasing their sales); Associated Press, Record Label to Target Music Listeners, Sep. 1, 2000, N. Y. Times (Warner music sends e-mail to MP3.com users to target its promotional information); John Borland, CNET News.com, Major Label Breaks File-trading Boycott, N. Y. Times, Sep. 27, 2000 (Capitol Records released some video files for use on Aimster to promote a record release).

	Costs to the Copyright Owner	Demand Smoothing	Price Discrimination	Willingness to Pay
Increases Profit or No Effect on Profit	Production and Distribution Cost Savings	Aggregation Effect	Site Licensing	Network Effects, Transaction Costs
Decreases Profit	Self-help Costs	Coalition Diversity	Arbitrage	Appropriability Problems

Table One summarizes the effects of sharing on profit. The four column headings list factors that are important for an economic analysis of sharing. Below each heading is an entry indicating conditions that tend to increase or decrease profit. The first row indicates sharing that tends to increase profit by cutting production and distribution costs, smoothing demand through the aggregation effect, creating an opportunity for site licensing, and creating network effects. The second row indicates that sharing tends to decrease profit by inducing greater self-help efforts, creating demand dispersion through coalition diversity, causing arbitrage that undercuts price discrimination, and reducing the average willingness to pay because purchasers do not appropriate value from those they share with.

III. HISTORICAL EVIDENCE OF THE IMPACT OF SHARING ON PROFIT

Copyright protected industries have often coped with shocks caused by the introduction of new forms of sharing. Each shock inevitably leads to calls from copyright owners for control over the new form of sharing. The calls are sometimes answered, sometimes not. New forms of sharing generally create social value and increase total surplus, but there are historical examples showing the opposite is possible. Music performance on the radio, rental of recorded movies, and photocopying are three major forms of sharing that have been integrated successfully into entertainment and publishing markets. In contrast, software and music rental apparently were too disruptive to be permitted in software and music markets.[87]

A. *Music Performance on the Radio*

The introduction of commercial radio broadcasts in the 1920s facilitated large-scale, anonymous sharing of music. Radio broadcasts posed a threat to the music industry comparable to the current threat posed by digital file-sharing.[88] Radio performance displaced private performances and related sales of sheet music, player piano rolls, and records.[89] The courts ruled that radio performances were subject to the performance

[87] Videogame rental is an exception.

[88] Years of conflict between radio broadcasters and music copyright owners. Jessica D. Litman, *Copyright Legislation and Technological Change,* 68 ORE. L. REV. 275, x (1989).

[89] *See* PAUL GOLDSTEIN, COPYRIGHT'S HIGHWAY: THE LAW AND LORE OF COPYRIGHT FROM GUTENBERG TO THE CELESTIAL JUKEBOX 73 (1994).

right,[90] and music copyright owners gained control over radio performances through the enforcement efforts of ASCAP.[91]

Radio broadcast of music surely has added to the profit of the music industry. The industry collects close to $1 billion in annual performance licensing fees from radio, television, and other public performances.[92] The factors in Table One help us understand the profit effect of radio (and other public) performance. Although radio performance displaced sales of sheet music, piano rolls, and records, it created a strong demand for records from radio stations. Stations have a high willingness to pay because their advertising revenue reflects the number listeners they attract. Thus, stations are willing to pay the most for music that attracts the most listeners. This favorable effect is not undermined by the enormous coalition diversity created by radio broadcasts. Price discrimination reverses the effect of coalition diversity, and turns radio performance into a bonanza for the music industry. Performance licenses link the size of the royalty payment to factors like the advertising revenue of radio stations; these measures are excellent proxies for the valuation each coalition attaches to public performance of music.[93] The performance right allows music copyright owners to implement extremely fine-grained price discrimination through public performance licenses that work analogously to site licenses.[94]

B. *Music, Software, and Video Rental*

The first sale doctrine gives buyers the right to lend a copyrighted work at no charge (library books) and even to lend a work for a fee (movie videos). Music rental stores made a brief appearance in the U.S. when cassette tapes were introduced.[95] The stores offered records for rent and sold blank cassette tapes. Apparently, most customers copied the rented records onto cassettes. The music rental business came to an end after Congress passed the Record Rental Amendment which gives music copyright owners control over commercial music rental. Software publishers acted in advance of widespread software rental and copying to obtain the Software Rental Amendment which parallels the Record Rental Amendment.[96] Surprisingly, movie copyright owners failed in their attempt to obtain similar protection from Congress.[97] The contrast is puzzling,

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[90] *See id.* at 72.

[91] After ASCAP won injunctions to block public performances "radio stations and motion picture owners went to Congress to seek ASCAP's abolition." *See* Litman, *supra* note x, at 293. Today ASCAP and BMI are the main sources of public performance licenses. Besides radio stations they also license television networks and stations, bars, restaurants, and others.

[92] ssss

[93] Id.

[94] *See* Meurer, *Price Discrimination*, *supra* note x, at 110-111.

[95] Commercial rental and resale establishments. Record rental stores in 1984 rented records at rates ranging from 99 cents to $2.50 per record. ROBERT A. GORMAN & JANE C. GINSBURG, COPYRIGHT 491 (5th ed. 1999).

[96] Recorded music cannot be rented without permission from the copyright owner. Record Rental Amendment of 1984. 98 Stat. 1727; 17 U.S.C. §109(b)(1)(A). The Computer Software Rental Amendments Act of 1990 prohibits unauthorized rental of many types of software. 104 Stat. 5089; 17 U.S.C. §109(b)(1)(A).

[97] The movie industry tried to block video rental stores with a proposal comparable to the Record Rental Amendment. *See* MELVILLE B. NIMMER, DAVID NIMMER, NIMMER ON COPYRIGHT,

because the movie industry made arguments similar to those advanced by the music and software industries, and it succeeded in gaining prohibition of commercial video rental in many European countries.

Some commentators have mischaracterized the Record and Software Rental Amendments as a response to piracy. Piracy was and continues to be a serious problem for both industries, but rented music and software are unlikely to be an important source of original content for pirates.[98] Regardless of whether rental copies are available, pirates are apt to buy or steal their source material not rent it. The real concern of the music and software industry was small-scale widespread copying of rental works — in other words, sharing. Likewise, the movie industry argued (less plausibly) that rental would lead to piracy. But the real interest of the movie industry was, and still is, control over sharing made possible by video rental.

The puzzle about the different treatment of video can be resolved by understanding the impact of rental on profit in the music, software, and movie industries. The starting point is the observation that the music, software, and video rental markets significantly depress sales to end users (the lost sales problem), but copyright owners have a chance to recover the lost profit by charging a high price on sales to rental store owners. The net profit effect of sharing depends on these and the other factors discussed in Part II. There are two critical differences between movie rental on one hand and software and music rental on the other. Rental hurts sellers in the latter two markets because it increases demand dispersion and causes appropriability problems.[99] Software rental would create a serious problem with coalition diversity assuming rental stores varied in size and success. Demand for movie rental is concentrated in a small time interval close to the rental release date so large and successful video rental stores purchase a large number of tapes roughly proportional to their rental volume.[100] If that pattern does not carry over to software, then software rental stores might vary considerably in how many users they expect to rent each copy of software they buy.

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§8.12[B][7][a] (2000); Robert A. Rosenbloum, *The Rental Rights Directive: A Step in the Right and Wrong Directions*, 15 LOY. L. A. ENT. L. REV. 547, 578 (1995) (the movie industry lobbied for but failed to get a video rental right in the U.S.) 571 (noting the EU's Rental Rights Directive gives a copyright owner the exclusive right to authorize lending of sound and video recordings)

[98] Similarly, video pirates probably do not make copies from rented videos or DVDs.

[99] Private lending is distinguished from commercial lending in the Record and Software Rental Amendments. Private lending and copying might decrease demand dispersion through the aggregation effect. There is a non-profit exemption to the Record Rental Amendment and the Software Rental Amendments. 17 U.S.C. §109(b)(1)(A). Furthermore, limitations on the scope of the Computer Software Rental Amendments probably protect lending of software to friends. The first sale restriction does not apply when sharing produces no direct or indirect commercial gain. *See* MELVILLE B. NIMMER, DAVID NIMMER, NIMMER ON COPYRIGHT, §8.12[B][8][b] (2000)('[A]n owner of a piece of software can continue to lend the diskette on which it is embodied to friends without great fear of liability.")

[100] *See* James D. Dana, Jr. and Kathryn E. Spier, *Revenue Sharing and Vertical Control in the Video Rental Industry*, 49 J. INDUSTR. ECON. 223 (2001) (noting that movie rental demand is concentrated close to the rental release date). Julie Holland Mortimer, The Effects of Revenue-Sharing Contracts on Welfare in Vertically-Separated Markets: Evidence from the Video Rental Industry, July 8, 2002. The average number of copies purchased by a store under a fixed fee scheme is about 13 for A movies, 6 for B movies, and 2 for C movies. The average number of rentals of videos purchased under a fixed fee scheme is about 20-30 per tape.

Variation in rental revenue translates into variation in willingness to pay for copies of the software.[101]

Software and music rental present an appropriability problem because of serial copying. A rental store appropriates value by collecting fees from renters. Renters who initiate a chain of serial copying are unlikely to appropriate much of the value they create, and so rental fees will fall significantly short of the social value associated with rentals. This appropriability problem could significantly cut profit to the software and music industries.[102] The movie industry has been successful in thwarting serial copying by using copy protection technology,[103] and because the quality of a serial copy of analogue videotape degrades rapidly.[104] [105] [106]

In contrast to music and software rental, video rental is extremely profitable for copyright owners.[107] The sharing made possible by movie rental smoothes demand. Rental does not lead to much coalition diversity because each rental store has an incentive to manage its inventory of videotapes so that each tape is used roughly the same number of times. Thus, the revenue appropriated from each tape at each store should be about the same. Furthermore, heterogeneity in the valuations of renters is smoothed via the aggregation effect.[108]

European nations that do prohibit unauthorized video rental still have video rental stores. We can be confident that if a Video Rental Amendment had passed in the U.S. that rental would also be permitted. The main difference would likely be price

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[101] Music rental is probably similar to movie rental regarding its impact on demand dispersion.

