ARTICLES

TOO MANY MARKETS OR TOO FEW? COPYRIGHT POLICY TOWARD SHARED WORKS

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I. 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 that file-

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 167–89, 215–17, because of commercial music, software, and videotape rental, *see infra* text accompanying notes 97–100, and because of public performance of music, *see infra* text accompanying notes 89–92.

3. Music file-sharing is the most popular new form of sharing. An estimated forty million Americans swapped music over the Internet in December 2002. *See* Press Release, Ipsos News Center, Legal Issues Don't Hinder American Downloaders, *at* http://www.ipsos-reid.com/pdf/media/mr030314-2revis.pdf (Mar. 14, 2003). 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* Mark Niesse, *Getting Illegal Movies for Free Has Never Been Easier*, MACON TELEGRAPH, *at* http://www.macon.com/mld/macon/news/local/5943833.htm (May 25, 2003). 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*, DAILY VIDETTE, Jan. 20, 2002, 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 Peer-to-Peer File Sharing*, 17 HARV. J.L. & TECH. 1, 38 (2003).

4. Lawsuits by the music industry have derailed Napster and other music file-sharing services. *See, e.g.*, *In re* Aimster Copyright Litig., 334 F.3d 643 (7th Cir. 2003), *cert. denied*, 124 S. Ct. 1069 (2004); A&M Records, Inc. v. Napster, Inc., 284 F.3d 1091 (9th Cir. 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 ("DMCA") will eventually control file-sharing. *See infra* Part VI. 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* note 296. 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 5.

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, and so forth. 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 exert control over many forms of sharing, but powerful business groups have defended users' sharing rights as a means of increasing their profit.[5] The two sides have wrestled in Congress and the courts over the scope of various copyright provisions,[6] especially the fair use doctrine,[7] the main arena for conflict over sharing rights and the main focus of this Article.

The received wisdom regarding copyright policy toward sharing explains fair use as a response to market failure.[8] Wendy Gordon illustrates the logic of the market failure analysis with the example of a teacher who makes last-minute photocopies of a text to share with a class.[9] Gordon argues 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

5. *See* John Borland, *Tech Giants Pan Anti-Piracy Mandate*, CNETNews.com, *at* http://news.com.com/news/2102-1023_3-274763 (Oct. 22, 2001) (reporting that Intel, IBM, Microsoft, and Compaq Computer joined forces to oppose proposed legislation that would require anticopying technology in computers and other consumer electronic devices).

6. *See* Jessica Litman, *Revising Copyright Law for the Information Age*, *in* COPY FIGHTS: THE FUTURE OF INTELLECTUAL PROPERTY IN THE INFORMATION AGE 125, 130–31 (Adam Thierer & Clyde Wayne Crews Jr. eds., 2002).

7. *See* A&M Records, Inc. v. Napster, Inc., 239 F.3d 1004, 1014–19 (9th Cir. 2001).

8. *See generally* 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 (1982) [hereinafter *Betamax*] (applying market failure theory to sharing and also a variety of individual uses); Wendy J. Gordon, *Market Failure and Intellectual Property: A Response to Professor Lunney*, 82 B.U. L. REV. 1031, 1031–34 (2002) [hereinafter *Market Failure*] (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).

9. *See Betamax*, *supra* note 8, at 1628.

10. *See id*. Gordon argues 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

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 it has come under attack on the view that digital technology is removing impediments to transactions and 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 value created by spontaneous photocopying when they purchase texts for the library.[15] The

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 recently, and might now support a finding of fair use even if there is substantial injury to the copyright owner from the use in question. *See Market Failure*, *supra* note 8, at 1031–32.

11. *See* Princeton Univ. Press v. Mich. Document Servs., Inc., 99 F.3d 1381, 1388–89 (6th Cir. 1996) (en banc); Am. Geophysical Union v. Texaco, Inc., 60 F.3d 913, 929–31 (2d Cir. 1994). *Cf.* Agreement on Guidelines for Classroom Copying in Not-for-Profit Educational Institutions with Respect to Books and Periodicals, H.R. REP. NO. 94-1476, at 68–70 (1976), *reprinted in* 1976 U.S.C.C.A.N. 5659, 5681–83 (specifying standards of "educational fair use" photocopying).

12. *See* text accompanying notes 148–150; *Betamax*, *supra* note 8, at 1620–21 (suggesting that transaction costs might decline over time).

13. *See Betamax*, *supra* note 8, at 1620–21; *infra* text accompanying notes 149–51.

14. Glynn Lunney objects to the market failure approach to fair use and argues for a public goods approach:

> Because of the public good character of copyrighted works, the private rights that copyrights creates [sic] will lead inevitably to market failure. Because market failure is inevitable, the concept of market failure cannot serve as a useful guide in determining which uses of a copyrighted work should be fair and which uses unfair . . . .

Glynn S. Lunney, Jr., *Fair Use and Market Failure:* Sony *Revisited*, 82 B.U. L. REV. 975, 996 (2002). *Cf. Market Failure*, *supra* note 8, at 1034 (expressing disappointment with "the way the market failure approach has grown-up, or rather grown-down, since the publication of [Gordon's] original piece").

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 law 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* Teleprompter Corp. v. CBS, 415 U.S. 394 (1974); Fortnightly Corp. v. United Artists Television, Inc., 392 U.S. 390 (1968). As a result of these decisions, movie copyright owners could not negotiate directly with cable television companies over cable television movie transmissions. *See Teleprompter*, 415 U.S. at 410–11 (rejecting copyright owners' concern about the "deleterious impact of such retransmission upon the economics and market structure of copyright licensing"). They were limited to negotiations with television broadcasters. *See id.* at 413. The Copyright Act of 1976 overturned these decisions by imposing liability on cable companies, and also creating a compulsory licensing scheme. *See* 17 U.S.C. § 111 (2000).

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

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

subscriptions. *See* S. J. Liebowitz, *Copying and Indirect Appropriability: Photocopying of Journals*, 93 J. POL. ECON. 945, 952–53 (1985).

16. *See infra* text accompanying notes 55–56.

17. *See* Am. Geophysical Union v. Texaco, Inc., 60 F.3d 913, 927 (2d Cir. 1994) (noting that authors of journal articles do not publish their works themselves, instead selling their rights to publishers that market their works). *Cf. Betamax*, *supra* note 8, at 1649 (discussing collective rights organizations and noting that "[c]onventional one-on-one bargaining is not the only alternative").

18. William Fisher analyzes the market effect of sharing in *Sony Corp. of America v. Universal City Studios*, 464 U.S. 417 (1984), 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, 1669–72 (1988). The facts of *Sony* contain two complications I want to sidestep. First, *Sony* presented a question about personal copying of television programs and not a question of sharing. *See Sony*, 464 U.S. at 420. Personal copies are often made so a viewer can "time-shift," that is, watch a television program at a later time. Similarly, personal copying of music allows a listener to "space-shift," that is, listen to music in a different location. 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. Cassette 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, *Vertical Restraints and Intellectual Property Law: Beyond Antitrust*, 87 MINN. L. REV. 1871, 1883–89 (2003) [hereinafter *Vertical Restraints*].

19. Certain forms of sharing have been thoughtfully analyzed under the copyright fair use doctrine, *see infra* text accompanying notes 136–43, 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 very recent. *See* Michael J. Meurer, *Copyright Law and Price Discrimination*, 23 CARDOZO L. REV. 55, 109–16 (2001) [hereinafter *Price Discrimination*] (public performance right); *Vertical Restraints*, *supra* note 18, at 1883–84 (first sale doctrine).

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. Madison, *A Pattern-Oriented Approach to Fair Use*, 45 WM. & MARY L. REV. 1525 (2004); *Price Discrimination*, *supra*, at 132–40; Michael J. Meurer, *Price Discrimination, Personal Use and Piracy: Copyright Protection of Digital Works*, 45 BUFF. L. REV. 845, 880–82 (1997)

gains and losses to copyright owners and users operating under the different market forms that can be sustained by different versions of copyright law. 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.[20] One reason is well known: sharing that generates positive externalities may be treated as a fair use in order to subsidize it.[21] This Article shows that fair use can be justified even in the absence of transaction costs and positive externalities.[22] Second, some judges lose track of copyright law's objective, encouraging production and distribution of authors' works, 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.[23] In other cases fair use should be used to discourage the development of socially wasteful

[hereinafter *Digital Works*]; and *Vertical Restraints*, *supra* note 18, at 1883–89. For two articles in the economic literature that explore sharing broadly see Yannis Bakos, Erik Brynjolfsson & Douglas Lichtman, *Shared Information Goods*, 42 J.L. & ECON. 117 (1999) and Hal R. Varian, *Buying, Sharing and Renting Information Goods*, 48 J. INDUS. 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.*, Raymond Shih Ray Ku, *The Creative Destruction of Copyright: Napster and the New Economics of Digital Technology*, 69 U. CHI. L. REV. 263 (2002); Deborah Tussey, *From Fan Sites to Filesharing: Personal Use in Cyberspace*, 35 GA. L. REV. 1129 (2001).

20. *See infra* text accompanying notes 153–56.

21. *See Sony*, 464 U.S. at 477–79 (Blackmun, J., dissenting); *Betamax*, *supra* note 8, at 1630; Lydia Pallas Loren, *Redefining the Market Failure Approach to Fair Use in an Era of Copyright Permission Systems*, 5 J. INTELL. PROP. L. 1, 49–53 (1997). For a discussion of the subsidy rationale for fair use, see Robert P. Merges, *The End of Friction? Property Rights and Contract in the "Newtonian" World of On-Line Commerce*, 12 BERKELEY TECH. L. J. 115, 134–35 (1997).

22. Fair use has been justified on a variety of other grounds. *See* Sega Enters. Ltd. v. Accolade, Inc., 977 F.2d 1510, 1521–27 (9th Cir. 1992) (discussing how fair use promotes efficient market structure); C. Edwin Baker, *First Amendment Limits on Copyright*, 55 VAND. L. REV. 891, 941–45 (2002) (arguing that fair use protects and promotes freedom of speech and of the press); Ben Depoorter & Francesco Parisi, *Fair Use and Copyright Protection: A Price Theory Explanation*, 21 INT'L REV. L. & ECON. 453, 453 (2002) (suggesting that fair use combats inefficient pricing of complementary copyrighted inputs); *Betamax*, *supra* note 8, at 1632 (arguing that fair use offsets copyright owners' antidissemination motives); Neil Weinstock Netanel, *Locating Copyright Within the First Amendment Skein*, 54 STAN. L. REV. 1, 81–85 (2001) (arguing that fair use protects and promotes freedom of speech and of the press); Pamela Samuelson & Suzanne Scotchmer, *The Law and Economics of Reverse Engineering*, 111 YALE L.J. 1575 (2002) (discussing how fair use promotes efficient market structure). None of these justifications, however, seem to apply to sharing that is allowed as fair use.

23. The Copyright Clearance Center is one such valuable institution for administering corporate photocopying licenses and reducing transaction costs.

institutions and redundant markets.[24] Too many markets can be as harmful as too few.[25]

Part II describes different ways that users share copyrighted works and how copyright law influences sharing. Parts III and IV explore the relationship between sharing and profit. Part III builds a model of sharing and uses it to identify four aspects of sharing that affect a copyright owner's profit.[26] Part IV examines the historical record for evidence indicating when sharing increases or decreases profit. The results from Part III and Part IV 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 they can share.[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

24. *See* Am. Geophysical Union v. Texaco Inc., 60 F.3d 913, 937 (Jacobs, J., dissenting).

25. For a background discussion of the concept of market failure and an explanation for why creating too many markets is socially harmful, see John O. Ledyard, *Market Failure*, *in* THE NEW PALGRAVE: A DICTIONARY OF ECONOMICS 326, 327 (John Eatwell et al. eds., 1987) ("Curing one form of market failure can lead to another."). This is different from the tragedy of the anticommons 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, 698–99 (1998). The tragedy of the anticommons causes underutilization 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 those used in two earlier articles. *See* Bakos et al., *supra* note 19; Varian, *supra* note 19. Bakos, Brynjolfsson and Lichtman analyze sharing of software and digital content. Varian analyzes the sharing of copyrighted works via video rental, resale, site licensing, and library lending. While this Article mainly addresses the copyright policy implications of sharing, earlier articles address the positive question of what effect sharing has on profit. This Article also incorporates a more extensive treatment of transaction costs and price discrimination than the earlier articles.

27. Colin C. Haley, *Buyers Would Pay More to Copy Digital Music*, Internetnews.com, *at* http://boston.internet.com/news/article.php/2109811 (Mar. 14, 2003) (reporting that a 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* S.J. LIEBOWITZ, THE IMPACT OF REPROGRAPHY ON THE COPYRIGHT SYSTEM (Bureau of Corporate Affairs, Canada, Copyright Revision Studies, 1981), *available at* http://papers.ssrn.com/sol3/cf_dev/AbsbyAuth.cfm?per_id=59984; Liebowitz, *supra* note 15, at 956; *Price Discrimination*, *supra* note 19, at 138–40; *Digital Works*, *supra* note 19, at 881; Tussey, *supra* note 19, at 1177–78.

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 50%, the combined effect of sharing and the pricing response is to leave profit unchanged.[29] Parts III and IV flesh out this simple story and show that sharing can be a blessing or a curse for copyright owners.

Parts V, VI, and VII explore the limits of a presumption arising from economic analysis and favoring copyright owner control of sharing.[30] Copyright owners favor control over sharing because control adds to their profit. They can justify this policy on the ground 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 permission from copyright

29. If the users who receive shared copies are not in the market before sharing, then sharing does not hurt profit and might increase it. *See* STAN LIEBOWITZ, POLICING PIRATES IN THE NETWORKED AGE 4, 35–36 (Cato Policy Analysis, No. 438, 2002), http://www.cato.org/pubs/pas/pa-438es.html.

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 its licenses, see the BNA Internet Law Registration Form at http://www.bna.com/ilaw/terms.htm (last visited July 8, 2004) ("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 Video Rental and Sales Revenue Statistics*, About.com, *at* http://retailindustry.about.com/library/bl/02q3/bl_vsda071502.htm?terms=video+rental+statistics (last visited July 9, 2004) (reporting that in 2001 Americans spent $7 billion on VHS rentals and $1.4 billion on DVD rentals). Perhaps there are other important social values that are not captured by the total surplus measure of social welfare. *See* James Boyle, *Cruel, Mean, or Lavish? Economic Analysis, Price Discrimination and Digital Intellectual Property*, 53 VAND. L. REV. 2007, 2033–34 (2000) (arguing that the economic approach to copyright ignores the value of browsing and the importance of privacy); Julie E. Cohen, *Copyright and the Perfect Curve*, 53 VAND. L. REV. 1799, 1808–14 (2000) (arguing that economic rewards may not stimulate production of a good mix of copyrighted works); Neil Weinstock Netanel, *Copyright and a Democratic Civil Society*, 106 YALE L.J. 283, 324–36 (1996) (arguing that the economic approach to copyright has not addressed First Amendment values effectively). 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.

owners.[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 when (1) the owner blocks socially valuable sharing because it is unprofitable, and (2) 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 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 incentives. To assure adequate incentives, copyright law tolerates and even promotes access restrictions imposed by copyright owners.[37] Thus, copyright law should recognize a right to share when the

31. *See infra* Part II.

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

33. *See infra* note 99.

34. *See* Bakos et al., *supra* note 19, at 148 ("[P]rofitability 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.").