[102] Section 109(b)(1)(B)(ii) excludes videogames from the Software Rental Amendments Act and videogames are available for rental at video stores. The appropriability problem might not be severe in this market because of relatively tough copy prevention technology embedded in video game consoles.

[103] Macrovision Corp. produces copy prevention technology that distorts picture quality in copies made from video tape, DVDs, and pay-per-view movies. *See* Copy Protection *at* http://www.macrovision.com/solutions/video/copyprotect/index.php3.

[104] Serial copying has not created much of an appropriability problem. One reason the Video Rental Amendment was defeated was that relatively few video rental customers copy the rented tapes. Robert A. Rosenbloum, *The Rental Rights Directive: A Step in the Right and Wrong Directions*, 15 LOY. L. A. ENT. L. J. 547, 551 (1995) (noting the EU's Rental Right Directive was designed to eliminate copying attributable to audio and video rental) 568 (rental stores are major customers for pirated copyrighted works)

[105] DVD rental might become a problem for the movie industry because serial copying does not degrade quality, and the CSS copy prevention technology can be easily circumvented. The extent of actual circumvention depends on whether the DMCA blocks circumvention software, and whether more secure copy prevention technology will be developed in the future.

[106] Copyright owners are working to develop technology that precisely controls how much first and later generation copying of digital content is possible. If such technology is effective it would eliminate the need for the Record and Software Rental Amendments, since copyright owners would have de facto control over copying facilitated by rental. Digital audio tape players have a built-in system that allows first generation by prohibits later generation copies from being played back.

[107] Richard Roehl & Hal R. Varian, Circulating Libraries and Video Rental Stores, FIRST MONDAY, http://www.firstmonday.dk/issues/issue6_5/roehl/ (18th century English circulating libraries of books are economically similar to modern video rental stores) (11-16 book publishers and movie studios both feared the emergence of rental stores, but in the end both clearly benefited) PBS Frontline, The Monster that Ate Hollywood, http://www.pbs.org/wgbh/pages/frontline/shows/hollywood/business/windows.html "global box office accounts for only 26 percent of the total wholesale revenues for a film released today. Worldwide video rentals and sales, in contrast, now account for 46 percent"

[108] Hal Varian, *Buying, Sharing and Renting Information Goods*, 48 J. Industr. Econ., 473 (2000). Varian shows that the existence of a rental market may lead to profitable segmentation of users; high value users purchase and low value users rent.

discrimination in the video sales market between home users and video stores.[109] Video sales and rental are both important sources of revenue to the movie industry.[110] The industry faces a difficult choice when setting a price for sales. The price should be high to capture surplus from rental stores, but it should not be so high that it discourages purchases by home users. Hollywood initially attempted to discriminate in the sales price to home users and rental stores in the U.S. without the benefit of copyright control over rental; the attempt failed.[111] With the aid of the law the movie industry would cut the home sales price, and (indirectly) raise the home rental price.[112] The increase in rental prices might cut total surplus because some renters would exit the market.[113] On the other hand, total surplus might grow because of increased consumer video sales resulting from the lower price.[114] Taking a broader perspective one can argue that Hollywood could use a Video Rental Amendment along with the public performance right to implement fine grained price discrimination that would increase total surplus.

The comparison might now be moot because of a contractual innovation in the video rental market.[115] In recent years, the movie industry has developed a revenue

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[109] Robert A. Rosenbloum, *The Rental Rights Directive: A Step in the Right and Wrong Directions*, 15 LOY. L. A. ENT. L. REV. 547, 566 (1995) (a rental right facilitates price discrimination by separating the markets for video sales and rental) Perhaps some form of site license would be charged to rental stores, but there would not be much need for a site license if there really is little coalition diversity. The revenue sharing described below has a similar effect to site licensing, but it is motivated by concerns about achieving an optimal inventory of videotapes in rental stores, not concerns about heterogeneity among stores. Julie Holland Mortimer, The Effects of Revenue-Sharing Contracts on Welfare in Vertically-Separated Markets: Evidence from the Video Rental Industry, July 8, 2002. The movie industry discriminates among video rental stores by including minimum and maximum inventory requirements in revenue sharing contracts.

[110] In 1999 over half of the film-related domestic revenue of movie studios came from video rental and sales. Rentals generated $8.1 billion and sales generated $9.2 billion of domestic retail revenue. *See* James D. Dana, Jr. and Kathryn E. Spier, *Revenue Sharing and Vertical Control in the Video Rental Industry*, 49 J. Industr. Econ. 223, 226 (2001). Robert A. Rosenbloum, *The Rental Rights Directive: A Step in the Right and Wrong Directions*, 15 Loy. L. A. Ent. L. Rev. 547, 565 (1995) (the revenue to the movie industry from videotape rentals versus sales is almost the same) Julie Holland Mortimer, The Effects of Revenue-Sharing Contracts on Welfare in Vertically-Separated Markets: Evidence from the Video Rental Industry, July 8, 2002. In 1999, home video accounted for 55% of the revenue for the movie studios.

[111] *See* Richard Roehl & Hal R. Varian, Circulating Libraries and Video Rental Stores, FIRST MONDAY, *available at:* http://www.firstmonday.dk/issues/issue6_5/roehl/ (in the early 1980s movie producers experimented with price discrimination in which a high price was charged to rental stores and a lower price to consumers; they abandon the practice by 1983).

[112] *See* Mortimer *supra* note 107.

[113] Robert A. Rosenbloum, *The Rental Rights Directive: A Step in the Right and Wrong Directions*, 15 LOY. L. A. ENT. L. REV. 547, 580 (1995) (arguing that the industry and videotape purchasers gain from a rental right and renters lose). Most of the marginal renters who exit the market will probably shift to viewing the movie in some other format such as cable or broadcast television. Thus, the social cost is mainly delayed viewing rather than lost viewing.

[114] And of course industry profit would rise. *Id*. at 564-65 (since the sales market is fairly large it is difficult to capture the value of rentals); Julie Holland Mortimer, The Effects of Revenue-Sharing Contracts on Welfare in Vertically-Separated Markets: Evidence from the Video Rental Industry, July 8, 2002. Revenue sharing leads to the purchase of about twice as many tapes but rental activity is about the same.

[115] Even greater changes are on the horizon as internet delivery of movies could make rental stores obsolete. *See* Barnaby J. Feder, *IBM to Run a Venture to Rent Films Over the Web*, N.Y.TIMES, Sept. 9, 2002, *available at*: http://www.nytimes.com/2002/09/09/technology/09BLUE.html (five movie studios set up a joint venture to deliver movies to consumers over the Internet for one-day rental).

sharing arrangement between the studios and the rental stores.[116] Rental stores are charged a very low price for each videotape but they are required to share the rental revenue from each tape with the studios.[117] The new contracts were made possible by new monitoring technology that cuts the cost and risk of deception associated with revenue sharing. The goal of the contracts is to increase the inventory of videotapes held by rental stores.[118] A side benefit to the studios is that they are now free to charge a price for home videotape (and DVD) sales that is independent of the sale price to rental stores. Therefore, the movie industry has gained by other means the benefit it sought through a Video Rental Amendment.

C. *Photocopiers*

The role of photocopying in the publishing industry parallels the role of file-sharing in the music industry. Both technologies facilitate sharing via personal copying; both enable lawful and infringing copying; and both have been used by profit-making enterprises that have reasonably been described as piratical by some and lawful by others. Copyright law allocates the right to control certain uses of photocopiers to copyright owners, and allows other uses without permission. Diane Zimmerman finds little evidence photocopying significantly harmed the profits of journal publishers.[119] "[T]he

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[116] Julie Holland Mortimer, The Effects of Revenue-Sharing Contracts on Welfare in Vertically-Separated Markets: Evidence from the Video Rental Industry, July 8, 2002. Empirical evidence indicates that the combined profit of video sellers and rental stores increased by about 3-6% from the adoption of revenue-sharing contracts, and consumers benefited substantially. Hal R. Varian, Good Monitors Make for Better Contracts, August 23, 2001, N. Y. Times (Movie distributors switched from charging about $70 per videotape to charging an upfront fee of $3 to $8 plus a 40 to 60 percent share of rental fees. This change raised the combined profit of movie distributors and rental stores by 7%. Such contracts only became feasible when networked computer technology reduced monitoring costs to a low level.) Julie Holland Mortimer, The Effects of Revenue-Sharing Contracts on Welfare in Vertically-Separated Markets: Evidence from the Video Rental Industry, July 8, 2002. The cost under a fixed fee contract in 1998 is about $65. Revenue sharing contracts became popular in 1998 and charged an upfront fee between $3 and $8 with the retailer keeping between 40 and 60 percent of the rental revenue. Bloomberg News, Disney Sues Blockbuster over Contract, N.Y. Times, (Jan. 4, 2003) available at: http://www.nytimes.com/2003/01/04/business/04VIDE.html (Blockbuster used to purchase videos for about $65 each and kept all the rental revenue. Under the new contract, Blockbuster pays Disney $7 a copy plus a share of the rental revenue.)

[117] Richard Roehl & Hal R. Varian, Circulating Libraries and Video Rental Stores, First Monday, *available at:* http://www.firstmonday.dk/issues/issue6_5/roehl/ (in 1998 a new type of discrimination arose by which the store pays a fixed fee between $2 and $4 dollars plus 40% of the rental revenue; this new practice allows Blockbuster to guarantee a video is in stock).

[118] *See* James D. Dana, Jr. and Kathryn E. Spier, *Revenue Sharing and Vertical Control in the Video Rental Industry*, 49 J. Industr. Econ. 223 (2001). They describe the introduction of revenue sharing contracts between movie studios and movie rental stores. They develop a model in which revenue sharing encourages rental stores to increase their inventories and raise retail prices. Bloomberg News, Disney Sues Blockbuster over Contract, N.Y. Times, (Jan. 4, 2003) available at: http://www.nytimes.com/2003/01/04/business/04VIDE.html (Disney sued Blockbuster to recover $120 million from a four year agreement to share rental fees on videos — Disney accused Blockbuster of improperly accounting and selling videos prematurely).

[119] *See* Williams & Wilkins v. U.S., 487 F.2d 1345 (Ct. Cl. 1973), *aff'd by an equally divided Court* 420 U.S. 376 (1975) (per curiam) (plaintiff did not show economic harm from photocopying); Diane Leenheer Zimmerman, *A Lesson for the Digital Future from the Old Media: Photocopying, Journal Pricing*

claim that lack of permission fees for photocopying would decimate the publishing industry was not born out by experience. Photocopying came into widespread use in the early 1960s, and it was at least three decades before owners could begin to collect any significant revenues for it. But the publishing industry did not wither away and authors did not cease to write."[120]

Photocopying has three positive effects on profit. First, it reduces costs because photocopying journal articles is probably more efficient than producing and distributing a new journal, especially if a user only wants a few of the articles in a journal.[121] Second, it increases libraries' willingness to pay assuming they account for the benefit to users who avoid transaction costs (e.g., teachers making a spontaneous copy for classroom use). Third, publishers profit by price discriminating between libraries and individual subscribers. Stan Leibowitz found that only 8% of academic journals in his sample price discriminated between libraries and individuals in 1959 the year Xerox introduced its 914 copier, but 74% of them did by 1983.[122] Price discrimination allows publishers to capture some of the value created by library photocopying. Leibowitz found evidence that library subscription prices escalated faster than individual subscription prices which is consistent with a price response to increased photocopying of journals owned by libraries.[123]

These positive effects were offset by increased coalition diversity created by systematic photocopying. Course pack photocopies and in-house copying by corporate users creates coalition diversity that harms profit.[124] The potential harm to profit from systematic photocopying was eliminated by cases that rejected the fair use defense as applied to course packs and corporate in-house photocopying. [125] These cases created a market for photocopying licenses that facilitates a form of price discrimination that has an effect comparable to software site licensing and music performance licensing. [126]

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The effect of sharing on the profit of copyright owners has not been econometrically analyzed, but the historical evidence indicates that sharing usually increases profit. The evidence is clear in the cases of movie rental and radio performance. Copyright owners control radio performance of music and could prohibit it. The fact that they license performance shows it increases profit. Similarly, copyright owners control

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and Their Impact on the Enterprise of Scholarship and Research, available at: http://www.law.nyu.edu/ili/conferences/freeinfo2000/abstracts/zimmerman.htm.

[120] *Id.*

[121] Janusz A. Ordover & Robert D. Willig, *On the Optimal Provision of Journals qua Sometimes Shared Goods*, 68 AM. ECON. REV. 324 (1978).

[122] Leibowitz, J. POL. ECON, at 952.

[123] Leibowitz. This evidence would be stronger if it were linked to profits; profits could have fallen if there were significant lost sales.

[124] *See* Jane C. Ginsburg, *Reproduction of Protected Works for University Research or Teaching,* 39 J. COPYRIGHT SOC'Y U.S.A. 181, 183 (1992) (noting that subscribers buy an "original, plus an indeterminate number of additional copies," therefore, publishers will raise prices in response to photocopying); Television Digest, Inc. v. United States Tel. Assoc., 841 F. Supp. 5 (D.D.C. 1993) (corporate photocopying of newsletters); Pasha Publications Inc. v. Enmark Gas Corp, Pasha Publications, 19 Media L. Rep. at 2063 (same).

[125] *See infra* text notes x.

[126] *See infra* text accompanying notes x.

movie rental in many countries, where they authorize it and profit from it. Copyright owners control the use of photocopiers for course packs and for corporate reproduction of copyrighted texts. They license and profit from these uses. In contrast, it is clear that music and software rental reduce profit; copyright owners have not allowed these forms of sharing in the U.S. or anywhere else in the world. The impact of unregulated sharing on profit is less clear, but it seems quite likely that Hollywood has profited from movie rental in the U.S. even though rental businesses operates without permission from copyright owners. Little evidence exists indicating the effect of unregulated photocopying on profit, it might be positive and if it has been negative it does not seem to have been too significant. An important, unanswered question is how much more profit copyright owners would get if they had the right to control movie rental and all forms of photocopier use.[127]

IV. FAIR USE ANALYSIS OF SHARING

Sharing should be permitted under the fair use doctrine when it increases total surplus without harming productive incentives too much. Courts should presume that sharing opposed by the copyright owner decreases total surplus. A defendant must explain why the social return and the copyright owner's profit from sharing move in opposite directions. Courts should use the methods developed in Parts II and III to assess the effect of sharing on profit, and ultimately productive incentives. This Part of the Article explains when social and private incentives regarding sharing are misaligned. It also shows that courts intuitively follow my approach when they balance the fair use factors.

Sharing affects (ex post) total surplus[128] through its direct effects on diffusion, and various costs, and its indirect effects on prices, enforcement and self-help. One might expect sharing always increases the number users of copyrighted works. Sometimes it does, but we cannot be sure until we assess the costs of sharing and the seller's price response to sharing. An obvious direct social benefit occurs when potential users who previously were excluded from the market get to use a copyrighted work through sharing. A potential user could have been excluded because of the high cost of transacting with the seller, or simply because the price is higher than her valuation. This social benefit from sharing can be reversed if the seller responds to sharing with a price increase large enough to offset the increase in consumption brought about by sharing.[129] To illustrate,

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[127] Revenue sharing between Hollywood and movie rental stores provides evidence of the effect of the law.

[128] I measure social value as the ex post total surplus arising in a market for a copyrighted work. Given the assumption that marginal cost is zero, total surplus is simply the sum of the valuations of potential end-users who actually consume minus costs of sharing and transaction costs. In general, total surplus is defined as the sum of profit and consumer surplus. *Ex ante* total surplus is lower because it accounts for the fixed cost of production.

[129] Interestingly, a seller will sometimes cut the price in response to sharing instead of increase the price. Such a price cut amplifies the favorable effect of sharing on diffusion. The intuition behind the price cut is that sharing sometimes gives buyers countervailing market power. The theory of countervailing power states that total output and total surplus will rise in a monopoly market if the buyers organize and confront the seller with their own bargaining power. The theory is not well developed, but it holds out the possibility that bilateral bargaining between a single seller and a single buyer will lead the parties to choose an efficient output level. The theory goes on to suggest that output moves closer to the efficient level as

recall the example in Part II.B with three potential users of a copyrighted work: *X* and *Y* have valuations of 3 and *Z* has a valuation of 5. Suppose *X* and *Z* share a copy of the work and *Y* acts alone. The seller raises its price from 3 to 8 because of sharing. At the original price of 3, all three consumers used the work, but after sharing only *X* and *Z* use the work.[130] Profit and total surplus fall from 9 to 8 because of sharing and the seller's pricing response. The seller's incentives match the social incentive and the seller would block this socially harmful sharing.

Total surplus also depends on the mix of costs incurred and avoided because of sharing. It raises total surplus when it allows some users to avoid the costs of negotiation and payment. Both site licensing and unauthorized sharing reduce transaction costs by limiting the burden of getting permission and making payment to the single party who makes a purchase for a coalition. Sharing also saves the seller the cost of producing and distributing to users who do not make a purchase. But those savings are offset by the costs of sharing. There are costs to organizing a coalition, the process of sharing may delay consumption or degrade quality, and there are costs from copying or transfer. Furthermore, site licenses impose greater enforcement costs on the seller than uniform pricing.[131] Finally, sellers incur costs when they try to discourage sharing through enforcement or self-help measures like copy-control technology. If the sum of these sharing costs is greater than the costs avoided by sharing, then total surplus is adversely affected.

The fair use defense[132] fine-tunes the balance between the exclusionary powers given to the copyright owner and the social interest in access to information and diffusion of copyrighted works.[133] Section 107 of the Copyright Act codifies an open-ended

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buyers gain market power. *See generally* Ingela Alger, *Consumer Strategies Limiting the Monopolist's Power: Multiple and Joint Purchases*, 30 Rand J. Econ. 736 (1999). Varian shows that if consumers are identical then sharing creates market power for buyers. The threat of sharing forces down the sale price down even when there is no equilibrium sharing. Thus, sharing creates countervailing market power that disrupts rent extraction. *See* Varian, *supra* note 5, at 479-480. For applications to fair use *see infra* text accompanying notes x.

[130] A site license restores total surplus to the level that was attained when there was no sharing. The price to a single user would be 3 and the price to a pair of users would be 6 for a total of 9, thus all three consumers participate in the market. The seller cannot push the two-user license price above 6, because *X* and *Z* can each purchase a one-user license at a price of 3. This illustrates the constraining effect of the assumption that the seller cannot identify buyers. If the seller could identify *Z* as the buyer with a valuation of 5, then the company would directly charge him 5 if he chose a one-user license. Judge Easterbrook makes a similar point in ProCD v. Zeidenberg, 86 F.3d 1447, 1450 (7th Cir. 1996), when he considers what would happen if buyers all appeared before a seller with their valuations stamped on their forehead.

[131] John Schwartz, *Trying To Keep Young Internet Users From A Life Of Piracy,* N.Y.Times, December 25, 2001, available at <http://www.nytimes.com/2001/12/25/technology/25HACK.html> (the greatest incidence of illegal copies is in businesses where one employee shares a copy of software with other employees).

[132] There is some controversy about whether fair use is a defense or instead a limitation on the scope of rights of the copyright owner. *See* Campbell v. Acuff-Rose Music, Inc., 510 U.S. 569, 590 (1994) for a statement that fair use is an affirmative defense. *But see* Harper & Row Pubs., Inc. v. Nation Enters., 471 U.S. 539, 567 (1985) and Sony at 433-34, appear to put the burden of proof on the copyright owner. *See generally* Lunney, tan 62-64.