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, 343 (1989) (discussing the trade-off between incentives and access); Jonathan Weinberg, *Hardware-Based ID, Rights Management, and Trusted Systems*, 52 STAN. L. REV. 1251, 1277 (2000) (discussing sharing as reducing productive incentives).

37. *See Sony*, 464 U.S. at 429. It is difficult to calibrate copyright policy with little empirical evidence on how the 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* Lunney, *supra* note 14, at 1018–20 (contending that the high rents for popular television shows do not produce much of an incentive because they are dissipated in transfers to the stars); *Price Discrimination*, *supra* note 19, at 95–97; MICHAEL ABRAMOWICZ,

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 V. Part VI 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 VII addresses copyright policy toward the technology and institutions that facilitate sharing. Specifically, it covers regulation and taxation of technology used for copying as well as indirect copyright infringement by parties who facilitate sharing.

II. 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

COPYRIGHT REDUNDANCY 4–7 (George Mason Sch. of Law, Law and Econ. Working Paper Series No. 03-03, 2003), *at* http://ssrn.com/abstract=374580.

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 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* 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*." AMERICAN HERITAGE DICTIONARY 1127 (2d coll. ed. 1982). The first definition suggests a fixed resource, thus the act of sharing causes the benefactor to give up something. File-sharing and performance are not sharing in this sense, but lending and resale are. In many contexts, the second definition suggests nonrivalry in consumption; thus the act of sharing brings an enjoyable experience to another at no detriment to the benefactor. All three modes of sharing discussed in this Part 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 as she announces, "Class, today's lesson on sharing has been canceled. It will be replaced by a lesson called 'protecting intellectual property.'" Hilary B. Price, *Intellectual Property*, *at* www.rhymeswithorange.com (Jan. 23, 2000). *See also* A&M Records, Inc. v. Napster, Inc., 114 F. Supp. 2d 896, 900 (N.D. Cal. 2000) (discussing the meaning of sharing and theft in the Napster context), *aff'd in part, rev'd in part by* 239 F.3d 1004 (9th Cir. 2001); Kate Leadbetter, *Rights Group Defends P2P in Ad Campaign*, *at* http://news.zdnet.co.uk/internet/0,39020369,2136872,00.htm (July 1, 2003) (reporting that the Electronic Frontier Foundation launched an advertising campaign encouraging Congress to legalize music file-sharing).

sharing users is relatively small. 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] The same amendment prohibited 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 sanction 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

40. I can think of a fourth type of sharing: the 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. Note that this Article analyzes end-users sharing end-products, not sharing by creators—the sort of sharing, for example, that takes place in the open source software movement.

41. *See* David D. Kirkpatrick, *Online Sales of Used Books Draw Protest*, N.Y. TIMES, Apr. 10, 2002, at C1 (relating that used book sales account for 15% of the book sales activity on Amazon.com; these sales are among the most profitable for Amazon.com); Charles C. Mann, *The Heavenly Jukebox*, ATLANTIC MONTHLY, Sept. 2000, at 39, 57 (reporting that editors guess four or five people read every copy of popular books and magazines).

42. *See* 17 U.S.C. §109(b)(1)(A) (2000).

43. *Id.*

44. *See* Adobe Sys., Inc. v. Stargate Software, Inc., 216 F. Supp. 2d. 1051, 1054–60 (N.D. Cal. 2002); Adobe Sys., Inc. v. One Stop Micro, Inc., 84 F. Supp. 2d 1086, 1089–92 (N.D. Cal. 2000); UNIF. COMPUTER INFO. TRANSACTIONS ACT § 503(2) (amended 2002), 7 U.L.A. 352 (2002). *See also* Jean Braucher, *When Your Refrigerator Orders Groceries Online and Your Car Dials 911 After an Accident: Do We Really Need New Law for the World of Smart Goods?*, 8 WASH. U. J.L. & POL'Y 241, 252–55 (2002).

45. SoftMan Prods. Co. v. Adobe Sys., Inc., 171 F. Supp. 2d 1075, 1083–87 (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.* United States v. United Shoe Mach. Corp., 110 F. Supp. 295, 344–46 (D. Mass. 1953) (holding that antitrust law invalidates lease-only policies applied to patented machinery), *aff'd*, 347 U.S. 521 (1954).

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 the Copyright Act.[47]

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

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 too large. 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.

47. 17 U.S.C. § 106(4), (6).

48. *See* Nicole B. Cásarez, *Deconstructing the Fair Use Doctrine: 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); *Digital Works*, *supra* note 19, at 852 (describing a distinction between sharing and piracy); LIEBOWITZ, *supra* note 29, at 6–8 (describing the role of the photocopying, videotaping, and audiotaping in making copies for sharing).

49. *See* Sony Corp. of Am. v. Universal City Studios, Inc., 464 U.S. 417, 450 n.33 (1984) (distinguishing time-shifting of movies using a videotape machine from stealing a jewel, on the basis that stealing threatens profits and time-shifting does not); 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); Tussey, *supra* note 19, at 1136–37 (distinguishing small-scale sharing from large-scale redistribution of digital works via the Internet). In a recent clear example of piracy, Sega stopped dozens of Internet sites from selling pirated versions of its videogames. *Sega Cracks Down on Software Pirates*, *at* http://www.nytimes.com/library/tech/00/07/biztech/articles/21sega-dreamcast.html (July 21, 2000). The Sega videogames were reputed to have the strongest encryption among consumer software. Nevertheless, pirates decoded and distributed the games. *Id.*

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 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 trade 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]

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) (asserting that copyrighted works are shared in homes, educational institutions, workplaces, and libraries).

51. *See infra* note 76 and accompanying text.

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 limit the 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 Co. v. United States* describes the role of the National Library of Medicine in making photocopies of journal articles upon request from anonymous library patrons. *Williams & Wilkins*, 487 F.2d 1345, 1348–49 (Ct. Cl. 1973), *aff'd by an equally divided Court* 420 U.S. 376 (1975) (per curiam).

III. 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. The dispersion created by local networks is a source of profit, however, if the seller can price discriminate by offering a site license—that is, 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 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

55. Sharing raises profit when the transaction costs of sharing are less than the marginal cost of producing and distributing the copyrighted work. *See* Stanley M. Besen & Sheila Nataraj Kirby, *Private Copying, Appropriability, and Optimal Copying Royalties*, 32 J.L. & ECON. 255, 267 (1989); Varian, *supra* note 19, at 485.

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.* Liebowitz, *supra* note 15, at 948–49 (suggesting that the introduction of the photocopier made academic journals more valuable and increased demand for journals relative to books).

music and movie distribution, but the advantage will largely disappear when authorized Internet delivery becomes routine.[57] 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. But 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; other times it 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.[58] 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.[59] Three sales generate a profit of 9. Next suppose that *X* and *Y* form a coalition to share one unit, and they are willing to pay any price up to their combined valuation of 6.[60] Then the new

57. *See* John Borland, *Altnet to Pay Kazaa Users for Swapping*, CNETNews.com, *at* http://news.com.com/2100-1025_3-1011827.html (June 1, 2003) (reporting that a firm plans to pay Kazaa users to host and trade files as a means of distributing authorized content such as games, music, and movies); May Wong, *Apple Web Music Venture Ignites Industry*, *at* http://www.rednova.com/news/stories/3/2003/05/11/story001.html (May 11, 2003) (reporting that Apple launched a service that offers downloads of music at the price of ninety-nine cents per song with virtually no restrictions on personal use).

58. 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. *See* Julie Holland Mortimer, Vertical Contracts in the Video Rental Industry 5 (Apr. 1, 2004) (unpublished manuscript, *at* http://mortimer.fas.harvard.edu/04jmp401.pdf) (noting that the marginal cost of producing, packaging and shipping a prerecorded video is about $2); Richard Roehl & Hal R. Varian, *Circulating Libraries and Video Rental Stores*, *at* http://www.firstmonday.dk/issues/issue6_5/roehl/ (May 2001) (revealing that the marginal cost of producing a video is about $1).

59. The only other sensible pricing choice is 5, which leads to one sale and a profit of 5.

60. 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 in one of four ways: (1) *X* purchases and lets *Y* copy

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.[61] 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*, and 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.[62]

Yannis Bakos, Erik Brynjolfsson, and Douglas 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.[63] 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.[64] They conclude that sharing raises profit under a uniform price when the aggregation effect dominates the coalition diversity effect. In both

and *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; or (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.

61. Sharing smoothes demand and reduces deadweight loss from monopoly pricing. *See* Bakos et al., *supra* note 19, at 123–25.

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

63. *See* Bakos et al., *supra* note 19, at 120–21.

64. *Id*. at 120. The intuition of the aggregation effect derives from the law of large numbers. When a large number of independent random variables—such as 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.

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[65] the valuations of *X* and *Y*, and thus profit increases because of sharing.

An understanding of the relationship between sharing and demand smoothing makes 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 sharing is likely to actually 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, then, that copyright law precludes unauthorized sharing of computer programs on local networks.[66] 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.[67] 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.[68] 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

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

66. The next Section explains that software publishers allow sharing on local networks under the terms of a site license charging a price that increases with the number of users on the local network.

67. 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. *See* Mortimer, *supra* note 58, at 2 (noting that a third party aggregates the demand of independent video retailers and "negotiates and monitors revenue-sharing agreements with movie distributors on their behalf").

68. Video rental stores are efficient distributors of the shared videotapes. Rental displaces much of the less efficient resale market, though online auctions could improve the efficiency of resale.

files, photographs, or movies probably vary enormously. There is potential for a severe coalition diversity effect.[69]

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.[70] 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 discrimination is less effective if business users routinely share with academic or home users.[71]

Price discrimination can ameliorate problems caused by the dispersion arising from coalition diversity. Stan Liebowitz documents such price discrimination in the market for academic journal subscriptions.[72] Publishers discriminate between libraries and individual subscribers, charging a higher price to libraries.[73] Liebowitz observes that the price differential between the two markets jumped after libraries introduced photocopiers.[74] Publishers found they could offset the effect of photocopying by increasing the differential in subscription prices between libraries and individual subscribers.[75]

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

69. The problem is aggravated by the difficulty the purchaser of an original file has appropriating value from other members of the coalition. *See infra* Part III.D.

70. *Price Discrimination*, *supra* note 19, at 58–59.

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

72. *See* Liebowitz, *supra* note 15, at 952–53.

73. 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. Lippincott Williams & Wilkins, United States (U.S.) Pricing Policy, *at* http://www.lww.com/static/customerservice/uspricing.html (last visited July 12, 2004).

74. Liebowitz, *supra* note 15, at 952–53.

75. *Id.* at 953.

site, usually a local network.[76] A site license eliminates the effect of coalition diversity, and sharing coupled with a site license increases profit.[77] 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 that 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 a single end-user, $2V$ to a pair of end-users, and $3V$ or $4V$ to the larger coalitions.[78]

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.[79] Site licenses and similar forms of price discrimination are greatly facilitated by the threat of a copyright suit.

76. *See Microsoft Details Pricing for New Customer Software*, *at* http://www.dotproject.org/news.php?action=read&id=468 (July 12, 2002) (explaining that 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 $1395 per-user plus $1990 for the server).

77. This assumes that the cost of implementing this form of price discrimination is not too large.

78. 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 care which pair is formed, if any. A site license with a price of x for one unit and $2x$ for two units will give a profit of $3x$, and thus the seller is guaranteed a profit at least as big as the profit without sharing. It is likely the seller will do better. Suppose for example that the valuations are 3, 4, and 5; 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 9.25. This profit is obtained in the following manner: 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, so a single unit is sold at a price of 4 and a two person site license is sold at a price of 7. Hence $9.25 = (1/4)(2)(4) + (1/4)(7) + (1/2)(4+7)$.

79. The beneficial effect on profit from a photocopy license was mentioned above in the discussion of transaction costs. *See supra* note 56.

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.[80] To understand this threat, recall the example in Part I. 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 2*V* 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.[81] 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 coalition members.[82] A loose-knit coalition that does not charge fees normally creates a severe appropriability problem for the seller of the

80. *See* Liebowitz, *supra* note 15, at 948. Limited appropriability cuts profit and diminishes the productive incentive. This might be offset by the presence of strong network effects. *See* Kathleen Reavis Conner & Richard P. Rumelt, *Software Piracy: An Analysis of Protection Strategies*, 37 MGMT. SCI. 125, 136 (1991); Lisa N. Takeyama, *The Welfare Implications of Unauthorized Reproduction of Intellectual Property in the Presence of Demand Network Externalities*, 42 J. INDUS. ECON. 155, 165 (1994).

81. 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 Gary S. Becker, *A Note on Restaurant Pricing and Other Examples of Social Influences on Price*, 99 J. POL. ECON. 1109 (1991), and Edi Karni & David Schmeidler, *Fixed Preferences and Changing Tastes*, 80 AM. ECON. REV. 262 (1990).

82. 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* Liebowitz, *supra* note 15, at 947 (noting that buyers incorporate resale price into their valuations).

copyrighted work.[83] 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.[84]

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.[85] Also, many consumers enjoy entertainment more if they can share it with friends and family.[86] 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.[87]

83. Kathleen Reavis Conner and Richard Rumelt attribute the indirect appropriability in Stanley Besen and Stan Liebowitz to the assumption that copies can only be made from originals. Conner & Rumelt, *supra* note 80, at 127. That assumption is not realistic for software or digital content; it may not even be realistic for photocopied text or analogue tapes.

84. Lunney stresses that file-sharing on the Internet is subject to a severe free rider problem. *See* Glynn S. Lunney, Jr., *The Death of Copyright: Digital Technology, Private Copying, and the Digital Millennium Copyright Act*, 87 VA. L. REV. 813, 824 (2001). *See also* John Markoff, *Many Take, but Few Give on Gnutella*, N.Y. TIMES, Aug. 21, 2000, at C4 (noting a survey of Gnutella users finding that only 1% of users provided 40% of the files, and observing that Gnutella could be a target for a lawsuit). For a general discussion of the problems with private provision of a public good, see 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); and Paul Pecorino, *The Effect of Group Size on Public Good Provision in a Repeated Game Setting*, 72 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.

85. *See* Conner & Rumelt, *supra* note 80, at 133, 136 (noting that sharing may increase profit because of network effects); Takeyama, *supra* note 80, at 165 (same); Oz Shy & Jacques-François Thisse, *A Strategic Approach to Software Protection*, 8 J. ECON. & MGMT. STRATEGY 163, 178–79 (1999) (showing that a strong network effect causes duopolists to reject copy protection).

86. Lunney, *supra* note 14, at 1024 ("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.").

87. *See* S.J. Liebowitz, *Copyright Law, Photocopying, and Price Discrimination*, *in* 8 RESEARCH IN LAW AND ECONOMICS: THE ECONOMICS OF PATENTS AND COPYRIGHTS 181, 191 (John Palmer & Richard O. Zerbe, Jr. eds., 1986) (observing that photocopying allows a researcher to sample journals in the library, perhaps ultimately increasing the journals' sales); John Borland, *Major Label Breaks File-Trading Boycott*, CNETNews.com, *at* http://news.com.com/2100-1023-246267.html?legacy=cnet (Sept. 26, 2000) (reporting that Capitol Records released video files for use on Aimster to promote a record release); *Online Service, Record Label to Target Music Listeners*, *at* http://partners.nytimes.com/library/tech/00/09/biztech/articles/01mp3-warner.html (Sept. 1, 2000)

TABLE 1. Effect of sharing on profit

	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 1 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 are entries 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 with whom they share.

IV. HISTORICAL EVIDENCE OF THE IMPACT OF SHARING ON PROFIT

Copyright protected industries have coped often 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

(reporting that Warner Music Group sends e-mail to MP3.com users to target its promotional information).