[133] *See* Michael G. Anderson & Paul F. Brown, *The Economics Behind Fair Use: A Principled and Predictable Body of Law,* 24 LOY. U. CHI. L. REV. 143 (1993); Lydia Pallas Loren, *Redefining the Market Failure Approach to Fair Use in an Era of Copyright Permission Systems,* 5 J. INTELL. PROP. L. 13 (1997); Lloyd L. Weinreb, *Fair's Fair: A Comment on the Fair Use Doctrine,* 103 HARV. L. REV. 1137 (1990);

balancing test that relies primarily on four factors: "(1) the purpose and character of the use, including whether such use is of a commercial nature or is for nonprofit educational purposes; (2) the nature of the copyrighted work; (3) the amount and substantiality of the portion used in relation to the copyrighted work as a whole; and (4) the effect of the use upon the potential market for or value of the copyrighted work."[134]

A subset of fair use cases feature sharing enabled by small-scale reproduction. Many cases involve photocopying of text for research or educational purposes. [135] Other leading cases involve taping or computer copying of music and movies.[136] Fair use analysis of sharing concentrates on the first and fourth factors. Usually, the defendant copies the whole work and the parties do not contest the third factor.[137] The second factor is important but also usually not contested. If the subject matter is a highly expressive work like a movie or music, then the copyright owner is accorded more deference.[138] If the subject matter is a less expressive work like a scientific publication, then the case for fair use is enhanced.[139]

Fair use accounts for the effect of sharing on productive incentives through the second and fourth factors. Courts assess the impact of sharing on the profit of the copyright owner through the market effect factor, and the effect of profit on productive incentives by considering the nature of the work. Copyright law assumes (without much empirical support or normative justification[140]) that highly expressive works should enjoy greater fair use protection and thus a stronger profit-based incentive. Courts implicitly determine whether private and social incentives are misaligned by using the first factor to privilege certain uses. In *Sony* the Supreme Court rejected the view that only transformative uses may qualify for fair use.[141] Below, I explain why spontaneous, personal, non-commercial, and research uses make sharing more likely to be a fair use, and I identify new reasons why certain kinds of sharing should qualify for fair use.[142]

Glynn S. Lunney, Jr., *Fair Use and Market Failure: Sony Revisited,* 82 B.U.L. REV. 975, 999 (2002) (advocating a social welfare approach to fair use that balances the social benefit from prohibiting a use against the social benefit from permitting the use).

[134] *See* 17 U.S.C. §107.

[135] *See* Amer. Geophysical Union v. Texaco, 60 F.3d 913, (2nd Cir. 1994); Williams & Wilkins v. U.S., 487 F.2d 1345 (Ct. Cl. 1973).

[136] *See* text accompanying notes 10-12; A&M Records v. Napster, Inc., 284 F.3d 1081 (9th Cir. 2002); In re Aimster Copyright Litigation*,* No 01 C 8933, 2002 WL 31006142 (N.D. Ill. Sept 4, 2002).

[137] *See* Sony, 464 U.S. at 449-50 (discounting the importance of the third factor in a sharing case).

[138] *See* Stewart v. Abend, 495 U.S. 207, 237 (1990); Harper and Row Publishers, Inc., v. Nation Enterprizes, 471 U.S. 539, 563 (1985).

[139] *See id*.

[140] *Cf.* William W. Fisher III, *Reconstructing the Fair Use Doctorine*, 101 Harv L Rev 1661, 1719-1721 (1988).

[141] The Ninth Circuit in Sony Corp. of Amer. v. Universal City Studios, Inc., 659 F.2d 963, 970 (9th Cir. 1981), and the Supreme Court dissent, 464 U.S. 417, 475 (1984) (Blackmun, J., dissenting) argued that the fair use doctrine should never apply to reproduction that enables sharing. The majority rejected this view and allowed fair use simply to expand consumption opportunities. *See* Sony, 464 U.S. at 450 n.33. *See also* Glynn S. Lunney, Jr., *Fair Use and Market Failure: Sony Revisited,* 82 B.U.L. REV. 975, 977 (2002) ("Merely increasing access to a work, even unauthorized access, represents a sufficient public interest to invoke the fair use doctrine.").

[142] Judicial innovation in fair use doctrine is common and easy to justify. "[E]ach of the factors taken alone is defined in only the most general terms, so that the courts are left with almost complete discretion in determining whether any given factor is present in any particular case." Nimmer, 13-153, §13.05[A]. And

A. *Spontaneous and Systematic Uses*

Courts properly distinguish between spontaneous and systematic uses when they apply the fair use doctrine. They recognize spontaneous uses usually have little impact on copyright owners' profit, and in aggregate they provide significant social benefit. Typical spontaneous uses include last minute copies of music, video or text by teachers for class, and photocopying by library patrons as a substitute for note-taking. Typical systematic uses include photocopying of newsletters and journal articles by firms and photocopying for university course-packs. Courts favor spontaneous uses because of relatively high transaction costs,[143] and disfavor systematic uses because of relatively low transaction costs.[144] The logic behind this distinction is sound, but I will show there are other reasons to distinguish spontaneous from systematic uses.

The following example illustrates the transaction cost logic. Suppose teacher *X* finds an article in the newspaper one morning and he makes copies for use in his class later that day. Sharing the article with his class produces a net benefit (in excess of the copying cost) of 6. Suppose teachers *Y* and *Z* clipped the same article and copy it every year for their classes. Their classes get the same net benefit of 6. Copyright law applies fair use to the spontaneous copying by *X*, but not the systematic copying by *Y* and *Z*. Suppose *Y* and *Z* incur transaction costs of 1 to get an annual photocopy license. The publisher will set the annual license fee at 5 to maximize profit. Licenses by *Y* and *Z*

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the list of factors is illustrative and not exhaustive. *See* Castle Rock Enter. v. Carol Pub. Group, Inc., 150 F.3d 132, 141 (2nd Cir. 1998).

[143] For example, spontaneous photocopying for classroom use is fair use according to fair use guidelines negotiated about the time the Copyright Act was revised in 1976 by members of affected interested groups. The guidelines were intended to set minimum levels of non-infringing classroom copying and they were included in the in a House Report on revised copyright statute, but not in the statute itself. *See* Nimmer on Copyright, Section 13.05[E][3][a]. The guidelines suggest that one photocopy for each student is a fair use if the copy is brief, done spontaneously, and the teacher does not engage in more than nine instances of multiple photocopying during any one class term. Id. at Section 13.05[E][3][b] – [c]. The guidelines do not apply to "consumable" works like workbooks, and they do not apply to copying that substitutes for the purchase of a work. 13.05[E][3][d]. *See also* Jane C. Ginsburg, *Reproduction of Protected Works for University Research or Teaching*, 39 J. Copyright Soc'y 181, 185 (1992) (the Berne Convention allows exemptions from the reproduction right for university research and teaching). Also, classroom performance of a copyrighted work is exempted from the public performance right by Section 110(2?).

[144] *See* Michigan Document Serv. v. Princeton Univ. Press, 99 F.3d 1381 (6th Cir. 1996) *en banc* [part IV of the opinion] (the "systematic" nature of course-pack copying works against a finding of fair use); Princeton University Press v. Michigan Document Services, Inc., 99 F.3d 1381 (6th Cir. 1996), en banc, cert. denied, 117 S. Ct. 1336 (1997); Marcus v. Rowley, 695 F.2d 1171 (9th Cir. 1983) (not a fair use when a teacher made multiple photocopies, for multiple classes); Basic Books v. Kinko's Graphics Corp., 758 F. Supp. 1522 (S.D.N.Y. 1991). Public libraries get a limited copyright exemption for certain photocopy-related activities but the exemption does not apply to systematic or multiple copies. *See* 17 U.S.C. §108.

Systematic videotaping also does not qualify for fair use. *See* Encyclopedia Britannica Educ. Corp. v. Crooks, 542 F. Supp. 1156 (W.D.N.Y. 1982) (denying fair use defense to a nonprofit organization engaged in systematic videotaping of educational programs for distribution to a public school system); Wendy J. Gordon, *Fair Use as Market Failure: A Structural and Economic Analysis of the Betamax Case and its Predecessors,* 82 Colum. L. Rev. 1600, 1629 (1992) (systematic and centralized videotape copying of educational programs is not a fair use because benefit to user is high relative to transaction costs).

generate a profit of 10. Total surplus is 16, the value of all three uses minus the transaction costs incurred by *Y* and *Z*.[145]

Now *s*uppose *X*'s copying is not fair use, and *X* would incur a transaction cost of 3 to get permission to make the copies. *X*'s transaction costs are likely to be higher because of the need to get permission in a hurry and because *Y* and *Z* repeat the transaction each year. Assuming the copyright owner cannot distinguish spontaneous from systematic uses at a reasonable cost, it would maintain the same license fee of 5 and earn the same profit of 10, and total surplus falls to 10. *X* does not license at a price of 5 and would only license at prices less than or equal to 3 = 6 – 3. A license fee of 3 is not attractive to the publisher because it would yield a profit of 9. In this example, fair use does not harm the publisher's profit because no licensing revenue is lost. But fair use raises social welfare because it allows *X* to share the article with his class.