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.[88]

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.[89] Radio performance displaced private performances and related sales of sheet music and records.[90] The courts ruled that radio performances were subject to the performance right,[91] and music copyright owners gained control over radio performances through the enforcement efforts of the American Society of Composers, Authors, and Publishers ("ASCAP").[92]

Radio broadcast of music surely has added to the profit of the music industry. Today, the industry collects close to $1 billion in annual performance licensing fees from radio, television, and other public performances.[93] The factors in Table 1 help us understand the profit effect of radio (and other public) performance. Although radio performance displaced sales of sheet music and records, it created a strong demand for records by radio stations. Stations have a high willingness to pay because their advertising revenue reflects the number of 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

88. Videogame rental is an exception.

89. There were years of conflict between radio broadcasters and music copyright owners. *See* Jessica Litman, *Copyright Legislation and Technological Change*, 68 OR. L. REV. 275, 291–99 (1989).

90. *See* PAUL GOLDSTEIN, COPYRIGHT'S HIGHWAY: FROM GUTENBERG TO THE CELESTIAL JUKEBOX 73 (1994).

91. *Id.* at 72.

92. After ASCAP won injunctions to block public performances, "radio stations and motion picture theatre owners went to Congress to seek ASCAP's abolition." Litman, *supra* note 89, at 293. Today ASCAP and Broadcast Music, Inc. are the main sources of public performance licenses. Besides radio stations, they also license television networks and stations, bars, restaurants, and others.

93. Lydia Pallas Loren, *Paying the Piper*, 3 J. SMALL & EMERGING BUS. L. 231, 233 n.2 (1999).

public performance of music.[94] The performance right allows music copyright owners to implement extremely fine-grained price discrimination through public performance licenses that work analogously to site licenses.[95] Finally, radio performance became a powerful advertising tool that increased the willingness to pay of people who continued to buy records and sheet music.[96]

B. MUSIC, SOFTWARE, AND VIDEO RENTAL

The first sale doctrine gives buyers the right to lend a copyrighted work at no charge (like library books) and even to lend a work for a fee (like videotapes and DVDs). Music rental stores made a brief appearance in the United States when cassette tapes were introduced.[97] The stores offered records for rent and sold blank cassette tapes. Unsurprisingly, most customers copied the rented records onto cassettes. The music rental business halted 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.[98] Surprisingly, movie copyright owners failed in their attempt to obtain similar protection from Congress.[99] The contrast is puzzling 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.[100]

94. *Price Discrimination*, *supra* note 19, at 111.

95. *Id.* at 110–11.

96. *See To Amend the Copyright Act: Hearings on S. 2600 Before a Subcomm. of the Senate Comm. on Patents*, 68th Cong. 31–32 (1924) (statement of Charles H. Tuttle).

97. Record rental stores in 1984 rented records at rates ranging from $0.99 to $2.50 per record. ROBERT A. GORMAN & JANE C. GINSBURG, COPYRIGHT 554 (5th ed. 1999).

98. Recorded music cannot be rented without permission from the copyright owner. Record Rental Amendment of 1984, 17 U.S.C. § 109(b)(1)(A) (2000). The Computer Software Rental Amendment Act of 1990 prohibits unauthorized rental of many types of software. *Id.*

99. The movie industry tried to block video rental stores with a proposal comparable to the Record Rental Amendment. *See* MELVILLE B. NIMMER & DAVID NIMMER, 2 NIMMER ON COPYRIGHT § 8.12[B][7] (2003); 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) (discussing how the movie industry lobbied for but failed to get a video rental right in the United States).

100. *See* Case 158/86, Warner Bros. Inc. v. Christiansen, 1988 E.C.R. 2605, para. 5 (1988) (noting that Danish copyright law precludes unauthorized video rental), WL 1988 E.C.R. 2605 (EU), Celex No. 686J0158; Vincent Chiappetta, *The Desirability of Agreeing to Disagree: The WTO, TRIPS, International IPR Exhaustion and a Few Other Things*, 21 MICH. J. INT'L L. 333, 366–67 (2000); Rosenbloum, *supra* note 99, at 571 (noting the European Union's ("EU") Rental Rights Directive gives a copyright owner the exclusive right to authorize lending of sound and video recordings).

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.[101] 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 III. 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.[102] 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.[103] If that pattern does not carry over to software, then the number of users that software rental stores expect to rent each copy of software to

101. Similarly, video pirates probably do not make copies from rented videos or DVDs.

102. 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 nonprofit exemption to the Record Rental Amendment and the Software Rental Amendments. 17 U.S.C. § 109(b)(1)(A) (2000). Furthermore, limitations on the scope of the 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* 2 NIMMER & NIMMER, *supra* note 99, § 8.12[B][8][a] ("[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.").

103. *See* James D. Dana, Jr. & Kathryn E. Spier, *Revenue Sharing and Vertical Control in the Video Rental Industry*, 49 J. INDUS. ECON. 223, 227 (2001) (suggesting that movie rental demand is concentrated close to the rental release date); Mortimer, *supra* note 58, at 54–59 (showing that the average number of copies purchased by a store under a linear-pricing scheme is about thirteen for the highest grossing movies, six for the mid-level grossing movies, and two for the lowest grossing movies, and that the average number of rentals of videos purchased under a fixed fee scheme is about twenty to thirty per tape).

may vary considerably. Variation in rental revenue translates into variation in willingness to pay for copies of the software.[104]

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.[105] The movie industry has been successful in thwarting serial copying by using copy-protection technology,[106] and because the quality of a serial copy of analogue videotape degrades rapidly.[107]

In contrast to music and software rental, video rental is extremely profitable for copyright owners.[108] 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.[109]

European nations that prohibit unauthorized video rental still have video rental stores. We can be confident that if a Video Rental Amendment

104. Music rental is probably similar to movie rental regarding its impact on demand dispersion.

105. Section 109(b)(1)(B)(ii) of the Software Rental Amendments Act excludes videogames used with videogame consoles; thus videogames are available for rental at video stores. 17 U.S.C. § 109(b)(1)(B)(ii). The appropriability problem might not be severe in this market because of relatively tough copy-prevention technology embedded in videogame consoles.

106. Macrovision Corporation produces copy-prevention technology that distorts picture quality in copies made from videotapes, DVDs, and pay-per-view movies. Video Copy Protection, *at* http://www.macrovision.com/products/video/index.shtml (last visited July 14, 2004).

107. One reason the Video Rental Amendment was defeated was that relatively few video rental customers copy the rented tapes. *See* Rosenbloum, *supra* note 99, at 571, 578 (noting the EU's Rental Rights Directive was designed to eliminate copying attributable to audio and video rental).

108. *See In re* Aimster Copyright Litig., 334 F.3d 643, 650 (7th Cir. 2003) (observing that the video rental market has become "[a]n enormous new market" for the movie industry), *cert. denied*, 124 S. Ct. 1069 (2004); Richard Roehl & Hal R. Varian, *supra* note 58, at 11–16 (finding that the practice of 18th century English circulating libraries of books was economically similar to modern video rental stores; book publishers and movie studios both feared the emergence of rental stores, but in the end both clearly benefited); *The Monster that Ate Hollywood*, *at* http://www.pbs.org/wgbh/pages/frontline/shows/hollywood/business/windows.html (last visited July 15, 2004) [hereinafter *Monster that Ate Hollywood*] ("[G]lobal box office accounts for only 26% of the total wholesale revenues for a film released today. Worldwide video rentals and sales, in contrast, now account for 46%.").

109. 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. Varian, *supra* note 19, at 486.

had passed in the United States, rental would likewise be permitted. The main difference would likely be price discrimination in the video sales market between home users and video stores.[110] Video sales and rental are both important sources of revenue to the movie industry.[111] 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 United States without the benefit of copyright control over rental; the attempt failed.[112] With the aid of the law the movie industry would cut the home sales price and (indirectly) raise the home rental price.[113] The increase in rental prices might cut total surplus because some renters would exit the market.[114] On the other hand, total surplus might grow because of increased consumer video sales resulting from the lower price.[115] Taking a

110. The European Court of Justice faced a conflict between the first sale doctrine and the video lending right in a case in which a defendant imported videotapes from England for rental in Denmark. *See* Case 158/86, Warner Bros. Inc. v. Christiansen, 1988 E.C.R. 2605, para. 5 (1988) (noting that Danish copyright law precludes unauthorized video rental), WL 1988 E.C.R. 2605 (EU), Celex No. 686J0158. The Court favored the lending right and so promoted price discrimination. *See id. See also* Rosenbloum, *supra* note 99, at 566 (noting that a rental right facilitates price discrimination by separating the markets for video sales and rental). Perhaps some form of site license should 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. *See* Mortimer, *supra* note 58, at 8–12. The movie industry discriminates among video rental stores by including minimum and maximum inventory requirements in revenue-sharing contracts. *Id.* at 37.

111. In 1999 over half of the film-related domestic revenue of movie studios came from video rentals and sales. Dana & Spier, *supra* note 103, at 226. Rentals generated $8.1 billion and sales generated $9.2 billion of domestic retail revenue. *Id.* at 226 & n.9; Mortimer, *supra* note 58, at 5 (pointing out that in 1999, home video accounted for 55% of the domestic revenue for movie studios); Rosenbloum, *supra* note 99, at 565 (noting that the revenue to the movie industry from videotape rentals versus sales is almost the same).

112. *See* Roehl & Varian, *supra* note 58 (recounting that 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, but that they abandoned the practice by 1983).

113. *See* Julie Holland Mortimer, Price Discrimination and Copyright Law: Evidence from the Introduction of DVDs 1–3 (May 3, 2004) (unpublished manuscript, *at* http://mortimer.fas.harvard.edu/04dvd503.pdf).

114. 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. *See* Rosenbloum, *supra* note 99, at 580 (arguing that the industry and videotape purchasers gain from a rental right and renters lose).

115. And, of course, industry profit would rise. *Id*. at 564–65 (pointing out that since the sales market is fairly large, it is difficult to capture the value of rentals). *See generally* Mortimer, *supra* note 58 (providing evidence that revenue-sharing leads to the purchase of about twice as many tapes but rental activity is about the same).

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.[116] In recent years, the movie industry has developed a revenue-sharing arrangement between the studios and the rental stores.[117] 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.[118] The new contracts were made possible by new monitoring technology that cut the cost and risk of deception associated with revenue-sharing.[119] The goal of the contracts is to increase the inventory of videotapes held by rental stores.[120] 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

116. Even greater changes are on the horizon as Internet delivery of movies could make rental stores obsolete. *See* Barnaby J. Feder, *I.B.M. to Run a Venture to Rent Films over the Web*, N.Y. TIMES, Sept. 9, 2002, at C6 (reporting that five movie studios set up a joint venture to deliver movies to consumers over the Internet for one-day rental).

117. 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. *See* Mortimer, *supra* note 58, at 38. The cost for a videotape under a fixed fee contract in 1998 was about $70. Hal R. Varian, *With Evolving Technology, Good Monitors Make for Better Contracts*, N.Y. TIMES, Aug. 23, 2001, at C2. Movie distributors switched from charging about $70 per videotape to charging an upfront fee of $3 to $8 plus a 40–60% share of rental fees. *Id.* 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. *Id. See also Disney Sues Blockbuster over Contract*, N.Y. TIMES, Jan. 4, 2003, at C2 (revealing that Blockbuster used to purchase videos for about $65 each and keep all the rental revenue, but that under a new contract Blockbuster pays Disney $7 a copy plus a share of the rental revenue).

118. *See* Mortimer, *supra* note 58, at 1–2 (relating that revenue-sharing contracts became popular in 1998, and they charged an upfront fee between $0 and $8, with the retailer keeping between 40–60% of the rental revenue); Roehl & Varian, *supra* note 58 (noting that by 1998 a new type of discrimination arose by which the store pays a fixed fee between $2 and $4 plus 40% of the rental revenue, and that this new practice allows Blockbuster to guarantee a video is in stock).

119. *See Disney Sues Blockbuster over Contract*, *supra* note 117 (reporting that Disney sued Blockbuster to recover $120 million from a four-year agreement to share rental fees on videos and accused it of improper accounting and selling videos prematurely).

120. *See* Dana & Spier, *supra* note 103, at 233.

via personal copying; both enable lawful and infringing copying; and both have been used by profit-making enterprises that have been reasonably 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 that photocopying significantly harms the profits of journal publishers:

> [T]he 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.[121]

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.[122] Second, it increases libraries' willingness to pay, assuming they account for the benefit to users who avoid transaction costs (such as teachers making a spontaneous copy for classroom use). Third, publishers profit by price discriminating between libraries and individual subscribers. Liebowitz 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.[123] Price discrimination allows publishers to capture some of the value created by library photocopying. Liebowitz 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.[124]

These positive effects were offset by increased coalition diversity created by systematic photocopying. Course pack photocopies and in-house

121. 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 para. 15 (unpublished manuscript, *at* http://www.law.nyu.edu/ili/conferences (last visited July 16, 2004)). *Cf.* Williams & Wilkins Co. v. United States, 487 F.2d 1345, 1354 (Ct. Cl. 1973) (holding that the plaintiff-publisher did not show economic harm from photocopying), *aff'd by an equally divided Court*, 420 U.S. 376 (1975) (per curiam).

122. *See* Bakos et al., *supra* note 19, at 118–19.

123. *See* Liebowitz, *supra* note 15, at 952.

124. *See id.* This evidence would be stronger if it were linked to profits. Profits could have fallen if there were significant lost sales.

copying by corporate users creates coalition diversity that harms profit.[125] 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.[126] These cases created a market for photocopying licenses that facilitates a form of price discrimination, which has an effect comparable to software site licensing and music performance licensing.[127]

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Historical evidence suggests that sharing usually increases the profit of copyright owners. The evidence is clear in the cases of movie rental and radio performance. Copyright owners control radio performance of music and can prohibit it. The fact that they license performance shows that it increases profit. Similarly, copyright owners control 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 United States 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 United States even though rental businesses operate 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. This leaves an important, unanswered question: how much more profit could copyright owners get if they had the right to control movie rental and all forms of photocopier use?[128]

125. *See* Television Digest, Inc. v. United States Tel. Ass'n, 841 F. Supp. 5, 10–11 (D.D.C. 1993) (stating that corporate photocopying of a newsletter harms the market for that newsletter); Pasha Publ'ns, Inc. v. Enmark Gas Corp., No. 3-92-CV0027-G, 1992 WL 70786, at *2 (N.D. Tex. Mar. 10, 1992) (same); 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 publishers will raise prices in response to photocopying because subscribers buy an "original, plus an indeterminate number of additional copies").

126. *See* Princeton Univ. Press v. Mich. Document Servs., Inc., 99 F.3d 1381, 1390–91 (6th Cir. 1996) (en banc); Am. Geophysical Union v. Texaco Inc., 60 F.3d 913, 931 (2d Cir. 1994); Marcus v. Rowley, 695 F.2d 1171, 1178 (9th Cir. 1983); Basic Books, Inc. v. Kinko's Graphics Corp., 758 F. Supp. 1522, 1529–37 (S.D.N.Y. 1991).

127. *See infra* text accompanying notes 155–61.

128. Revenue-sharing between Hollywood and movie rental stores provides evidence of the effect of the law.

V. 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.[129] Courts should use the methods developed in Parts III and IV to assess the effect of sharing on profit and, ultimately, productive incentives. Part V explains when fair use is likely to increase consumer surplus more than it decreases profit. It also shows that courts often follow my approach intuitively when they balance the fair use factors.

Sharing affects total surplus ex post[130] through its direct effects on usage and cost, and through its indirect effects on prices, enforcement and self-help. Normally, sharing increases usage, but not always. An obvious social gain occurs when a potential user who previously was excluded from the market gets 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 was 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.[131] To illustrate, recall the example in Part III.B with three potential users of a copyrighted work: *X* and *Y* have valuations of 3 and *Z* has a valuation of 5. With no sharing, the price is 3, profit is 9, and total surplus is 11. Suppose *X* and *Z* share a copy of the work and *Y* acts alone. The seller would raise the price from 3 to 8, *X* and *Z* would share one unit,

129. Recall that this is a sufficient but not necessary condition for fair use to increase expected social welfare. *See supra* note 37.

130. 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 the 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.

131. Interestingly, a seller will sometimes cut the price in response to sharing instead of increasing 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 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) (analyzing the profit effect of consumer sharing in a model of monopoly price discrimination). Varian shows that if consumers are identical, then sharing creates market power for buyers. The threat of sharing forces 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 19, at 479–80. For applications to fair use, see *infra* text accompanying notes 190–95.

and *Y* would be priced out of the market.[132] Profit falls from 9 to 8, and total surplus falls even more—from 11 to 8.

Total surplus also depends on the mix of costs incurred and avoided because of sharing. Sharing 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 for 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 organize a coalition, the costs to copy or transfer, and costs because the process of sharing may delay consumption or degrade quality. 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 sum of costs avoided by sharing, then total surplus is adversely affected.

The fair use defense[133] 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.[134] Section 107 of the Copyright Act codifies an open-ended 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

132. 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, Inc. 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.

133. There is some controversy about whether fair use is a defense or instead a limitation on the scope of rights of the copyright owner. *Compare* Campbell v. Acuff-Rose Music, Inc., 510 U.S. 569, 590 (1994) (stating that fair use is an affirmative defense), *and* Lunney, *supra* note 14, at 987–88, *with* Harper & Row Publishers, Inc. v. Nation Enters., 471 U.S. 539, 567 (1985) (suggesting that the copyright owner has the burden of proving a use was not fair), *and* Sony Corp. of Am. v. Universal City Studios, Inc., 464 U.S. 417, 433–34 (1984) (same).

134. *See* Pierre N. Leval, *Toward a Fair Use Standard*, 103 HARV. L. REV. 1105, 1109–10 (1990); Loren, *supra* note 21, at 4; Lunney, *supra* note 14, at 998–99 (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).

> 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.[135]

A subset of fair use cases feature sharing enabled by small-scale reproduction. Many cases involve photocopying of text for research or educational purposes.[136] Other leading cases involve taping or computer copying of music and movies.[137] 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.[138] The second factor is important but usually not contested either. If the subject matter is a highly expressive work like a movie or music, however, then the copyright owner is accorded more deference.[139] If the subject matter is a less expressive work like a scientific publication, then the case for fair use is enhanced.[140]

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 they assess the effect of profit on productive incentives by considering the nature of the work. Copyright law assumes (without much empirical support or normative justification[141]) 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 Corp. of America v. Universal City Studios, Inc.*, the Supreme Court rejected the view that only transformative uses may qualify for fair use.[142] Below, I

135. 17 U.S.C. § 107 (2000).

136. *See, e.g.*, Am. Geophysical Union v. Texaco, Inc., 60 F.3d 913, 915 (2d Cir. 1994); Williams & Wilkins Co. v. United States, 487 F.2d 1345, 1348 (Ct. Cl. 1973), *aff'd by an equally divided Court* 420 U.S. 376 (1975) (per curiam).

137. *See, e.g.*, A&M Records, Inc. v. Napster, Inc., 284 F.3d 1091, 1095 (9th Cir. 2002); *In re* Aimster Copyright Litig., 252 F. Supp. 2d 634, 641 (N.D. Ill. 2002), *aff'd*, 334 F.3d 643 (7th Cir. 2003), *cert. denied*, 124 S. Ct. 1064 (2004).

138. *See Sony*, 464 U.S. at 449–50 (discounting the importance of the third factor in a sharing case).

139. *See* Stewart v. Abend, 495 U.S. 207, 237 (1990); Harper & Row Publishers, Inc., v. Nation Enters., 471 U.S. 539, 563 (1985).

140. *See Stewart*, 495 U.S. at 237; *Harper & Row*, 471 U.S. at 563.

141. *Cf.* Fisher, *supra* note 18, at 1719–22 (developing an economic approach to categorizing works for fair use analysis).

142. Both the Ninth Circuit in *Universal City Studios, Inc. v. Sony Corp. of America*, 659 F.2d 963, 970 (9th Cir. 1981), and the dissent in *Sony*, 464 U.S. at 479–82 (Blackmun, J., dissenting), expressed doubt that the fair use doctrine has much of a role in promoting purely private consumption. The majority rejected this view and allowed fair use simply to expand consumption opportunities. *See*

explain why spontaneous, personal, noncommercial, 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.[143]

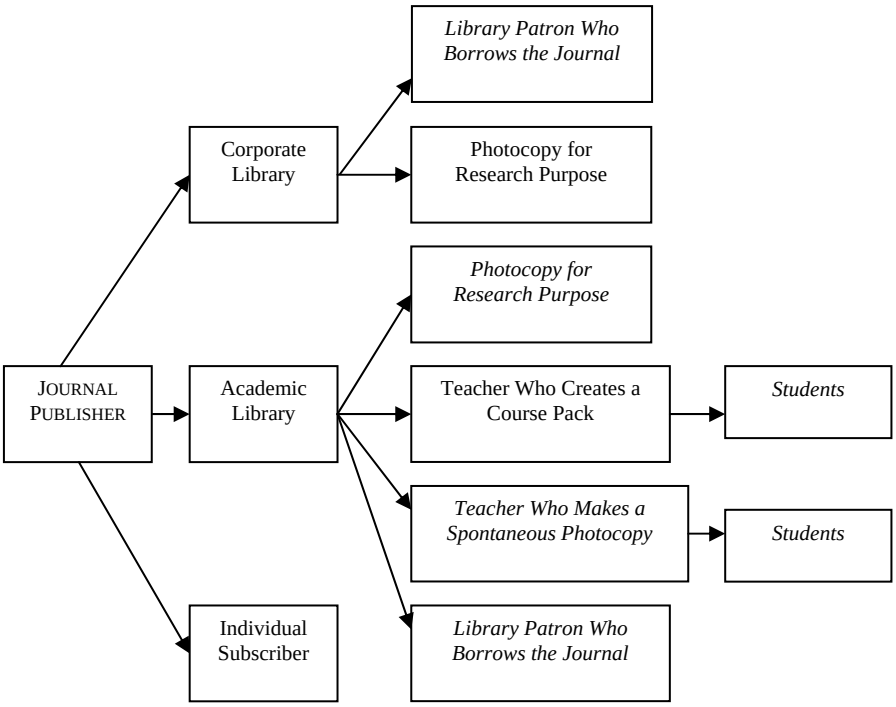
Fair use regulates sharing by shaping the market for copyrighted works. Figure 1 displays the effect of fair use on photocopying and the market for academic journals.[144] The box on the left represents a copyright owner, and the rest of the boxes represent users. The arrows indicate distribution paths. The copyright owner can demand a payment from users listed in regular font, but cannot use copyright law to back up a demand for payment from users in italic font. The journal publisher sells journals to corporate libraries, academic libraries, and individual subscribers. Patrons of the corporate library photocopy journal articles for research purposes. Patrons of the academic library photocopy articles for research and teaching purposes. Some teachers make spontaneous copies for immediate classroom use, and others make systematic copies for use in course packs. Finally, some patrons of both libraries borrow the journal simply to read it. The students are beyond the reach of copyright law because buying and reading the text does not violate any of the exclusive rights of the copyright owner. Likewise, the patrons who borrow and read the journal do not violate any copyright rights. Parts V.A and V.B explain when photocopying violates the reproduction right, and when it is fair use instead. Figure 1 highlights the way fair use and copyright law generally determine whether copyright owners can reach down the stream of commerce and negotiate directly with users, or whether they must be content to negotiate with intermediaries.

Sony, 464 U.S. at 450 n.33. *See also* Lunney, *supra* note 14, at 977 ("Merely increasing access to a work, even unauthorized access, represents a sufficient public interest to invoke the fair use doctrine.").

143. Judicial innovation in fair use doctrine is common and easy to justify. "[E]ach of [the four] 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." 2 NIMMER & NIMMER, *supra* note 99, § 13.05[A]. Also, the list of factors is illustrative and not exhaustive. *See* Castle Rock Entm't v. Carol Publ'g Group, Inc., 150 F.3d 132, 141 (2d Cir. 1998).

144. More precisely, photocopying is governed by fair use and 17 U.S.C. § 108 (2000), a statutory complement to fair use that applies to public libraries. Also, Figure 1 contains an example governed by the first sale doctrine found in § 109.

FIGURE 1. Copyright law and pathways for sharing a journal article



A. SPONTANEOUS AND SYSTEMATIC USES

Courts properly distinguish between spontaneous and systematic uses when they apply the fair use doctrine. They recognize that spontaneous uses usually have little impact on copyright owners' profit and in aggregate 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[145] and

145. For example, spontaneous photocopying for classroom use is fair use according to guidelines negotiated by members of affected interested groups about the time the Copyright Act was revised in 1976. The guidelines were intended to set minimum levels of noninfringing classroom copying and were included in a House Report on the revised copyright statute, but not in the statute itself. *See* 2 NIMMER & NIMMER, *supra* note 99, § 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. Agreement on Guidelines for Classroom Copying in Not-for-Profit Educational Institutions with respect to Books and Periodicals,

disfavor systematic uses because of relatively low transaction costs.[146] 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 makes copies for use in class later that day. Sharing the article with the 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 to *Y* and *Z* generate a profit of 10. Total surplus is 16, the value of all three uses minus the transaction costs incurred by *Y* and *Z*.[147]

Now suppose *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

H.R. REP. NO. 94-1476, at 68–69 (1976), *reprinted in* 1976 U.S.C.C.A.N. 5659, 5682–83. 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. *Id.* at 69. *See also* Ginsburg, *supra* note 125, at 185 (relating that 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. 17 U.S.C. § 110(2). *See also supra* note 10 and accompanying text.

146. *See, e.g.*, Princeton Univ. Press v. Mich. Document Servs., Inc., 99 F.3d 1381, 1390–91 (6th Cir. 1996) (en banc) (discussing how the "systematic" nature of course pack copying works against a finding of fair use); Marcus v. Rowley, 695 F.2d 1171, 1172–73 (9th Cir. 1983) (explaining that it is not a fair use when a teacher makes multiple photocopies for multiple classes); Basic Books, Inc. v. Kinko's Graphics Corp., 758 F. Supp. 1522, 1526 (S.D.N.Y. 1991). Public libraries get a limited copyright exemption for certain photocopy-related activities but the exemption does not apply to course packs. *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, 1158–59, 1179 (W.D.N.Y. 1982) (denying the fair use defense to a nonprofit organization engaged in systematic videotaping of educational programs for distribution to a public school system); *Betamax*, *supra* note 8, at 1629 (arguing that systematic and centralized videotape copying of educational programs is not a fair use because the benefit to users is high relative to transaction costs).

147. 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 Price Discrimination*, *supra* note 19, at 109, 116.

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.[148] 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.[149] The potential 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.[150]

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. Micropayments and Internet delivery of digital content have not been adopted as quickly as some predicted.[151] Furthermore, eliminating

148. *See* Tom W. Bell, *Fair Use Vs. Fared Use: The Impact of Automated Rights Management on Copyright's Fair Use Doctrine*, 76 N.C. L. REV. 557, 565–66 (1998); Merges, *supra* note 21, at 130 ("[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 significant[ly] shrink, or an alternative basis for fair use will be rediscovered.").

149. *See* Am. Geophysical Union v. Texaco Inc., 60 F.3d 913, 930–31 (2d Cir. 1994); 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 that markets will find a way to overcome high transaction costs); *Betamax*, *supra* note 8, at 1619 (arguing that 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"); Robert P. Merges, *Of Property Rules, Coase, and Intellectual Property*, 94 COLUM. L. REV. 2655, 2655 (1994) (arguing that property rules give industry participants an incentive to invest in institutions that reduce transaction costs); Merges, *supra* note 21, at 131 (arguing that the fair use doctrine might discourage the development of institutions that encourage licensing by reducing transaction costs).

150. Internet-based licensing might reduce *X*'s transaction costs to 1.

151. *See* Jane Kaufman Winn, *Clash of the Titans: Regulating the Competition Between Established and Emerging Payment Systems*, 14 BERKELEY TECH. L.J. 675, 691–702 (1999).

contracting and payment costs does not eliminate transaction costs.[152] 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 § 108 of the Copyright Act gets repealed in a hypothetical world with no contracting and payment costs.[153] 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 licensing market; it should be especially wary of imposing enforcement costs on third parties to encourage new markets.[154]

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.[155] Corporate libraries generally get licenses from the Copyright Clearance Center. These licenses implement fine-grained price discrimination that increases profit to copyright owners while encouraging widespread licensing and high levels of total surplus.[156]

152. *See* Merges, *supra* note 21, at 116 (arguing that 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* Cásarez, *supra* note 48, at 644 (explaining how Texaco held a Copyright Clearance Center license but was sued because it did not accurately report its photocopying).

153. *See* 17 U.S.C. § 108 (2000). Lawsuits against universities for indirect copyright infringement have discouraged professors from making unauthorized course packs. *See* Kenneth D. Crews, *The Law of Fair Use and the Illusion of Fair-Use Guidelines*, 62 OHIO ST. L.J. 599, 639–41 (2001).

154. Spontaneous uses 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, *supra* note 21, at 133. Positive externalities are also commonly cited to justify fair use. *See id.* at 134. *See also* Loren, *supra* note 21, at 5–6.

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

156. The Copyright Clearance Center administers blanket photocopying licenses that link royalties to the number of employees at a company. *See* Annual Copyright License, Copyright Clearance Center Services, Inc., *at* http://www.copyright.com/Services/als.asp (last visited July 15, 2004). Site licensing increases value to users by consolidating many transactions into a single transaction.

Systematic photocopying also poses more of a profit threat than spontaneous photocopying.[157] Systematic users probably hold higher valuations for the copied texts and are more likely to make a purchase than spontaneous users. Furthermore, systematic use hurts profit through the coalition diversity effect.[158] The effect on profit would be huge if firms purchased single copies of business publications and made photocopies for all of their employees.[159] Such copying would create significant demand dispersion because of variation in firm size.[160] Photocopy licenses solve the coalition diversity problem by charging fees based on number of employees or number of copies.[161]

Blanket licenses are not as useful for spontaneous photocopying. There is not much benefit to publishers from price discrimination and spontaneous classroom use probably has little effect on dispersion of library demand because the pattern of use is unpredictable at the time the

157. The divergent profit effect of spontaneous and systematic photocopying helps explain the apparent conflict between *American Geophysical Union v. Texaco Inc.*, 60 F.3d 913 (2d Cir. 1994), and *Williams & Wilkins Co. v. United States*, 487 F.2d 1345 (Ct. Cl. 1973), *aff'd by an equally divided Court* 420 U.S. 376 (1975) (per curiam). Texaco systematically circulated the tables of contents of journals and made archival copies for researchers that amounted to course packs. *Texaco*, 60 F.3d at 915–16. In contrast, the National Library of Medicine ("NLM") made photocopies for the public only in response to requests for older or harder to find journals. *Williams & Wilkins*, 487 F.2d at 1355. But the NLM did make photocopies of widely available recent journals for recipients in the government. *Id.* at 1354–55.