This transaction cost theory in favor of fair use faces mounting challenges on two fronts. First, several commentators have observed that costs associated with gaining permission and making payment are declining in many markets because of the Internet and related developments.[146] As these transaction costs decline one justification for fair use and similar doctrines slips away. If the transaction costs between *X* and the seller vanish, then the seller's profit would grow from 10 to 15, total surplus would still be 16, and the case for fair use disappears. Second, some courts and commentators worry that fair use discourages the development of licensing markets.[147] The profit available from high transaction cost users provides a potent incentive for the seller or some third party to create a market with lower transaction costs.[148]

The two-fold case against fair use is strong, but not as strong as some think. The prospect of a world without transaction costs seems remote. Micro-payments and internet delivery of digital content have not been adopted as quickly as some predicted.[149]

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[145] Notice that 2 units of total surplus are lost because *Y* and *Z* each incur transaction costs of 1. If all photocopying were fair use, then total surplus would rise to 18, but the 10 units of profit would be lost. Fair use should apply to marginal cases in which a buyer is willing to transact despite incurring a transaction cost that is large relative to the sale price. The loss in total surplus attributable to the transaction cost may outweigh the incentive effect created by the profit from the transaction. *See* Meurer, *Price Discrimination, supra* note x, at x.

[146] *See* Robert P. Merges, *The End of Friction? Property Rights and the Contract in the 'Newtonian' World of On-Line Commerce,* 12 BERK. TECH. LAW J. 115, 130 (1997) ("[B]ecause the contemporary fair use doctrine is predicated on a market failure rationale, and because an electronic exchange potentially eliminates this market failure for digital content, fair use law will significantly shrink, or an alternative basis for fair use will be rediscovered."); Tom W. Bell, *Fair Use Vs. Fared Use: The Impact of Automated Rights Management on Copyright's Fair Use Doctrine* 76 NO. CAR. L. REV. 557, 567-68 (1998).

[147] *See* Amer. Geophysical Union v. Texaco, x F.3d x, x (199x); Gordon at 1619 (The fair use doctrine should be interpreted so as to "avoid the danger of making otherwise curable market failures permanent through the grant of fair use."); Richard P. Adelstein & Steven I. Peretz, *The Competition of Technologies in Markets for Ideas: Copyright and Fair Use in Evolutionary Perspective*, 5 INT'L REV. L. & ECON. 209 (1985) (arguing markets will find a way to overcome high transaction costs); Robert P. Merges, *Of Property Rules, Coase, and Intellectual Property*, 94 COLUM. L. REV. 2655, 2655 (1994) (property rules give industry participants an incentive to invest in institutions that reduce transaction costs) Robert P. Merges, *The End of Friction? Property Rights and the Contract in the 'Newtonian' World of On-Line Commerce,* 12 BERK. TECH. LAW J. 115, 131 (1997) (the fair use doctrine might discourage the development of institutions that encourage licensing by reducing transaction costs).

[148] Internet based licensing might reduce *X's* transaction costs to 1.

[149] *See*.

Furthermore, eliminating contracting and payment costs does not eliminate transaction costs.[150] Many teachers and library patrons would make unauthorized photocopies unless there was a credible threat of enforcement, but direct enforcement costs could be prohibitively high. A suit against a school or library for indirect infringement would be more effective, assuming the library safe harbor contained in Section 108 of the Copyright Act gets repealed in a hypothetical world with no contracting and payment costs.[151] Schools and libraries would monitor photocopier usage or remove photocopiers so they would not be liable for indirect copyright infringement. The final result likely would be less spontaneous photocopying, burdensome enforcement costs for schools and libraries, and not much additional profit for copyright owners. Good copyright policy should acknowledge the costs of creating a new a licensing market; it should be especially wary of imposing enforcement costs on third parties to encourage new markets.[152]

Systematic photocopying creates fewer enforcement problems than spontaneous photocopying. It is more visible and the stakes are higher which makes direct enforcement more likely. It is also less costly for libraries and schools to monitor, and their monitoring costs drop significantly when they accept a blanket photocopying license.[153] Corporate libraries generally get licenses from the Copyright Clearance Center. These licenses implement fine-grained price discrimination that increases profit to copyright owners, and also encourages widespread licensing and high levels of total surplus.[154]

Systematic photocopying also poses more of a profit threat than spontaneous photocopying.[155] Systematic users probably hold higher valuations for the copied texts

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[150] *See* Robert P. Merges, *The End of Friction? Property Rights and the Contract in the 'Newtonian' World of On-Line Commerce,* 12 BERK. TECH. LAW J. 115, 116 (1997) (digital technology reduces some but not all kinds of transaction costs). Blanket licensing (and other schemes like site licenses that link price to the number of end-users) imposes transaction costs because of the more complicated pricing scheme. They are more complicated to negotiate than uniform prices and require on-going monitoring and occasional enforcement. *See* Nicole B. Casarez, *Deconstructing the Fair Use Defense: The Cost of Personal and Workplace Copying After American Geophysical Union v. Texaco, Inc.*, 6 Ford. I. P., Media & Ent. L. J. 641, 644 (1996) (Texaco held a CCC license but the plaintiffs claimed that Texaco did not accurately report its photocopying).

[151] Lawsuits against universities for indirect copyright infringement have discouraged professors from making unauthorized course packs. *See* 17 U.S.C. 108.

[152] Spontaneous uses might that generate positive externalities might deserve fair use treatment as a form of subsidy, but this should be justified by directly identifying the social benefit from the copying. A copyright owner's hostile reaction to parody or criticism, and bargaining failure attributable to bilateral monopoly may justify fair use even in digital markets *See Merges* at 133. Postive externalities are also commonly cited to justify fair use. *Id*. at 134. *See also* Lydia Pallas Loren, *Redefining the Market Failure Approach to Fair Use in an Era of Copyright Permission Systems*, 5 J. INTELL. PROP. L. 1, 6 (1997).

[153] Monitoring may continue despite a blanket license because the Copyright Clearance Center falls far short of the nearly universal coverage available from music performance licenses.

[154] The Copyright Clearance Center administers blanket photocopying licenses that link royalties to the number of employees at a company. *See* x. Site licensing increases value to users by consolidating many transactions into a single transaction.

[155] The divergent profit effect of spontaneous and systematic photocopying helps explain the apparent conflict between *Texaco* and *Williams & Wilkins*. Texaco systematically circulated the tables of contents of journals and made archival copies for researchers that amounted to course packs. In contrast, the National Library of Medicine (NLM) made photocopies for the public only in response to requests for older or

and are more likely to make a purchase than spontaneous users. Furthermore, systematic use hurts profit through the coalition diversity effect.[156] The effect on profit would be huge if firms purchased single copies of business publications and made photocopies for all of their employees.[157] Such copying would create significant demand dispersion because of variation in firm size.[158] Photocopy licenses solve the coalition diversity problem by charging fees based on number of employees or number of copies.[159]

Blanket licenses are not as useful for spontaneous photocopying. There is not much benefit to publishers from price discrimination; spontaneous classroom use probably has little effect on dispersion of library demand because the pattern of use is unpredictable at the time the copied text is purchased.[160] Similarly, the requirement that a library must be open to the public to qualify for the Section 108 safe harbor means that the pattern of photocopying is less predictable, and unlikely to greatly influence the dispersion of library demand.[161] A license might authorize spontaneous photocopying for

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harder to find journals. Id. at 1355. But the NLM did make photocopies of widely available recent journals for recipients in the government. Id. at 1354-55.

[156] The distinction between single and multiple copies in the Classroom Guideines plays the same role as the distinction between systematic and spontaneous copying. Multiple copies create coalition diversity and increase demand dispersion. *See supra* note x.

[157] For cases in which industry newsletters were photocopied *see* Kenneth D. Crews, *Copyright at a Turning Point: Corporate Responses to the Changing Environment,* 3 J. Intell. Prop. L. 277, 290 n.44 (1996) (A law firm settled a copyright lawsuit arising because for 18 years it photocopied a newsletter and distributed copies to attorneys in the firm. The firm purchased one copy for an annual fee of $657 but declined to purchase additional copies at the price of $295.) Television Digest, Inc. v. U. S. Telephone Ass'n, 841 F. Supp. 5, 7 (D.C. 1993) (trade association bought a single subscription of a newsletter and routinely made 12 to 26 copies for its employees).

[158] Small companies might have a single employee reading a publication, while large companies could stop purchasing multiple subscriptions and let a large number of employees share a single copy of the text. Texaco subscribed to three copies of the journal Catalysis and supplied photocopied articles from the journal to hundreds of scientist. *See* American Geophysical, 802 F. Supp. at 22.

[159] *Contra* Nicole B. Casarez, *Deconstructing the Fair Use Defense: The Cost of Personal and Workplace Copying After American Geophysical Union v. Texaco, Inc.*, 6 Ford. I. P., Media & Ent. L. J. 641, 703 (1996) ("the number of potential copiers sharing a particular subscription (or broadcast) should make no difference in the characterization of their copying as time-shifting or not.").

[160] Sharing made possible by photocopying would increase the number of users per copy of text and so the aggregation effect should dominate the coalition effect in this setting. It is possible that after publishers respond to a decline in subscriptions with a price increase, photocopying in public sector libraries could increase profit. Stan J. Leibowitz, Copying and Indirect Appropriability: Photocopying of Journals, 93 J. Pol. Econ. 945 (1985); Leibowitz 192-98 (price discrimination by journals against libraries makes copyright relief unnecessary) Leibowitz 192-93 (faster increase in institutional journal prices compared to individual prices suggests price discrimination is responsive to increased photocopying)

[161] Section 108 exempts from copyright liability certain photocopy-related activities at public libraries. To qualify the library must be open to the public, or at least open to non-affiliated researchers. The copies must be for scholarly, non-commercial use, and the activities cannot be systematic or result in multiple copies. 17 U.S.C. 108(d).

Although libraries certainly differ in size, coalition diversity is not as much of an issue in this market. The practice of making interlibrary loans evens out the number of library patrons that share a work. *See* Diane Leenheer Zimmerman, *A Lesson for the Digital Future from the Old Media: Photocopying, Journal Pricing and Their Impact on the Enterprise of Scholarship and Research, available at:* http://www.law.nyu.edu/ili/conferences/freeinfo2000/abstracts/zimmerman.htm. Libraries have "experimented with consortia and interlibrary lending to attempt to deal with subscription prices." Libraries have considered a peer-to-peer file sharing system similar to Napster that could replace interlibrary loans.

a fixed annual fee. The effect would be similar to a levy on photocopiers that is distributed to copyright owners. (Levies are discussed in Part VI.C.) The license would relieve the library of much of the burden of monitoring photocopier usage.[162] But it would probably cut spontaneous use significantly without adding much to profit. Spontaneous use would fall because librarians probably do not appropriate much of the value from such use.[163] Librarians are more apt to recognize systematic copying and respond to lobbying from systematic users than they are to respond to spontaneous use, especially if the users are from outside the library's institution. Consider for example the librarians at a private university. Universities that allow the general public to use their collection and their photocopiers might not be willing to pay much to license photocopying by these strangers. In summary, spontaneous uses should be fair because making them infringing leads to output restriction and high transaction and enforcement costs.

B. *Research Use*

Courts favor research uses when applying the first fair use factor. Fair use subsidizes research activities that generate positive externalities, but there must be limits on this rationale. Some copyrighted works are marketed exclusively for research use; if fair use applies too broadly then there is no incentive to create and distribute such works. These issues are nicely framed by a pair of photocopying cases that feature research use, *Williams & Wilkins v. U.S.*,[164] and *American Geophysical Union v. Texaco.*[165] In

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File sharing could avoid the high labor costs required to scan documents for interlibrary loans. *See* Associated Press, *Napster C.E.O. Talks About Copyrights*, N.Y.TIMES, June 17, 2001

Some individual subscribers are likely to drop their subscriptions because library copies are more attractive when photocopying is possible. This effect is mitigated by the ability of publishers to discriminate between individual subscribers (who pay a lower rate) and institutional users such as libraries. Offsetting a drop in individual subscriptions is an increase in the total number of readers. New readers appear because some potential readers who do not have an individual subscription also do not have the patience to read a text in the library or wait to carry it home and read it. Since many libraries do not allow journals, or at least recent journals to circulate, the availability of photocopying could have had a significant effect on the number of journal article readers.

The case for digital interlibrary lending may not be as strong because publishers can distribute digital text more efficiently than libraries. Most Elsevier Science journal subscriptions include Internet access at no extra charge to users within the IP domain of the subscriber. *See* x, available at: http://www.elsevier.com/homepage/subpricelist/pdf/catalog_dollar.pdf (last visited July 23, 2002). However, BioMedNet Reviews is available through a site license with a price based on the potential number of users. available at: http://www.elsevier.com/homepage/subpricelist/pdf/catalog_dollar.pdf (last visited July 23, 2002). *But see* Ann Bartow, *Libraries in a Digital and Aggressively Copyrighted World: Retaining Patron Access through Changing Technologies*, 62 Ohio St. L. J. 821, 824 (2001) (arguing that library patrons should retain the same rights in a digital world that they previously possessed) at 826 (the digital equivalent of sharing a book requires copying).

[162] Given my assumption that Section 108 is repealed, they would still have to monitor for systematic photocopying.

[163] Suppose that *X* faces high transaction costs, total surplus grows if *X* shares with *Y*, and the copyright owner does not suffer any lost profit. If *Y* does not account for *X's* valuation, then site licensing will not be profitable, and the copyright owner will not authorize sharing. Thus, the socially optimal policy allows sharing without permission.

[164] 487 F.2d 1345 (Ct. Cl. 1973), aff'd by an equally divided Court 420 U.S. 376 (1975) (per curiam).

[165] *See*, 60 F.3d 913 (2nd Cir. 1994).

Williams & Wilkins, the Court of Claims applied fair use in a case involving photocopies made by the National Library of Medicine (NLM) and the library at the National Institute of Health (NIH). The NIH library made single photocopies of articles in medical or scientific journals upon request by NIH research scientists. The NLM made similar photocopies in response to interlibrary loan requests. About ten years later in *Texaco* the Second Circuit refused to apply fair use to a corporate library that made photocopies of articles from scientific journals for Texaco research scientists.

The Court of Claims based its fair use decision on the laudable purpose of the copying and the lack of market effect on the plaintiff.[166] Specifically, the plaintiff did not show loss of subscriptions or other persuasive evidence of harm from photocopying.[167] The court also noted that library "photo-duplication" was a common and accepted practice.[168] The most important consideration for the court was its fear that medical research could be harmed by a finding of infringement.[169]

The *Texaco* court downplayed the significance of the research purpose of Texaco's photocopying and instead emphasized that the market for photocopy licenses would be harmed by a finding of fair use.[170] The court criticized *Williams & Wilkins,*[171] but also distinguished it on two grounds. First, photocopy licensing was a more realistic option for Texaco after the establishment of the Copyright Clearance Center[172] in 1978.[173] Second, the research at Texaco was more closely connected to the profit-making activities of Texaco and therefore more commercial than the medical research at issue in *Williams & Wilkins*.[174]

Like the *Texaco* court, commentators who have compared the two cases focus on the first and fourth fair use factors.[175] Many commentators emphasize the research purpose of the photocopying and favor recognition of fair use in both cases;[176] others emphasize the negative market effect of photocopying and oppose fair use in both cases.[177] Research use favors a finding of fair use because research generates social

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[166] 487 F.2d at 1354.

[167] Id. at x. Nimmer criticizes the Court of Claims for mixing the issues of liability and damages. Nimmer 13.05[E][4][c] at 13-251. That criticism is unwarranted. Fair use analysis must balance the magnitude of the profit loss to the plaintiff against the total surplus gain created by the defendant's use. Nimmer's criticism of the assumptions standing behind the Court of Claims analysis of harm to profit is more persuasive, id. at 13-252, nevertheless, the Court of Claims may have reached the correct conclusion as my discussion in the next few paragraphs will explain.

[168] Id. at 1356. *See also*, Texaco, 60 F.3d at 934 (x dissenting) ("single photocopies for research and scholarly purposes has been considered both reasonable and customary").

[169] Id. at 1354, 1356.

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[171] *See*, 60 F.3d at 924 n.10 (criticizing broad reliance on the metaphor equating photocopying with note-taking).

[172] The CCC was formed in 1978. *See* Copyright Clearance Center, *Corporate Overview* available at: http://www.copyright.com/About/default.asp (last visited July 30, 2002).

[173] *See*, 60 F.3d at 924, 931.

[174] *See*, 60 F.3d at 920-22.

[175] The third factor is not contested in the photocopying or other sharing cases, because the entire work is copied. In other fair use cases, the defendant may be able to show copying has minimal effect on profit because very little of the copyrighted work is used. *See e.g.,* x. The second factor …

[176] Loren. Lunney tan 157-160.

[177] Nimmer.

benefit that is not captured by the research organization.[178] The gap between private and social return causes an undersupply of research that can be remedied by a subsidy.[179] Free photocopying might be justified as a research subsidy. Critics respond that taxes, research grants, and the patent system are preferable to the fair use doctrine as a tool for promoting research.[180] Regardless of how much weight should be accorded a research purpose, the *Texaco* court's treatment of Texaco's research purpose is flawed by its failure to acknowledge that the subsidy rationale for fair use applies with as much force to corporate research as it does to public sector research.[181]

The analysis in *Williams & Wilkins* is flawed by the court's failure to acknowledge the possibility of a photocopy license.[182] The court apparently assumed the only option for libraries given an adverse decision would be to purchase more subscriptions.[183] Although the decision pre-dated the CCC, the blanket music performance licenses available from ASCAP and BMI were evidence of the possibility of efficient photocopy licensing for institutions like libraries.[184] Dissenting Judge Cowen believed that denying fair use would spur the parties to implement a photocopy licensing scheme.[185] He might have been right, but of course, it is not clear such a market would be desirable. Licensing generates more favorable social welfare effects when applied to the systematic, commercial photocopying of Texaco[186] than it does when applied to the spontaneous, non-commercial photocopying at the NLM and NIH.[187]

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[178] For evidence that the social return on private R&D is much higher than the private return *see* x.

[179] Loren, Merges.

[180] *See* x.

[181] The educational role of public sector libraries provides an alternative subsidy rationale that favors fair use for academic and public libraries, but not corporate libraries.

[182] Wendy J. Gordon, *Fair Use as Market Failure: A Structural and Economic Analysis of the Betamax Case and its Predecessors,* 82 COLUM. L. REV. 1600, 1649-50 (1992) (criticizing Williams & Wilkins because of the likelihood that a blanket photocopy license would keep transaction costs small relative to the benefits from photocopying).

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[185] 487 F.2d at 1372 (Ct. Cl. 1973). Further evidence was available from European experience with photocopy licenses and library lending rights. *See* Jane C. Ginsburg, *Reproduction of Protected Works for University Research or Teaching*, 39 J. Copyright Soc'y 181, 196 (1992) (describing photocopy licenses in the Nordic countries); cite (describing lending rights). *Cf.* Glynn Lunney, *Fair Use and Market Failure:* Sony *Revisited,* forthcoming B.U.L.Rev. n. 8 (200?) (predicting reversal of Sony would motivate Congress to adopt a levy system for home recording).

[186] Texaco librarians as corporate employees are apt to do a good job finding the efficient mix of journal subscriptions and photocopying, and incorporate the value users derive from photocopying into their valuations when they purchase journals for the Texaco library. The reading and photocopying habits of the researchers at Texaco are probably fairly predictable, and librarians can institute systematic procedures to maximize the value derived from photocopying. Systematic use is easier to monitor and can feasibly serve as the basis for a usage sensitive photocopy royalty. *See*, Amer. Geophysical Union v. Texaco, 60 F.3d at 916, 931 (same behavior by an independent scientist might not infringe under fair use or de minimus doctrines). The Texaco librarians circulated the journals and researchers indicated which articles they wanted photocopied the court made note of this "institutional, systematic photocopying." *Id.* at 915-16.

[187] The Texaco library was closed to the public while the NLM is indirectly open to the public because of its role as the librarians' library and its active interlibrary loan program. Id. at 1355. The NIH library is open to the public but most users come from the NIH. *See* Williams & Wilkins, x F.2d at 1347. Most of the requests to the NLM for interlibrary loans came from other libraries or government agencies.