158. The distinction between single and multiple copies in the Classroom Guidelines plays the same role as the distinction between systematic and spontaneous copying. *See* Agreement on Guidelines for Classroom Copying in Not-for-Profit Educational Institutions with Respect to Books and Periodicals, H.R. REP. NO. 94-1476, at 68 (1976), *reprinted in* 1976 U.S.C.C.A.N. 5659, 5681–82. Multiple copies create coalition diversity and increase demand dispersion. *See supra* Part IV.B.

159. For a case 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 eighteen years it had 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. *Id. See also* Television Digest, Inc. v. United States Tel. Ass'n, 841 F. Supp. 5, 7 (D.D.C. 1993) (relating that a trade association bought a single subscription of a newsletter and routinely made twelve to twenty-six copies for its employees).

160. 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 of Catalysis* and supplied photocopied articles from the journal to hundreds of scientists. Am. Geophysical Union v. Texaco, Inc., 802 F. Supp. 1, 22 (S.D.N.Y. 1992), *amended by* 60 F.3d at 913.

161. Copyright Clearance Center, Inc., *supra* note 156. *But see* Cásarez, *supra* note 48, at 703 (1996) ("[T]he 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.").

copied text is purchased.[162] Similarly, the requirement that a library must be open to the public to qualify for the § 108 safe harbor means that the pattern of photocopying is less predictable and unlikely to greatly influence the dispersion of library demand.[163] A license might authorize spontaneous photocopying for a fixed annual fee. The effect would be similar to a levy on photocopiers that is distributed to copyright owners.[164] The license would relieve the library of much of the burden of monitoring photocopier usage,[165] 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.[166] Librarians

162. 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. Liebowitz, *supra* note 15, at 956; Liebowitz, *supra* note 87, at 192–98 (arguing that price discrimination by journals against libraries makes copyright relief unnecessary and the faster increase in institutional journal prices compared to individual prices suggests price discrimination is responsive to increased photocopying).

163. Section 108 exempts from copyright liability certain photocopy-related activities at public libraries. 17 U.S.C. § 108 (2000). To qualify, the library must be open to the public (or at least open to nonaffiliated researchers), the copies must be for scholarly, noncommercial use, and the activities cannot be systematic or result in multiple copies. § 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* Zimmerman, *supra* note 121, para. 31 (explaining that 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. File-sharing could avoid the high labor costs required to scan documents for interlibrary loans. *See Napster C.E.O. Talks About Copyrights*, June 17, 2001, *at* 2001 WL 22916440.

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 individually subscribe 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 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* 2004 Subscription Price List, *at* http://www.elsevier.com/homepage/subpricelist (last updated Dec. 30, 2003). *But see* Bartow, *supra* note 50, at 824–26 (arguing that library patrons should retain the same rights in a digital world that they previously possessed, and that the digital equivalent of sharing a book requires copying).

164. *See infra* Part VII.B for a discussion of levies.

165. Given my assumption that § 108 is repealed, the library would still have to monitor for systematic photocopying.

166. 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

are more apt to recognize systematic copying and respond to lobbying from systematic users than they are apt 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 considered fair uses because the alternative leads to output restriction and high transaction and enforcement costs.

B. RESEARCH USE

Courts favor research uses when applying the first fair use factor, the purpose and character of the use. 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 Co. v. United States*,[167] and *American Geophysical Union v. Texaco, Inc.*[168] In *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.[169]

The Court of Claims in *Williams & Wilkins* based its fair use decision on the laudable purpose of the copying and the lack of market effect on the plaintiff.[170] Specifically, the plaintiff did not show loss of subscriptions or other persuasive evidence of harm from photocopying.[171] The court also

licensing will not be profitable, and the copyright owner will not authorize sharing. Thus, the socially optimal policy allows sharing without permission.

167. Williams & Wilkins Co. v. United States, 487 F.2d 1345 (Ct. Cl. 1973), *aff'd by an equally divided Court*, 420 U.S. 376 (1975) (per curiam).

168. Am. Geophysical Union v. Texaco Inc., 60 F.3d 913 (2d Cir. 1994).

169. *See id.* at 915.

170. *Williams & Wilkins*, 487 F.2d at 1354.

171. *Id.* at 1358. Nimmer criticizes the Court of Claims for mixing the issues of liability and damages. 2 NIMMER & NIMMER, *supra* note 99, § 13.05[E][4][c]. That criticism is unwarranted. Fair use analysis must balance the magnitude of the profit loss to the plaintiff against the total surplus created by the defendant's use. Nimmer is more persuasive in his criticism of the assumptions standing

noted that library "photo-duplication" was a common and accepted practice.[172] The most important consideration for the court was its fear that medical research could be harmed by a finding of infringement.[173]

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.[174] The court criticized *Williams & Wilkins*,[175] 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 in 1978.[176] 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*.[177]

Like the *Texaco* court, commentators who have compared the two cases focus on the first and fourth fair use factors: the purpose and character of the use and its market effects. Many commentators emphasize the research purpose of the photocopying and favor recognition of fair use in both cases;[178] others emphasize the negative market effect of photocopying and oppose fair use in both cases.[179] Research use favors a finding of fair use because research generates social benefit that is not captured by the research organization.[180] The gap between private and social return causes an undersupply of research that can be remedied by a subsidy.[181] Free photocopying might be justified as a research subsidy. Critics respond that taxes, research grants, and the patent system are

behind the Court of Claims's analysis of harm to profit, *id.*; nevertheless, the Court of Claims may have reached the correct conclusion as my discussion in the next few paragraphs will explain.

172. *Williams & Wilkins*, 487 F.2d at 1356. *See also* Texaco, 60 F.3d at 934 (Jacobs, J., dissenting) ("[S]ingle photocopies for research and scholarly purposes has been considered both reasonable and customary.").

173. *See Williams & Wilkins*, 487 F.2d at 1354, 1356.

174. *Texaco*, 60 F.3d at 929–31.

175. *See id.* at 924 n.10 (criticizing the broad reliance on the metaphor equating photocopying with note-taking).

176. *See id.* at 931. The Copyirght Clearance Center was formed in 1978. Corporate Overview, Copyright Clearance Center, Inc., *at* http://www.copyright.com/About/default.asp (last visited July 17, 2004).

177. *See Texaco*, 60 F.3d at 921–22.

178. *See* Loren, *supra* note 21, at 50–53; Karen L. Still, American Geophysical Union v. Texaco, Inc.*: Expanding the Copyright Monopoly*, 29 GA. L. REV. 1233, 1253–54 (1995).

179. *See* 2 NIMMER & NIMMER, *supra* note 99, § 13.05[E][4][d]–[e].

180. For evidence that the social return on private research and development is much higher than the private return, see Michael Kremer, *Patent Buyouts: A Mechanism for Encouraging Innovation*, 113 Q.J. ECON. 1137, 1141 (1998).

181. *See* Loren, *supra* note 21, at 52; Merges, *supra* note 21, at 134–35.

preferable to the fair use doctrine as a tool for promoting research.[182] 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.[183]

The analysis in *Williams & Wilkins* is flawed by the court's failure to acknowledge the possibility of a photocopy license.[184] The court apparently assumed the only option for libraries given an adverse decision would be to purchase more subscriptions.[185] Although the decision pre-dated the CCC, the blanket music performance licenses available from ASCAP and Broadcast Media, Inc. were evidence of the possibility of efficient photocopy licensing for institutions like libraries.[186] Dissenting Chief Judge Cowen believed that denying fair use would spur the parties to implement a photocopy licensing scheme.[187] 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*[188] than it does when

182. *Cf.* Rebecca S. Eisenberg, *Patents and the Progress of Science: Exclusive Rights and Experimental Use*, 56 U. CHI. L. REV. 1017, 1057 (1989) (presenting though not necessarily endorsing arguments against experimental use as a defense to patent infringement).

183. 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.

184. *Betamax*, *supra* note 8, at 1649–50 (criticizing *Williams & Wilkins* because of the court's disbelief that a blanket photocopy license would keep transaction costs small relative to the benefits from photocopying).

185. *See* Williams & Wilkins Co. v. United States, 487 F.2d 1345, 1356–57 (Ct. Cl. 1973), *aff'd by an equally divided Court* 420 U.S. 376 (1975) (per curiam).

186. *See id.* at 1379 (Cowen, J., dissenting).

187. *Id*. at 1372 (Cowen, J., dissenting). Further evidence was available from European experience with photocopy licenses and library lending rights. *See* Ginsburg, *supra* note 125, at 196 (describing photocopy licenses in the Nordic countries). *Cf.* Lunney, *supra* note 14, at 976 n.4 (suggesting that the reversal of *Sony* might motivate Congress to adopt a levy system for home recording). *See generally* Jennifer M. Schneck, Note, *Closing the Book on the Public Lending Right*, 63 N.Y.U. L. REV. 878 (1988) (describing lending rights).

188. Texaco librarians as corporate employees are apt to do a good job finding the efficient mix of journal subscriptions and photocopying, and incorporating 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. *Cf.* Am. Geophysical Union v. Texaco Inc., 60 F.3d 913, 916, 931 (2d Cir. 1994) (explaining that the same photocopying 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.

applied to the spontaneous, noncommercial photocopying of *Williams & Wilkins*.[189]

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 the three potential users is equally likely to have a valuation of 3 or 7. Buyers know their valuation, but the sellers do 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.[190]

Suppose *X* and *Y* form a coalition to share the product. If the sellers maintain a uniform price of 7, then profit falls to 8.75 because of lost sales.[191] The sellers 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; therefore the expected profit is 9, and the expected total surplus is 13.5.[192] 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.[193] Total surplus and profit move in the

189. The Texaco library was closed to the public while the NLM was indirectly open to the public through its active interlibrary loan program. *Williams & Wilkins*, 487 F.2d at 1355. The NIH library was open to the public but most users came from the NIH. *Id.* at 1347. Most of the requests to the NLM for interlibrary loans came from other libraries or government agencies. *Id.* at 1349. The NLM identified 104 "widely-available" journals and generally required an individual to seek a copy from a nearby library. *Id.*

190. The alternative price of 3 gives a profit of only 9.

191. A price of 7 would be accepted with probability one-half by *Z*. It would be rejected by *X* and *Y* with probability one-fourth (when both had low values). This yields an expected profit of (1/2)(7) + (3/4)(7) = 8.75.

192. A price of 3 would always be accepted and yield a profit of 6. Higher prices are not profitable because of the high probability of rejection that they generate.

193. Given a coalition of all three users the monopoly price is 13, the expected profit is 11.375, and the total surplus is 13.875. The price of 9 is certain to be accepted by the coalition and give a profit of 9. The price of 13 is only rejected if all three users have values of 3, which occurs with probability one-eighth. So the expected profit is (7/8)13. For higher prices of 17 and 21, the probability of rejection

opposite direction because the sellers are 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 sellers benefit from sharing in this example. They offer a license of 7 for single users and a site license of 10 for a pair of users.[194] *X* and *Y* will accept the two-user site license as long as at least one of the pair has a 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 sellers 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 socially costly form of 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 also presents a clear divergence between the sellers' 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 sellers choose 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

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.

194. Notice that site licensing yields a typical pattern of volume discount from profit-maximizing discrimination. The price per user falls from 7 to 5. I can extend the analysis to a coalition of three buyers. The sellers would set a price of 13 for three users, which implies a per user price of 4.33.

The personal arbitrage constraint is always satisfied. The coalition of two would not purchase an individual license at a savings of 3 because one of the users in the coalition would not be able to use the software, implying a loss of at least 3. 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.

eased when two potential users jointly purchase and share a single unit. Sellers choosing a uniform price would not authorize sharing if it were subject to their control. So the seller's control over sharing is a way to discourage the development of countervailing power.[195] If the sellers are able to site license, then they will authorize sharing, but do not have to fear the development of countervailing power. Sharing occurs on their terms. The site license alleviates some of the inefficiency that occurs when the sellers block sharing and charge 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, NONCOMMERCIAL, AND PERSONAL USES

The distinction between commercial and noncommercial (or personal) use plays more than one role in fair use jurisprudence.[196] In the context of sharing cases, the distinction helps analyze cases with a mix of commercial and noncommercial users in which the noncommercial users tend to have lower valuations than the commercial users. Fair use protects noncommercial coalitions that might be excluded from a market in which the seller caters to commercial buyers. Alternatively, fair use might facilitate desirable arbitrage against price discrimination that harms noncommercial users.

Generally, the case for sharing is weak when coalitions do a poor job of fully accounting for the valuations of their members.[197] But there are circumstances in which limited appropriability strengthens the case for the

195. Countervailing power is a threat to the sellers because it is harder for them to extract surplus from a strong buyer, not because countervailing power moves the parties closer to the efficient output level.

196. In fair use cases that track free speech law, it is important to distinguish the speech rights of commercial, noncommercial, and individual speakers. *See* Tina J. Ham, Note, *The Right of Publicity: Finding a Balance in the Fair Use Doctrine*—Hoffman v. Capital Cities/ABC, Inc., 36 U.C. DAVIS L. REV. 543, 570–73 (2003). Also, personal use gets special consideration when copyright liability threatens privacy. *See* Netanel, *supra* note 30, at 299.

197. 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 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 counterbalance each other 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.

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 noncommercial 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 noncommercial 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 noncommercial sharing that is excluded from the market because the seller targets commercial sharing and sets a high price that exceeds the valuation of noncommercial coalitions.[198] In this example, the noncommercial coalition holds a low valuation because of an appropriability problem. A similar example can be constructed in which noncommercial users simply have lower valuations.

In the previous example, noncommercial 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 noncommercial users. Consider a market for copyrighted software and suppose there are three commercial users *X*, *Y*, and *Z* and three noncommercial users *x*, *y*, and *z*, where each lowercase letter represents the spouse of the user represented by uppercase 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 have 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

198. Copyright owners would be worried that commercial users could masquerade as noncommercial 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 17 U.S.C. § 108 (2000). 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.

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 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.[199] 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. DIGITAL FILE-SHARING

Digital file-sharing is apt to present a fascinating new set of fair use cases. At present, courts have decided only three peer-to-peer music file-sharing cases,[200] but soon we are likely to see a range of cases involving various digital content and technologies.[201] The music cases generally had weak claims of fair use, but a valid fair use defense is certainly possible in the context of digital file-sharing. The defendant in *A&M Records, Inc. v. Napster, Inc.* argued that two music file-sharing purposes should be considered fair use: listening to music before purchase and space-shifting—that is, copying that allows music CD owners to listen to their music at more than one location.[202] Given the global reach and anonymity of peer-to-peer music file-sharing, it is not surprising that the Ninth Circuit rejected these arguments.[203] Perhaps bowing to the inevitable, the defendants in

199. New EU rules adopted in February 2001 tighten the definition of private copy but allow people to make private copies of data on the Internet and to share those copies with friends, provided the copyright holder gets fair compensation. *See* Council Directive 2001/29/EC, art. 5(2)(b), 2001 O.J. (L 176) 10, 16.

200. In *In re Aimster Copyright Litigation*, 334 F.3d 643, 652–53 (7th Cir. 2003), *cert. denied*, 124 S. Ct. 1069 (2004), and in *A&M Records, Inc. v. Napster, Inc.*, 239 F.3d 1004, 1022, 1024 (9th Cir. 2001), courts found that the centralized Napster and Aimster music file-sharing services likely violated music copyrights indirectly. By contrast, the court in *MGM Studios, Inc. v. Grokster, Ltd.*, 259 F. Supp. 2d 1029, 1046 (C.D. Cal. 2003), found the decentralized Grokster and Streamcast music file-sharing services were not indirectly liable.