Besides photocopying, shared research use of software and databases deserves special consideration under the fair use doctrine. The following example illustrates a new argument in favor of fair use. The argument shows sharing sometimes allows users to exert countervailing market power against a seller to encourage output expansion.

The example features three academic researchers *X*, *Y,* and *Z* who want to use a new software product. The value of the software varies significantly across users. Suppose each of three potential users is equally likely to have a valuation of 3 or 7. Buyers know their valuation, but the seller does not know who has a value of 3 and who has a value of 7. When the three users act independently then the uniform monopoly price is 7. Obviously, users purchase only if they have a valuation of 7. Since each user will purchase with a probability of one-half the expected profit is 10.5, and the expected total surplus is 10.5.[188]

Suppose *X* and *Y* form a coalition to share the product. If the seller maintains a uniform price of 7 then profit falls to 8.75 because of lost sales.[189] The seller optimally should adjust the price *downward* from 7 to 6 in response to sharing. *X* and *Y* always purchase because their joint valuation is greater than or equal to 6. *Z* will purchase with probability one-half, thus the expected profit is 9, and the expected total surplus is 13.5.[190] Thus, the coalition diversity effect pushes down profit but sharing increases total surplus. Total surplus grows because *X* and *Y* always purchase the product when they form a coalition, and *Z's* probability of purchase remains unchanged.[191] Total surplus and profit move in the opposite direction because the seller is hurt by lost sales, but from a social point of view it does not matter whether *X* and *Y* each purchase a unit, or share a single unit.

If a site license is feasible, then the seller benefits from sharing in this example. She offers a license of 7 for single users and a site license of 10 for a pair of users.[192] *X* and *Y* will accept the two-user site license as long as at least one of the pair has a

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Id. at 1349. The NLM identified 104 'widely-available" journals and generally required an individual to seek a copy from a nearby library. 487 F.2d 1345, 1349.

[188] The alternative price of $300 gives a profit of only $900.

[189] A price of $700 would be accepted with probability 1/2 by von Neumann. It would be rejected by Babbage and Boole with probability 1/4 (when both had low values). This yields an expected profit of (1/2)($700) + (3/4)($700) = $875.

[190] A price of $300 would always be accepted and yield a profit of $600. Higher prices are not profitable because of the high probability of rejection they generate.

[191] Given a coalition of all three users the monopoly price is $1300, the expected profit is $1137.50, and the total surplus is $1387.50. The price of $900 is certain to be accepted by the coalition and give a profit of $900. The price of $1300 is only rejected if all three users have values of $300 which occurs with probability 1/8. So the expected profit is (7/8)1300. For higher prices of $1700 and $2100 the probability of rejection is too high to make those choices profitable. The profit rises compared to the case with no sharing because the aggregation effect is present and there is no coalition diversity effect.

[192] Notice that site licensing yields a typical pattern of volume discount from profit maximizing discrimination. The price per user falls from $700 to $500. I can extend the analysis to a coalition of three buyers. The seller would set a price of $1300 for three users, which implies a per user price of $433.

The personal arbitrage constraint is always satisfied. The coalition of two would not purchase an individual license at a saving of $300 because one of the users in the coalition would not be able to use the software implying a loss of at least $300. This assumes of course that license restrictions on the number of users are enforceable. The coalition of three would not purchase a site license for two because the savings are less than or equal to the loss in use value. They also would not purchase an individual license or pair of individual licenses for the same reason.

valuation of 7. If they both have valuations of 3 then they stay out of the market. *Z* will accept the individual license if he has a valuation of 7 otherwise he stays out of the market. Profit and total surplus are both higher with sharing and the site license than with no sharing. The expected profit to the seller grows to 11 and the expected total surplus grows to 12.

This example reaffirms the message that site licensing is an effective marketing tool for extracting surplus from consumers. Surprisingly, all three buyers are made worse off by site licensing compared to sharing and uniform pricing. The uniform price was only 6. The site license raises *Z's* price to 7, and the two person coalition's price to 10. Notice that site licensing yields more profit but less total surplus than uniform pricing; expected profit grows from 9 to 11 while total surplus falls from 13.5 to 12. In this example, site licensing is a form of socially costly price discrimination that reduces output and total surplus. This point deserves emphasis because many commentators assume that price discrimination always raises total surplus.

This example presents a clear divergence between the seller's interest in profit and the social interest in total surplus. Sharing by *X* and *Y* reduces profit because of the coalition diversity effect, but it also increases total surplus regardless of whether the seller chooses uniform pricing or site licensing. Intuitively, total surplus increases because the two-user coalition exerts socially beneficial countervailing power against the monopoly seller. The monopoly output restriction caused by a uniform monopoly price is eased when two potential users jointly purchase and share a single unit. A seller choosing a uniform price would not authorize sharing if it were subject to her control. So the seller's control over sharing is a way to discourage the development of countervailing power.[193] If the seller is able to site license, then she will authorize sharing, but does not have to fear the development of countervailing power. Sharing occurs on her terms. The site license alleviates some of the inefficiency that occurs when the seller blocks sharing and charges a uniform price, but the site license is less efficient than the uniform price that would prevail if fair use gives users the right to share.

C. *Commercial, Non-commercial and Personal Uses*

The distinction between commercial and non-commercial (or personal) use plays more than one role in fair use jurisprudence.[194] In the context of sharing cases, the distinction helps analyze cases with a mix of commercial and non-commercial users in which the non-commercial users tend to have lower valuations than the commercial users. Fair use protects non-commercial coalitions that might be excluded from a market that caters to commercial buyers. Alternatively, fair use might facilitate desirable arbitrage against price discrimination that harms non-commercial users.

Generally, the case for sharing is weak when coalitions do a poor job fully accounting for the valuations of their members.[195] But there are circumstances in which

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[193] Countervailing power is a threat to the seller because it is harder for the seller to extract surplus from a strong buyer, not because countervailing power moves the parties closer to the efficient output level.

[194] In fair use cases that track free speech law, it is important to distinguish the speech rights of commercial, non-commercial, and individual speakers. *See* x. Also, personal use gets special consideration when copyright liability threatens privacy. *See* x.

[195] The following example illustrates the relationship between appropriability, market demand, and the market effect of copying. Suppose two users each have a valuation of 5 and two users each have a

limited appropriability strengthens the case for the right to share. Suppose that potential users *U* and *X* both have valuations of 3 for some copyrighted work; potential users *V, W, Y,* and *Z* all have valuations of 5. As before, the marginal cost is zero. Without sharing, the profit-maximizing price is 5, and profit and total surplus equal 20. Suppose that *U* and *V* can share within their firm, and *X* and *Y* can share in a non-commercial coalition. Suppose *V* fully appropriates the value imparted to *U*, but *Y* does not appropriate any of the value imparted to *X*. Absent fair use, the seller would continue to charge a price of 5 for the work, and a license fee of 3 for sharing with one other user. The coalition of *U* and *V* would pay a total of 8 for the work and the license, but *Y* would purchase the work and not take a license, resulting in a profit and total surplus of 23. If instead non-commercial sharing is fair use, then *X* and *Y* would not need a license. The seller would offer the same sale price and license terms, *Y* would share with *X*, profit would remain at 23, and total surplus would rise to 26. The policy implication of this example is that fair use may be a desirable way to encourage non-commercial sharing that is excluded from the market because the seller targets commercial sharing and sets a high price that exceeds the valuation of non-commercial coalitions.[196] In this example, the non-commercial coalition holds a low valuation because of an appropriability problem. A similar example can be constructed in which non-commercial users simply have lower valuations.

In the previous example non-commercial users were at a disadvantage because, for some reason, the seller could not price discriminate in their favor. In this example, fair use is warranted as a way to subvert discrimination between commercial and non-commercial users. Consider a market for copyrighted software and suppose there are three commercial users *X*, *Y* and *Z* and three non-commercial users *x, y* and *z* where each lower case letter represents the spouse of the user represented by upper case letter. Each family constitutes a coalition of two. Suppose that *X*, *Y* and *Z* each have a valuation of 5 for the software that they use at work. Their family members get valuations of 1.5, 1, and 0.5 from home use yielding total valuations of 6.5, 6, and 5.5 for the three coalitions. If no sharing is allowed, the uniform monopoly price is 5, profit is 15, and total surplus is 15. If sharing is allowed, the uniform monopoly price is 5.5, profit is 16.5, and total surplus is 18. If sharing is blocked and the seller can discriminate between home and business use, then the business price is 5 and the home price is 1. Total profit rises to 17

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valuation of 4. If there is no sharing, then the price is 4, and profit is 16. Next suppose that two coalitions form, each with a high and a low valuation user. Suppose the user with the value of 5 makes the purchase decision. If the purchaser fully appropriates the valuation of the low value user, then the new price is 9, and profit reaches its maximum possible value at 18. If the purchaser incorporates only half of the value of the low valuation user, then each coalition acts as if it has a valuation of 7 = 5 + (4/2). In that case, the price is 7, and profit is 14. Notice that the aggregation effect from sharing tends to raise profit, but incomplete appropriability reduces profit. These two effects just balance if the purchaser incorporates three-fourths of the value of the low valuation user. In that case, the price is 8, and profit returns to 16.

[196] Copyright owners would be worried that commercial users could masquerade as non-commercial users and qualify for fair use. For example, corporate journal users can avoid paying page-based photocopy royalties by copying at a public library. Corporate photocopying at a public library is unlikely to be a fair use, but it is difficult to detect. The library is not liable for such infringing photocopying as long as it complies with Section 108. Despite the possibility of avoiding photocopy royalties, this problem is not serious. Corporate employees can avoid hassle and guilt by complying with a photocopy license, and more importantly, royalties are often lump-sum fees rather than page-based so there is no incentive to go to the public library.

and total surplus falls to 17.5. The price discriminating seller blocks sharing because it interferes with the seller's desire to segment the market based on business versus home use.[197] The effect of the discrimination is to increase profit and decrease total surplus. Sharing allows the users to gain countervailing power which increases consumer surplus and total surplus.