201. *See* COMPUTER SCI. AND TELECOMM. BD., NAT'L RESEARCH COUNCIL, THE DIGITAL DILEMMA: INTELLECTUAL PROPERTY IN THE INFORMATION AGE 129 (2000) [hereinafter DIGITAL DILEMMA] ("Perhaps the most contentious current copyright issue concerns the legality of private, noncommercial copying."); Jim Wasserman, *Analyst: Internet File-Sharing Bigger than Record Business*, *at* http://www.sfgate.com/cgi-bin/article.cgi?f=/news/archive/2003/03/27/financial2101EST0174.DTL (Mar. 27, 2003) (reporting that about one-half of illegal downloads are music, about 5% are movies, and the remainder are images, videogames, and software).

202. *Napster*, 239 F.3d at 1018–19.

203. The court held that sampling music before purchasing is not a fair use because copyright owners should be able to control marketing. *See id.* at 1018–19. *See also* LIEBOWITZ, *supra* note 29, at

later cases involving Aimster and Grokster did not seriously contest the issue of direct infringement.[204]

There are two reasons that anonymous peer-to-peer music file-sharing should not be a fair use. First, anonymity causes serious appropriability problems—people who purchase CDs probably internalize a small fraction of the value they create by offering music for download.[205] Second, the technology creates massive coalition diversity.[206] Thus there is little hope that the music industry could offset lost sales by charging higher prices for music.[207] The *Napster* court analysis of the first fair use factor did not articulate these reasons clearly and offered some unhelpful or troubling analysis instead.

The Ninth Circuit dwelled on the questions of whether Napster file-sharing involved a transformative use and whether it involved a commercial use. The court properly concluded that copies made using Napster were not transformative, but that conclusion is not helpful;[208] by definition, sharing cases feature faithful copying.[209] The analysis of the commercial nature of the use is mistaken and troubling.[210] The court concluded that the file-sharing was commercial because it was anonymous and it displaced music sales.[211] The displacement of music sales was

14 (expressing skepticism that Napster provided favorable exposure that would generate increased revenue from CD sales). The notion of space-shifting developed in *Recording Industry Ass'n of America v. Diamond Multimedia Systems, Inc.*, 180 F.3d 1072, 1079 (9th Cir. 1999), as an extension of the time-shifting notion recognized by the Supreme Court in *Sony Corp. of America v. Universal City Studios, Inc.*, 464 U.S. 417, 423 (1984). The Ninth Circuit distinguished those cases, observing that "[b]oth *Diamond* and *Sony* are inapposite because the methods of shifting in those cases did not also simultaneously involve distribution of the copyrighted material to the general public; the time or space-shifting of copyrighted material exposed the material only to the original user." *Napster*, 239 F.3d at 1019. The court concluded market harm arose because of reduced CD sales and because entry into Internet music distribution would be less profitable for plaintiffs. *See id.* at 1016.

204. *See In re* Aimster Copyright Litig., 252 F. Supp. 2d 634, 648 (N.D. Ill. 2002), *aff'd*, 334 F.3d 643 (7th Cir. 2003), *cert. denied*, 124 S. Ct 1069 (2004); *Grokster*, 259 F. Supp. 2d at 1034–35.

205. *See supra* Part III.D.

206. *See supra* Part III.B.

207. *See* Stan J. Liebowitz, *Will MP3 Downloads Annihilate the Record Industry? The Evidence So Far* 2-3, *at* http://www.utdallas.edu/~liebowit/knowledge_goods/records.pdf (June 2003) (arguing that the evidence offered by experts in the Napster case failed to show any harm to music industry profit, but more recent evidence does show harm).

208. *See Napster*, 239 F.3d at 1015.

209. The Supreme Court rejected the view that fair use requires some kind of productive or transformative use in *Sony Corp. of America v. Universal City Studios, Inc.*, 464 U.S. 417, 455 n.40 (1984), but transformative uses are treated more generously under fair use analysis. *See* Campbell v. Acuff-Rose Music, Inc., 510 U.S. 569, 579 (1994).

210. *See* Lunney, *supra* note 14, at 983, 990 (noting that the Supreme Court in *Sony* rejected the view that private copying is commercial because it displaces videotape sales).

211. *See Napster*, 239 F.3d at 1015.

properly recognized in the court's analysis of the fourth fair use factor; it should not have had independent significance in the analysis of the first factor. The anonymous and large-scale nature of the use should be considered directly under the first factor; there is no need to distort the definition of commercial to cover plainly personal copies. Part V.C showed that it is more sensible to reserve the commercial/noncommercial test for distinguishing heterogeneous users of a copyrighted work, such as business versus academic readers of a journal article.

A deeper understanding of the market effects of Napster-style copying reveals the fair use defense is still plausible in a digital world—when institutional context and technology permit only limited sharing, and discourage intolerable coalition diversity and appropriability problems. More simply, fair use is plausible when the sharing technology behaves more like a photocopier or a VCR. Such technologies exist.[212] For example, people can use e-mail to share music files.[213] Sporadic e-mail distribution of music files to friends and family seems likely, but large-scale distribution to strangers does not. In terms of fair use, it is hard to distinguish a gift of music via a cassette tape from a gift via e-mail. The only plausible distinction must be based on the ease of e-mail compared to audio-taping or the higher fidelity of digital files. It is not plausible to distinguish the gifts on the grounds that digital file-sharing is commercial and cassette-taping is not.

In *Sony*, the Supreme Court held that private copying of television programs may be a fair use.[214] Specifically, it is fair use for consumers to videotape televised movies so they can view them at some time after the

212. Various technologies have been developed or proposed that limit how often digital content can be copied. Digital audio tape machines are designed to control serial music copying.

> Apple has developed the popular iTunes digital music store relying exclusively on software to restrict the sharing of digital songs over the Internet. Apple's system, which has drawn the support of the recording industry, permits consumers to share songs freely among up to three Macintoshes and an iPod portable music player.

John Markoff, *A Safer System for Home PCs Feels Like Jail to Some Critics*, N.Y. TIMES, June 30, 2003, at C1. AOL Time Warner is developing a technology that uses a cable system to provide services comparable to a digital video recorder. In contrast to TiVO, it "lets networks set the parameters, dictating which shows users can reschedule, and it also creates ways for networks to insert commercials." David D. Kirkpatrick, *AOL is Planning a Fast-Forward Answer to TiVo*, N.Y. TIMES, Mar. 10, 2003, at E1. It also "prevents consumers from making, storing or sharing copies." *Id.*

213. Instant messaging, with nearly one hundred million users, allows users to "send photos and music files to each other, without being tracked by the record industry." Jefferson Graham, *Net Services Promise Anonymous File Sharing—Eventually*, U.S.A. TODAY, June 26, 2003, at E1.

214. *Sony*, 464 U.S. at 456 (1984).

broadcast.[215] The Court did not consider whether it is also a fair use to videotape a movie and then give the tape to a friend.[216] Popular commentary asserts that sharing analogue videotapes is a fair use,[217] but the issue has not been decided in court. Courts will soon confront the digital version of this question because Hollywood has targeted digital movie file-sharing for litigation.[218]

Digital movie file-sharing issues straddle the concerns raised in *Sony* and *Napster*. Digital video recorders facilitate a greater scale of sharing than analogue recorders,[219] but they can be designed to limit the amount of sharing and prevent the anonymous file-sharing condemned in *Napster*.[220]

215. The Court approved of time-shifting as a purpose deserving protection under the fair use doctrine. *Id*. at 421. Many countries embrace the notion that "personal" use of copyrighted works is outside of the scope of copyright protection. *See* DIGITAL DILEMMA, *supra* note 201, at 129 (noting that 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 in approval of time-shifting and other personal uses as fair use. *See, e.g*., Cásarez, *supra* note 48, at 720 (advocating either court recognition of a personal use exemption or a personal use statute); Tussey, *supra* note 19, at 1181–89 (advocating a statutory personal use privilege).

216. Since Sony was accused of contributory infringement, the Court only needed to consider whether there was significant noninfringing uses of the Betamax video-recorder. The Court found that time-shifting was a significant use and that it was a noninfringing, fair use. There was no need to establish whether other possible uses were infringing. *See Sony*, 464 U.S. at 442.

217. *See, e.g.*, Marc Canter, *What Constitutes Fair Use?*, CNETNews.com, *at* http://news.com.com/2102-1071_3281607.html (Nov. 20, 2001); Katherine Mangu-Ward, *Big Music Gets a Twofer in Congress with a Bill that Cuts Down on Fair Use and Bulks up Webcasting*, *at* http://www.weeklystandard.com/Content/Public/Articles/000/000/001/579azbul.asp (Aug. 29, 2002); Ernest Miller, *TiVo to Fair Use: Drop Dead*, *at* http://research.yale.edu/lawmeme/modules.php?name=News&file=article&sid=191 (Apr. 24, 2004).

218. Hollywood filed suit against SONICblue, the maker of a device called RePlayTV because the device allows users to share movies via the Internet. Paramount Pictures Corp. v. RePlayTV, 298 F. Supp. 2d 921, 923 (C.D. Cal. 2004). The suit also complained that the device allows consumers to automatically delete commercials from recorded television broadcasts. *See id.* at 929. Time-shifting and skipping commercials does not diminish advertising appeal or revenue. *See* Lunney, *supra* note 14, at 999–1007. The Electronic Frontier Foundation filed a related suit seeking a declaratory judgment that recording and fast-forwarding television programs using RePlayTV are legal. *See* Lisa M. Bowman, *Suit Filed over ReplayTV Features*, CNETNews.com, *at* http://news.com.com/2100-1023-933398.html (June 6, 2002). The movie industry distinguishes *Sony* by pointing to RePlayTV's movie-sharing feature, and by arguing that ad-skipping will be a more serious problem with digital video recorders. *See* Lunney, *supra* note 14, at 1001. Like Sony, SONICblue is charged with contributory copyright infringement. *RePlayTV*, 298 F. Supp. 2d at 923. See Part VII.A for a discussion of contributory infringement.

219. The RePlayTV device allows users to share a movie with as many as fifteen friends. *See* Doug Isenberg, *High-Tech TV Recording, the Internet and the Law*, *at* http://www.gigalaw.com/articles/2001/isenberg-2001-11.html (Nov. 2001).

220. *See id.*; Lisa M. Bowman, *Replay TV Puts Ad Skipping on Pause*, CNETNews.com, *at* http://news.com.com/2100-1041_3-1015121.html (June 10, 2003) (reporting that the new RePlay TV devices will not contain the ad-skipping and send show features).

A device called RePlayTV was modified under threat of copyright suit so that users could no longer share movies over the Internet.[221]

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, the portion of the copyrighted work used, favors the copyright owners. Movies are highly expressive works, so the second factor, the nature of the work copied, normally would also favor copyright owners.[222] The *Sony* Court, however, dismissed that presumption because the movies were available free of charge on broadcast television.[223] 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.[224]

Analysis of the first factor, the purpose of, the copying, presents more of a challenge. *Sony* seems to indicate that movie-sharing, like time-shifting, is a personal, noncommercial use,[225] but the Ninth Circuit treated music file-sharing as a commercial use in *Napster*.[226] 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 SONICblue can argue that it enables a reasonable and customary form of movie-sharing, and such uses tend to be fair.[227] 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

221. *See id.* The other leading digital video recorder does not enable sharing, but the market is just developing. *See* Kirkpatrick, *supra* note 212 ("Satellite services, cable systems and television manufacturers are all racing to promote their versions of the TiVo-like technologies . . . .").

222. Copyright law assumes that more expressive works require stronger incentives and deserve "thicker" copyright protection. Conversely, less expressive works need relatively weak incentives and get only "thin" copyright protection. *See* Stewart v. Abend, 495 U.S. 207, 237 (1990); Harper & Row Publishers, Inc., v. Nation Enters., 471 U.S. 539 (1985).

223. Sony Corp. of Am. v. Univeral City Studios, Inc., 464 U.S. 417, 449 (1984).

224. For the argument that the second factor should not be weighed too heavily in the case of popular entertainment, see Lunney, *supra* note 14, at 1017–20 (explaining that extra profit in the movie and television industry tends to flow to stars and does little to expand output).

225. Space-shifting is fair use. Personal use is fair use. *See* Julie E. Cohen, *DRM and Privacy*, 18 BERKELEY TECH. L.J. 575, 593 (2003) (noting that fair use may protect space-shifting and other private forms of private copying); Lunney, *supra* note 14, at 989–90 (discussing the Supreme Court's characterization of videotaping as noncommercial in *Sony*).

226. *See* A&M Records, Inc. v. Napster, Inc., 239 F.3d 1004, 1015 (9th Cir. 2001). *See also* DIGITAL DILEMMA, *supra* note 201, at 129.

227. *See* Williams & Wilkins Co. v. United States, 487 F.2d 1345, 1380–81 (Ct. Cl. 1973) (Cowen, J., dissenting), *aff'd by an equally divided Court*, 420 U.S. 376 (1975) (per curiam).

(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.[228]

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.[229] Movies first appear on television in pay-per-view format about six weeks after the video release.[230] There are three later television release dates for premium pay channels, network television, and syndication.[231] 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 III suggests that sharing of pay-per-view and premium cable movies probably hurts profit in the television markets without raising total surplus.[232] If current marketing practices do

228. Courts are reluctant to permit such balancing, though, because it invites pirates to raise a fair use defense. Lunney argues expanded access counts as a pro-defendant purpose. Lunney, *supra* note 14, at 977–78. Jessica Litman advocates reforming copyright law by replacing the exclusive right to reproduce with an exclusive right of commercial exploitation. *See* JESSICA LITMAN, DIGITAL COPYRIGHT 180–81 (2001). *But see* LESSIG, *supra* note 49, at 258 (arguing that the Internet erased meaningful distinctions between commercial and noncommercial). The significance of the distinction is declining because the Internet makes not-for-profit piracy feasible. Most software pirates that distribute their pirated goods do not get any money for their troubles. *See* Jennifer 8. Lee, *Pirates on the Web, Spoils on the Street*, N.Y. TIMES, July 11, 2002, at G1. The same story applies to videogames that are shared over the Internet using peer-to-peer file-sharing methods. *See* Sega Enters. Ltd. v. Maphia, 948 F. Supp. 923, 927 (N.D. Cal. 1996) (discussing the sharing of videogames using a bulletin board); John Borland, *Hackers Break Dreamcast Safeguards, Distribute Games Online*, CNETNews.com, *at* http://news.cnet.com/news/0-1005-200-2181596.html?tag=rltdnws (June 30, 2000); Stephen Shankland, *New Napster-Like Service Enables Game Swapping*, CNETNews.com, *at* http://news.com.com/news/0-1006-200-2417632.html (Aug. 2, 2000).

229. *See Monster that Ate Hollywood*, *supra* note 108.

230. *Id.*

231. *Id.*

232. RePlayTV fares better on the issue of sharing movies released on nonpremium cable and broadcast television. *See* Lunney, *supra* note 14, at 1008–13. *Cf.* Teleprompter Corp. v. CBS, 415 U.S. 394, 411–12 (1974) (emphasizing that increasing the audience for commercial television through cable retransmission was beneficial to copyright owners). *But see* Kirkpatrick, *supra* note 212 (reporting that

indeed sort customers into relatively homogeneous groups, then sharing interferes with that sorting and increases demand dispersion.[233] 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.[234] 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.[235]

VI. ENFORCEMENT, SELF-HELP, AND § 1201

Parts VI and VII begin to explore optimal copyright policy toward sharing in environments with strategic coalitions and costly enforcement. My conclusions are more tentative because the issues are more difficult and less analyzed by economists. The coalitions in Part III have exogenously fixed membership. In reality, some coalitions are formed for the purpose of sharing; their size and membership are sensitive to enforcement and other market factors. Costly enforcement complicates the model from Part III in two ways. The copyright owner will choose an optimal mix of enforcement and self-help measures, and certain coalitions will infringe and participate in unlawful sharing. Part VI analyzes the ways copyright owners use enforcement and self-help measures to directly influence coalition membership. Part VII analyzes the ways copyright policy indirectly influences coalition membership and sharing.

All coalitions make strategic judgments about whether to infringe, but only certain coalitions make strategic judgments about membership. The size and identity of members of local coalitions based on kinship or friendship are not very sensitive to conditions in the market for the

network executives worry that letting consumers watch shows at any time might reduce the demand for syndication of television shows).

233. 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.

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

235. Lunney discusses a different feature of RePlayTV: its ability to automatically delete commercials following time-shifting. He argues that the practice should not harm profit in the network and syndication release windows as long as time-shifting represents a sufficiently small fraction of a consumer's time. Lunney, *supra* note 14, at 1010–11, 1013.

copyrighted work. Likewise, membership in an institutional coalition like a business or a school is not influenced by copyright concerns. In contrast, anonymous coalitions of music file-sharers or video rental store customers form for the purpose of sharing a copyrighted work. The size of such endogenous coalitions is sensitive to market factors, including the original sale price of the work and the risk of enforcement (for coalitions engaged in infringing activity).[236] The size of the coalition is also sensitive to the preferences of potential members. Whether a person borrows a book from a library or buys the book depends on his patience. People sensitive to quality degradations caused by sharing might prefer to purchase an original product. Those who do share will limit the size of the coalition so that the average waiting time before use does not get too long, or so that quality is not degraded too much by sharing with too many people.[237] Decentralized coalitions like those engaged in peer-to-peer file-sharing face collective action problems that exert additional pressure to limit size.[238]

A sophisticated seller can apply these insights and take steps to discourage coalition formation. The seller has two tools to influence

236. Conner and Rumelt observe that individuals have different costs of copying software because they differ in their ability to defeat copy protection, their expected penalty and reputational loss from getting caught, their guilt from violating an ethical norm, and opportunity cost of lost warranties, documentation, customer service, and so forth. Conner & Rumelt, *supra* note 80, at 127. *See also* Ram D. Gopal & G. Lawrence Sanders, *Preventive and Deterrent Controls for Software Piracy*, 13 J. MGMT. INFO. SYS. 29, 39 (1997) (arguing that the optimal size of a sharing coalition balances the desire to spread the cost of a copy versus the fear that wider sharing increases the risk of detection). *But see* Mary Madden & Amanda Lenhart, Memorandum on Music Downloading, File-Sharing and Copyright 1, *at* http://www.pewinternet.org/pdfs/PIP_Copyright_Memo.pdf (July 2003) ("[Sixty-seven percent] of Internet users who download music say they do not care about whether the music they have downloaded is copyrighted.").

237. Privacy and security might both be compromised by using file-sharing programs. A user might download a file containing a virus, or upload files containing sensitive private information. *See* John Borland, *Gnutella Swapping Cookies, Too*, CNETNews.com, *at* http://news.com.com/2100-1023_3-252338.html (Feb. 8, 2001) (explaining that someone sharing a file via Gnutella might inadvertently share cookies that could expose them to theft of identity). Users have to worry about getting the right files, especially since the music industry has begun spoofing file-sharers.

238. *See* LIEBOWITZ, *supra* note 29, at 15 & n.54 (discussing how the music file-sharing technology LimeWire includes a feature that penalizes free-riders); Lunney, *supra* note 84, at 855 n.145.

> For private sharing to occur, someone must undertake the expense of loading the work on her computer and then open her computer to others, with consequential risks to security and her bandwidth usage. With small group sharing, peer pressure within the group may be sufficient to ensure that each person contributes to the works uploaded and available for copying. For small groups, the security risks and costs associated with offering the work to others for copying are minimal. Of course, in such small groups, that same peer pressure is also likely to increase the group's paying demand for works as well.

Lunney, *supra* note 84, at 868 n.186.

sharing by coalitions: litigation and self-help.[239] Investment in enforcement activity determines the frequency of unlawful sharing. Higher enforcement activity leads to less unauthorized sharing.[240] Copy control technology substitutes for copyright enforcement as a method to discourage file-sharing. A seller may use encryption[241] or other anti-copying technology[242]

239. The seller cannot choose and at best has indirect control over who shares. *See* Ingela Alger, *Consumer Strategies Limiting the Monopolist's Power: Multiple and Joint Purchases*, 30 RAND J. ECON. 736, 736 (1999). In addition to litigation and self-help the seller can sometimes use pricing to control sharing. High prices tend to increase coalition size, and low prices or selective discounts reduce coalition size or may even stop sharing completely. This tool is only effective if the price cut required to break up coalitions does not sacrifice too much revenue. It is possible that a market with sharing can have multiple equilibria. For example, there might be a low price equilibrium with little sharing, and a high price equilibrium with extensive sharing. Oz Shy and Jacques-François Thisse analyze multiple equilibrium in the market for software with network externalities. *See* Shy & Thisse, *supra* note 85.

240. Up until now, the music industry has not had much success with a vigorous campaign of indirect enforcement, and they are shifting greater effort to direct enforcement. Initially, the industry filed lawsuits against file-sharing facilitators such as MP3.com, Napster, and MP3Board.com. *See Price Discrimination*, *supra* note 19, at 132 n.326. *See also* Jon Healey, *Overseas-Based Web Sites Make for Difficult Copyright Enforcement*, *at* http://www.computeruser.com/news/02/08/09/news2.html (Aug. 9, 2002) (reporting that in 2001, 28,000 music sites were shut down throughout the world for trading pirated files).

Apparently, direct enforcement efforts will target users responsible for uploading a significant number of files. This strategy helps aggravate the collective action problem discussed *supra* note 238. *See, e.g.*, Tussey, *supra* note 19, at 1159 (noting that intellectual property lawsuits against end-users are becoming common in markets for digital works); John Borland, *RIAA Sues Campus File-Swappers*, CNETNews.com, *at* http://news.com.com/2100-1027-995429.html (Apr. 3, 2003) (reporting that the Recording Industry Association of America ("RIAA") sued four students at three different universities because of their role in deploying music file-sharing software); Lisa M. Bowman, *Labels Aim Big Guns at Small File Swappers*, CNETNews.com, *at* http://news.com.com/2100-1027_3-1020876.html (June 25, 2003) (reporting that the RIAA plans to start thousands of lawsuits against individuals who offer a substantial number of music files for download); Madden & Lenhart, *supra* note 236, at 3 (reporting that 21% of Internet users allow others to download files from their computers); *Music Industry Wins Approval of 871 Subpoenas*, *at* http://www.usatoday.com/tech/news/techpolicy/2003-07-18-riaa-suits_x.htm (July 18, 2003) (reporting that the RIAA has started a campaign of lawsuits against music file swappers).

241. *See* Weinberg, *supra* note 36, at 1273 (noting that trusted-system technology allows sellers to block small-scale copying and resale); Melanie Austria Farmer & Jim Hu, *RealNetworks Pushes Copyright Initiative*, CNETNews.com, *at* http://news.com.com/2100-1023-268717.html?legacy=cnet (June 20, 2001) (reporting that RealNetworks has entered a joint venture with AOL Time Warner and Bertelsmann to develop streaming technology that will support subscription services, video-on-demand, and other business models).

242. *See Digital Works*, *supra* note 19, at 889–92; John Borland, *Universal Copy-Protected CD Shuns Players*, CNETNews.com, *at* htttp://news.com.com/12100-1023-277197.html (Dec. 18, 2001) (reporting the development of music CDs designed to prevent conversion to unauthorized MP3 files); Dawn C. Chmielewski, *Music Industry Swamps Swap Networks with Phony Files*, *at* http://www.siliconvalley.com/mld/siliconvalley/3560365.htm (June 27, 2002) (reporting that the music industry is spoofing peer-to-peer music file-sharing services with files containing gaps and other imperfections); Doug Lichtman & David Jacobson, *Anonymity a Double-Edged Sword for Pirates On-Line*, CHICAGO TRIBUNE, Apr. 13, 2000, at 25 (suggesting that the music industry could flood the Internet with decoy MP3 files to stop piracy and authentic files could be stored and distributed from

to raise the cost of making and sharing unauthorized copies. The goal of this technology is to prevent a user from making copies of a copyrighted work, limit the number of copies that can be made,[243] control the number of possible uses of a copy, or control some other attribute.[244] Various copy-prevention techniques have been used by software publishers since at least the early 1980s.[245] Copyright law aids seller self-help measures by making it illegal to circumvent anticopying technology for the purpose of sharing.[246] Most self-help measures do not eliminate sharing, but they reduce its frequency by increasing the cost.[247]

The benefit to the seller of well-targeted enforcement can be illustrated by returning to the example in Part III.B in which *X* and *Y* have valuations of 3, and *Z* has a valuation of 5. Suppose that coalitions are not fixed exogenously; instead any pair can form a coalition. Further suppose that sharing is unlawful, enforcement is costly, and price discrimination is

reputable sites); David Segal, *A New Tactic in the Download War: Online "Spoofing" Turns the Tables on Music Pirates*, WASH. POST, Aug. 21, 2002, at A1 (discussing the distribution of spoof music files).

243. *See* John Borland, *100 Million Copyproof CDs Sold?*, CNETNews.com, *at* http://news.com.com/2100-1027-995200.html (Apr. 2, 2003) (reporting that over one hundred million copy protected music CDs have been sold worldwide, mostly in Europe and Japan, and that the latest version of the technology allows consumers to copy music onto their computer, but makes further copying difficult); Steve Pain, *E-Business—MS may have the Answer to Piracy*, BIRMINGHAM POST, Jan. 28, 2003, at 21 (explaining that Microsoft has developed software that prevents someone from burning a copy of music recorded on a CD). The Audio Home Recording Act requires that digital tape players include a copy limitation feature. The serial copyright management system allows unlimited copies from the original but prevents copies from copies. *See Digital Works*, *supra* note 19, at 895 n.252.

244. *See* Amy Harmon, *RealNetworks Goes After Bigger Piece of Media Library Pie*, N.Y. TIMES, June 20, 2001, at C2 (reporting that RealNetworks software "can allow consumers to buy a movie for two days, or five viewings, or three viewings over the course of a month, all for different prices"); Laura M. Holson, *Twilight of the CD? Not if It Can Be Reinvented*, N.Y. TIMES, Feb. 23, 2003, at C1 (reporting that Microsoft has developed technology to limit copying of songs from CDs); Michael Liedtke, *Users Dislike Intuit Change: Anti-Piracy Code Required*, SAN JOSE MERCURY NEWS, Jan. 9, 2003, at 3C (reporting that tax preparation software has a copy control feature allowing the software to be used on more than one computer, but documents can only be printed using the machine where the software was first loaded); *Morpheus Site Adds Anti-Piracy Feature*, L.A. TIMES, Mar. 18, 2002, at C8 (reporting that a file-sharing service will add a feature that erases a downloaded song after the user listens to it a certain number of times).

245. *See Digital Works*, *supra* note 19, at 885; Hal R. Varian, *Internet Changes the Economics of Information Industries*, *at* http://partners.nytimes.com/library/financial/columns/072700econ-scene.html (July 17, 2000) (reporting that Lotus abandoned copy protection and reduced the price of its spreadsheet software to meet its competition).

246. Section 1201 of the Copyright Act (part of the DMCA) facilitates this encryption strategy by prohibiting unauthorized decryption. 17 U.S.C. § 1201(a)(1)(A) (2000).

247. *See* David Pogue, *The Internet as Jukebox, at a Price*, N.Y. TIMES, Mar. 6, 2003, at G1 (reporting that music companies sell digital music files over the Internet that consumers can download to a CD, and the music files are designed so that sharing is inconvenient but feasible for moderately sophisticated users).

not feasible. Given these assumptions, a copyright owner would compare the profit available from various patterns of sharing and tailor its enforcement effort to induce the "right" pattern of sharing.[248] Specifically, the copyright owner would discourage *Z*, the high valuation user, from sharing with anyone, while tolerating or even encouraging sharing between *X* and *Y*. Essentially, the copyright owner uses selective enforcement to choose a pattern of sharing that smoothes demand rather than a pattern of sharing that increases demand dispersion.[249]

A fortunate seller could bypass the problem of costly enforcement if self-help measures were suitably strong. Now that the initial optimism about digital rights management has faded, most commentators expect copyright owners to use some mix of self-help and enforcement.[250] Music and movie sellers are likely to deploy copy-prevention technologies and enforce § 1201 of the Digital Millennium Copyright Act to discourage sharing.[251] Most likely, copyright owners will sue to stop distribution of

248. No sharing leads to a price of 3 and profit of 9. Sharing by *X* and *Y* leads to a price of 5 and profit of 10. Sharing by *X* and *Z*, or *Y* and *Z*, leads to a price and profit of 8. The RIAA says it will target lawsuits only against computer users who distribute a substantial amount of music. *See* Peter Kaplan, *Music Industry Says Targets Only Major Swappers*, *at* http://in.tech.yahoo.com/030819/137/270xb.html (Aug. 19, 2003).

249. The merits of selective enforcement are noted in Bakos et al., *supra* note 19, at 141–42 (pointing out that sharing increases profit if coalitions are formed mainly by low-valuation users).

250. *See* Netanel, *supra* note 3, at 9 (noting that the music industry is combining digital rights management and other self-help with traditional enforcement measures); Lior Jacob Strahilevitz, *Charismatic Code, Social Norms, and the Emergence of Cooperation on the File-Swapping Networks*, 89 VA. L. REV. 505, 582–83 (2003) (arguing that the music industry needs to combine self-help with enforcement measures). Optimism about digital rights management faded as it became evident that each new method was vulnerable to hacking. *Id.* at 9–10. Copy control technology may have a different impact than litigation on coalition membership. *See generally* Gopal & Sanders, *supra* note 236. Ram Gopal and G. Lawrence Sanders conclude that preventive controls have a negative social welfare effect compared to deterrence via litigation. The basis of this claim is that preventive controls do not change club membership, but do eventually cause clubs to drop out of the market. Deterrence can change club membership and reshape the demand curve, which leads to a lower price and more profit (if the cost of increased deterrence is not too large).

251. *See* Netanel, *supra* note 3, at 9–11. Section 1201 establishes liability for circumventing "a technological measure that effectively controls access to a work protected under this title." 17 U.S.C. § 1201(a)(1)(A) (2000). The statute also attaches liability to people who indirectly promote circumvention by distributing circumvention tools. *Id.* § 1201(a)(2)(A)–(C), (b)(1)(A)–(C). One benefit of this legislation is that it cuts off the wasteful race between makers of copy control technology and circumvention technology. *See* Adelstein & Peretz, *supra* note 149, at 213–16 (describing the race to protect and circumvent protection of software). But the current statute probably goes too far. Decryption technology useful for gaining access to information that is not protected by copyright law is likely to be useful for defeating technological measures that control access to copyrighted works—and so violate the DMCA. *See* Lunney, *supra* note 84, at 835–36.

circumvention tools and continue to direct enforcement measures against high valuation users.[252]

Since litigation and self-help influence the frequency of sharing, rather than asking whether the law should allow sharing without permission from the seller, the better normative question is how much sharing is optimal.[253] Legal policy affects the cost and deterrent power of enforcement, which in turn affects the level of enforcement effort by the seller and ultimately the frequency of sharing.[254] Similarly, legal policy might encourage, discourage, or be neutral toward self-help measures.