D. *File-sharing*

In *Sony Corp. of America v. Universal City Studios* the Supreme Court held private copying of television programs may be a fair use.[198] Specifically, it is fair use for consumers to videotape television programs so they can view them at some time after the broadcast.[199] The Court did not have reason to consider whether it is also a fair use to videotape a program and then give the tape to a friend.[200] Commentators assume such sharing is a fair use,[201] but the issue has not been decided in court. That may change soon because of the suit filed by the movie industry against, Sonic Blue, the maker of a device called ReplayTV.[202] ReplayTV allows users to record a television program and send copies over the Internet to as many as fifteen friends.[203] If the case is not settled, the movie industry is likely to argue that this form of sharing is not a fair use.[204]

The fair use analysis of movie-sharing parallels the analysis of time-shifting in *Sony*. Whether for time-shifting or sharing, the user copies the entire movie so the third factor favors the copyright owners. Movies are highly expressive works so the second factor normally would also favor copyright owners,[205] but the *Sony* Court dismissed that

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[197] New EU rules adopted in Feb. 2001 tighten the definition of private copy but the rules allow people to make private copies of data on the Internet and share those copies with friends provided the copyright holder gets "fair compensation."

[198] 464 U.S. 417 (1984).

[199] The Court approved of "time-shifting" as purpose deserving protection under the fair use doctrine. *Id*. at x. Many countries embrace the notion that "personal" use of copyrighted works is outside of the scope of copyright protection. *See* Computer Science and Telecommunications Board, National Research Council, THE DIGITAL DILEMMA: INTELLECTUAL PROPERTY IN THE INFORMATION AGE 129 (2000) (the copyright law of many countries contains a private use copying privilege). There has been relatively little written by U.S. courts but a great deal written by law professors that approves of time-shifting and other personal uses as fair use. See e.g., Deborah Tussey, *From Fan Sites to Filesharing: Personal Use in Cyberspace*, 35 GA. L. REV. 1129, 1181-89 (2001) (advocating a statutory personal use privilege); x.

[200] Since Sony was accused of contributory infringement the Court only needed to consider whether there were significant non-infringing uses of the Betamax video-recorder. The Court found time-shifting was a significant use and noninfringing as a fair use. There was no need to establish whether other possible uses were infringing. Sony at 442.

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[202] *See* Complaint, Paramount Picts. Corp. v. ReplayTV, Inc., Civ. No. 01-09358 (filed C.D. Cal. Oct. 31, 2001).

[203] Doug Isenberg, *High-Tech TV Recording, the Internet and the Law*, GIGALAW.COM, November, 2001, available at <http://www.gigalaw.com/articles/2001/isenberg-2001-11.html>.

[204] Like Sony, Sonic Blue is charged with contributory copyright infringement. The question of whether movie-sharing is infringing is likely to arise in the case because the feature of ReplayTV that allows movie-sharing can be eliminated by reprogramming the system.

[205] Copyright law assumes that more expressive works require stronger incentives and deserve "thicker" copyright protection. Conversely, less expressive works need relatively weak incentives and only get "thin" copyright protection.

presumption because the movies were available free of charge on broadcast television.[206] The same analysis applies to movie-sharing, but it must be updated in light of the prevalence of commercial-free pay-per-view and premium cable television movies. When users share the latter formats the second factor moves back in favor of the copyright owner.[207]

Analysis of the first factor presents more of a challenge. *Sony* seems to indicate that movie-sharing like time-shifting is a personal, non-commercial use,[208] but the Ninth Circuit treated music file-sharing as a commercial use in *A&M Records, Inc. v. Napster, Inc*.[209] *Napster* characterized music-sharing as commercial because it displaced possible music sales and because of its anonymous character.[210] ReplayTV differs from the Napster software because it does not allow anonymous file-sharing. It more closely resembles the practice of sharing a cassette of recorded music or a videotaped movie with a friend. Thus Sonic Blue can argue that it enables a customary form of movie-sharing, and a customary use tends to be a fair use.[211] Copyright owners can respond that the scale of sharing will be greater with the new technology and so no custom has been established. The concern that file-sharing displaces music sales (or movie sales and rental) ultimately gets resolved in the analysis of the market effect factor. Good copyright policy should balance lost sales against expanded access to music or movies made possible by sharing. Courts are reluctant to permit such balancing though because it invites pirates to raise a fair use defense.[212]

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[206] Sony at 449.

[207] For the argument that the second factor should not be weighted too heavily in this sort of case *see* Glynn Lunney, Jr., *The Death of Copyright: Digital Technology, Private Copying, and the DMCA*, forthcoming VA. L. REV. Text at notes 168-78 (2001) (explaining that music-sharing facilitated by Napster was concentrated on a small number of very popular artists and incentives for most artists were not affected); Glynn Lunney, *Fair Use and Market Failure:* Sony *Revisited,* unpublished manuscript 2002. tan 168 (same argument in the context of ReplayTV). Lunney's argument relies on diminishing marginal returns and implicitly rejects the assumption that incentives depend on expected profit mean and the lure of creating a popular hit.

[208] Space-shifting is fair use. Cite. Personal use is fair use. Lydia Pallas Loren, *Redefining the Market Failure Approach to Fair Use in an Era of Copyright Permission Systems*, 5 J. INTELL. PROP. L. 1, 7 (1997).

[209] *See* 239 F.3d 1004, 1015 (9th Cir. 2001). Computer Science and Telecommunications Board, National Research Council, THE DIGITAL DILEMMA: INTELLECTUAL PROPERTY IN THE INFORMATION AGE 129 (2000) ("Perhaps the most contentious current copyright issue concerns the legality of private, noncommercial copying.")

[210] Id. It is not clear what impact Napster had on music sales. *See*). *See* Matt Richtel, *Napster and Record Industry Clash over Sales and Copyrights,* N.Y. TIMES, July 4, 2000, <http://www.nytimes.com/library/tech/00/07/biztech/articles/04music.html> (The industry studies show that Napster use reduces sales and the Napster studies show the opposite.) My model suggests that anonymous music file-sharing almost surely harms profit because of the coalition diversity effect and appropriability problems.

[211] Williams & Wilkins.

[212] Lunney argues expanded access counts as a pro-defendant purpose. Jessica Litman advocates reforming copyright by replacing the exclusive right to reproduce with an exclusive right of commercial exploitation. *See* JESSICA LITMAN, DIGITAL COPYRIGHT 180-81 (2001). But see LAWRENCE LESSIG, THE FUTURE OF IDEAS: THE FATE OF THE COMMONS IN A CONNECTED WORLD 258 (2001) (arguing the Internet erased meaningful distinctions between commercial and non-commercial). The significance of the distinction is declining because the Internet makes not-for-profit piracy feasible. Most "warez" software pirates do not get any money for their troubles. See Jennifer 8 Lee, *Pirates of the Web,* N.Y. Times, July 11, 2002 available at: http://www.nytimes.com/2002/07/11/technology/circuits/11WARE.html (last visited

The market effect of movie-sharing is difficult to discern because movie marketing is complex. The complexity arises because movies are released in a variety of formats in a relatively fixed sequence. Movies are first released in theaters, and then several weeks later to video and DVD for rental and sale.[213] Movies first appear on television in pay-per-view format about six weeks after the video release.[214] There are three later release television release dates for premium cable and satellite, network television, and syndication.[215] This marketing structure is designed to sort consumers according to their eagerness to see a movie and willingness to pay. Television viewers fall into the last four of the six release windows and so have lower valuations. One effect of movie-sharing is to mix television viewers, who otherwise would have been segregated into separate release windows. There is also an indirect effect on the two earlier release windows. A change in prices charged at later release dates ripples through the entire pricing structure.

Intuition based on the model in Part II suggests that sharing of pay-per-view and premium cable movies probably hurts profit in the television markets without raising total surplus. If current marketing practices do indeed sort customers into relatively homogeneous groups, then sharing interferes with that sorting and increases demand dispersion.[216] If movie studios respond to sharing by increasing prices for pay-per-view and premium cable, that would hurt total surplus by encouraging television viewers to delay their viewing until movies appear on free television.[217] Movie-sharing could also lead to a longer interval between the release of videos and DVDs and the release of pay-per-view. The longer interval would counteract consumers' temptation to wait for the television release and share a copy instead of paying the higher sale or rental price.[218]

July 11, 2002). The same story applies to video games that are shared over the Internet using peer-to-peer file-sharing methods. *See* John Borland, *Hackers Break Dreamcast Safeguards, Distribute Games Online*, CNET News.com, June 30, 2000, available at <http://news.cnet.com/news/0-1005-200-2181596.html?tag=rltdnws>; Stephen Shankland, *New Napster-Like Service Enables Game Swapping*, CNET News.com, August 2, 2000, available at <http://news.cnet.com/news/0-1006-200-2417632.html>; Sega Enterp. Ltd. v. Maphia, 948 F. Supp. 923 (N.D. Cal. 1996) (bulletin board).

[213] PBS Frontline, The Monster that Ate Hollywood, http://www.pbs.org/wgbh/pages/frontline/shows/hollywood/business/windows.html

[214] Id.

[215] Id.

[216] Letting a single viewer share with as many as fifteen friends creates a serious problem from coalition diversity. That problem may be mitigated though if viewers actually choose to share with only a small number of other viewers. Also, with current technology the time required to download video files limits the amount of sharing. If ReplayTV allowed sharing with only one or two friends, then the device would permit practices that look more like the sharing currently practiced with videotape recorders.

[217] Total surplus falls because delayed consumption is an economic cost in a world with impatient consumers.

[218] Lunney discusses a different feature of ReplayTV, it's ability to automatically delete commercials following time-shifting. He argues that practice should not harm profit in the network and syndication release windows as long as the fraction of viewers who time-shift and skip the commercials does not get too high.