252. Circumvention technology is likely to be used by a young and educated set of consumers. They are likely to be high-valuation users of products like videogames, so sharing would increase demand dispersion, but they are likely to be low-valuation users of products like business software, so sharing could reduce demand dispersion. When self-help is cheaper than enforcement it can be used in a socially desirable fashion to discourage socially costly sharing. *See generally* Yehning Chen & Ivan Png, Software Pricing and Copyright: Enforcement Against End-Users (May 1999) (unpublished manuscript, *at* http://papers.ssrn.com/sol3/papers.cfm?abstract_id=165228) (arguing that price discrimination may improve the alignment of the social and private incentives to enforce copyright law). The incentives diverge under a uniform price; monopolists rely too much on enforcement. A price cut turns marginal copyists into buyers. Increasing enforcement turns some marginal copyists into buyers and forces other marginal copyists out of the market. Furthermore, increasing enforcement increases the number of copyists who are caught and denied the benefits of the product. Price discrimination can ease this problem if the low price can be directed at those most likely to pirate. The seller would reject the other possible patterns of sharing. Strict enforcement might stop all sharing, but this is counterproductive because it is more costly than selective enforcement, and because the underlying pattern of demand is more dispersed—and in the example in which *X* and *Y* have valuations of 3, while *Z* has a valuation of 5, profit falls from 10 to 9. If all three users could unite in a single coalition the seller would be pleased because profit would rise to 11 and enforcement costs would disappear. But this ignores the countervailing power that an all-inclusive coalition would have against the seller. It seems that the three-user coalition would be able to bargain for a better deal, thereby causing profit to fall.

253. Yehning Chen and Ivan Png develop a model in which consumers vary in terms of their valuation: consumers with high valuations purchase originals, those with intermediate valuations make copies, and those with the lowest valuations do not purchase. They show that price and enforcement are two policies that affect the extent of copying. A price cut induces some intermediate valuation consumers to switch from copying to purchasing. Increasing enforcement induces some intermediate valuation consumers to switch from copying to purchasing, and others to stop copying and exit the market. From a social viewpoint a price cut has two advantages: it is easy to implement and it brings copyists into the market rather than blocking their use. The copyright owner will choose a mix of monitoring and price reduction that relies too much on monitoring. *See id.*

254. *See* David Becker, *New Bill Injects FBI into P2P Battle*, CNETNews.com, *at* http://news.com.com/2100-1028_3-1019811.html (June 20, 2003) (reporting that proposed federal legislation directs "the FBI to develop a program to deter online traffic of copyrighted material"); *Lawmakers Sic Ashcroft on File Swappers*, *at* http://vigilant.tv/article/1998 (Aug. 9, 2002) (noting that congressional members have asked the Department of Justice to increase criminal enforcement against music file-sharing); Declan McCullagh, *DOJ to Swappers: Law's Not on Your Side*, CNETNews.com, *at* http://news.com.com/2100-1023-954591.html (Aug. 20, 2002) (reporting that a deputy assistant attorney general warned that the government was considering criminal prosecution of individual file-sharers); Andy Patrizio, *DOJ Cracks Down on MP3 Pirate*, *at*

Copy control technology and enforcement often have similar policy effects, but there are some important differences. First, most copy control technologies apply indiscriminately to piracy and sharing;[255] copyright rights can be tailored to deter piracy more strongly than sharing. Second, copy-prevention schemes sometimes generate a costly spiral of circumvention and anticircumvention measures.[256] Third, copy control technology may cause social harm when an optimal copyright policy would allow sharing; self-help measures can negate that policy choice.[257] The harm may be aggravated when copy-prevention technology is combined with digital rights management technology.[258] Digital rights management technology facilitates site licenses and consumer use restrictions that generate the social costs discussed in Parts V.B and V.C. On the other hand, the coupling of copy-prevention technology and digital rights management might well facilitate fine-grained price discrimination that has a positive impact on profit and total surplus.

http://www.wired.com/news/politics/0,1283,21391,00.html (Aug. 23, 1999) (reporting that network administrators at the University of Oregon tipped off federal law enforcers who obtained a guilty plea from a student for trading hundreds of music files and software); John Schwartz, *Trying to Keep Young Internet Users From a Life of Piracy*, N.Y. TIMES, Dec. 25, 2001, at C1 (reporting that federal raids targeted college students who traded software for fun not profit); *Senator: Trash Illegal Downloaders' PCs*, *at* http://www.cnn.com/2003/TECH/internet/06/18/download.music.ap/index.html (June 18, 2003) (reporting that Senator Orrin Hatch, chairman of the Judiciary Committee, advocated the development of software that would destroy the computers of users who illegally download music files).

255. *See* Holson, *supra* note 244 ("Fearing a consumer backlash, the industry has slowed down those copy-protection efforts."). A recent lawsuit complains of unfair business practices by a CD manufacturer that did not indicate on the label that this copyright control technology was used on the CD. The complaint is available at http://www.techfirm.com/mccomp.pdf (last visited July 19, 2004). *See also* Richard Menta, *Woman Sues over Copy-Protected CDs*, *at* http://www.mp3newswire.net/stories/2001/cdsue.html (Sept. 8, 2001) (describing a technology that prevents a computer from playing a CD until the user registers on-line, prevents conversion to MP3 format, and prevents copying of the CD for use on a personal MP3 player).

256. *See* John Borland, *New Kazaa Likely to Raise Labels' Ire*, CNETNews.com, *at* http://news.com.com/2100-1023_3-958912.html (Sept. 22, 2002) (describing a new version of Kazaa file-sharing software that combats spoof files by relying on filters and user ratings of file quality); *Researchers Claim They Have Hacked SDMI Watermarks*, CONSUMER ELECS., Oct. 30, 2000, 2000 WL 8539458 (reporting that researchers cracked four digital watermarks proposed for use in the Secure Digital Media Initiative, a recording industry forum); Segal, *supra* note 242 (reporting that music file-sharing services are trying to develop a rating system that will defeat spoofing).

257. Netanel, *supra* note 3, at 40 ("The EU Copyright Directive and the DMCA both apparently allow technology and contract to supplant statutory limitations on copyright holders' proprietary control."). Enforcement might be socially preferable to encryption because increased enforcement leads to smaller coalitions, while encryption can drive low-valuation users out of the market completely. *See* Gopal & Sanders, *supra* note 236, at 29.

258. Legal policy can influence Internet infrastructure in ways that impede or facilitate price discrimination. *See* Weinberg, *supra* note 36, at 1279 (arguing that a pseudonymous trusted-system technology facilitates protection of intellectual property while limiting price discrimination to attributes voluntarily provided by a user).

Finally, good policy toward sharing should encourage properly targeted enforcement. The previous discussion assumed the law did nothing special to facilitate selective enforcement; sharing or copy-protection circumvention was proscribed and the copyright owner chose a targeted enforcement policy. Actually, fair use encourages selective enforcement against sharing.[259] The balancing required by the fair use doctrine implies that the strength of the defense varies with the context of the sharing. As a result, a seller might have a stronger copyright infringement case against one coalition than another coalition in the same market, and the seller can be guided to target enforcement in accord with social goals reflected in the fair use factors.[260]

VII. APPLYING THE FRAMEWORK TO COPYRIGHT POLICIES THAT REGULATE SHARING INDIRECTLY

New technologies and institutions that facilitate sharing can disrupt established channels for marketing copyrighted works. Copyright law can regulate sharing indirectly by taxing reproductive equipment and media, or by finding that equipment manufacturers and institutions involved in sharing indirectly infringed a copyright holder's rights. These two approaches have similar advantages and disadvantages. Comparison between the two parallels the familiar comparison between property rules and liability rules.[261] Indirect infringement performs best when transaction costs are low and parties can bargain to establish institutions that facilitate efficient forms of sharing. Taxation performs best when bargaining problems impede development of an efficient private ordering, provided

259. There are times when copyright law dictates selective enforcement. For example, the limitations on the public performance right in copyright law excuse sharing in an educational setting that would be infringing in any other setting. Section 110(5) is another significant exemption that applies to "home-style receivers" used to perform music in bars and other small businesses. *See* 17 U.S.C. § 110(5) (2000). This section appears to be inefficient. Transaction costs are low, sharing creates coalition diversity, and bars and other small businesses should appropriate a significant amount of the value from their performances.

260. *American Geophysical Union v. Texaco Inc.*, 60 F.3d 913 (2d Cir. 1994), and *Williams & Wilkins Co. v. United States*, 487 F.2d 1345 (Ct. Cl. 1973), *aff'd by an equally divided Court* 420 U.S. 376 (1975) (per curiam), suggest that fair use may contribute to social value by encouraging appropriately targeted enforcement against library photocopying. *See supra* notes 167–89 and accompanying text.

261. The classic work on this subject is Guido Calabresi & A. Douglas Melamed, *Property Rules, Liability Rules, and Inalienability: One View of the Cathedral*, 85 HARV. L. REV. 1089 (1972). For applications to intellectual property law, see generally Robert P. Merges, *Contracting into Liability Rules: Intellectual Property Rights and Collective Rights Organizations*, 84 CAL. L. REV. 1293 (1996), and Merges, *supra* note 149. Indirect copyright infringement would behave more like a tax scheme if damages replaced injunctive remedies.

the tax policy can be insulated from political rent-seekers and there is adequate information for setting taxes.

A. CONTRIBUTORY AND VICARIOUS INFRINGEMENT

Copyright law grants copyright owners the right to sue third parties who facilitate sharing. There are two theories of indirect copyright liability: contributory and vicarious infringement. Contributory infringement applies to those who participate in infringement,[262] and vicarious infringement applies to those who benefit from infringement.[263] One or both theories may apply to a particular indirect infringer. There are two requirements for contributory liability: (1) knowledge or reason to know of the direct infringement; and (2) the defendant either (a) causes, induces, or materially contributes to direct infringement.[264] There are also two requirements for vicarious liability: (1) the right and ability to supervise the direct infringer, and (2) a direct financial benefit from infringement.[265]

Sony Corp. of America v. Universal City Studios, Inc. and *A&M Records, Inc. v. Napster, Inc.* explore the contours of the contributory infringement doctrine as applied to the sharing of copyrighted works. In *Sony*, Sony made and sold videotape machines capable of copying movies that were broadcast on television.[266] The Supreme Court reversed the Ninth Circuit and refused to find Sony liable. The Court applied the fair use doctrine to home users who recorded movies for the purpose of shifting their viewing to a later time.[267] The Court also ruled that time-shifting is a commercially significant purpose of videotape machines.[268] Therefore,

262. *See* Nintendo of Am. Inc. v. Computer & Entm't, Inc., No. C96-0187WD, 1996 U.S. Dist. LEXIS 20975 (W.D. Wash. May 31, 1996) (finding that technology for sharing videogame cartridges was likely to be infringing); Sega Enters. Ltd. v. Maphia, 948 F. Supp. 923 (N.D. Cal. 1996) (holding that a computer bulletin board operator who facilitated sharing of videogames was liable for contributory copyright infringement); John Borland, *MP3Board Sues AOL, Time Warner over Gnutella*, CNETNews.com, *at* http://news.com.com/2102-1023_3-244748.html (Aug. 21, 2000) (reporting that MP3Board.com was sued for offering a search engine specializing in finding MP3 music files).

263. *See, e.g.*, Shapiro, Bernstein & Co. v. H.L. Green Co., 316 F.2d 304, 307 (2d Cir. 1963); Dreamland Ball Room v. Shapiro, Bernstein & Co., 36 F.2d 354, 355 (7th Cir. 1929).

264. *See* A&M Records, Inc. v. Napster, Inc., 239 F.3d 1004, 1019 (9th Cir. 2001); Gershwin Publ'g Corp. v. Columbia Artists Mgmt., Inc., 443 F.2d 1159, 1162 (2d Cir. 1971).

265. *See* Fonovisa, Inc. v. Cherry Auction, Inc., 76 F.3d 259, 262 (9th Cir. 1996).

266. Sony Corp. of Am. v. Universal City Studios, Inc., 464 U.S. 417, 419–20 (1984).

267. The Court emphasized that the copying in question was private and not for profit. *Id.* at 449. Besides fair use, the Court also noted that some copyright owners authorized home videotaping. *Id.* at 445–46.

268. *See id.* at 422, 456.

Sony could not be liable because its device was capable of a substantial, noninfringing use.[269]

In *Napster*, the Ninth Circuit approved (with modifications) a preliminary injunction that ultimately brought an end to Napster's music file-sharing service.[270] The court found direct infringement by Napster users because of unauthorized copying and distribution of music. It rejected the claim that music file-sharing was fair use.[271] Besides claiming fair use, Napster argued that many composers authorized file-sharing, and so its service should be insulated from indirect liability because of the safe-harbor created by *Sony*.[272] The court made some initially encouraging remarks about the applicability of *Sony*,[273] but ultimately distinguished the case by noting that Napster had actual knowledge of infringement.[274] The court observed that the Supreme Court might have imputed constructive knowledge to Sony, but did not because of possible noninfringing uses.[275]

Regarding vicarious liability, the Ninth Circuit concluded Napster got a financial benefit from direct infringement because that activity builds a

269. *Id.* at 456.

270. Sharing of digital music files typically starts with a consumer purchasing a music CD. The music on the CD can be copied onto a computer hard drive where it is usually compressed and stored in a format called MP3. The service at issue in Napster facilitated anonymous MP3 music file-sharing. Napster took three main actions to facilitate file-sharing. First, it distributed a free copy of its MusicShare software. A&M Records, Inc. v. Napster, Inc., 239 F.3d 1004, 1011 (9th Cir. 2001). Second, it maintained a directory of music files currently available for download. *Id.* And third, it matched users who wanted to transfer a music file. *Id.* To illustrate, suppose that Joe has a collection of MP3 files on his hard drive that he is willing to share. He names his music files and sends a list of files to Napster using MusicShare. Suppose another Napster user named Janet wants to download some music files. She could search the directory and find a music file she wants that is available on Joe's computer. She connects to Joe's computer through the Napster directory and copies the music file from Joe's computer. The copied music does not reside or pass through Napster servers.

271. Napster argued that space-shifting and sampling were fair uses. *Id.* at 1014. Sampling, as used here, means that the users make temporary copies of a work before purchasing, presumably to listen to the music before deciding to purchase. *Id.*

272. *Id.* at 1026.

273. Unlike the district court, the Ninth Circuit recognized the Napster service was capable of significant, noninfringing use:

> The mere existence of the Napster system, absent actual notice and Napster's demonstrated failure to remove the offending material, is insufficient to impose contributory liability. . . . [W]e place the burden on plaintiffs to provide notice to Napster of copyrighted works and files containing such works available on the Napster system before Napster has the duty to disable access to the offending content.

Id. at 1027.

274. *See id.*

275. *See id.* Judge Posner criticized this interpretation of *Sony*, and agreed with Paul Goldstein "that actual knowledge of specific infringing uses is [not] a sufficient condition for deeming a facilitator a contributory infringer." *In re* Aimster Copyright Litig., 334 F.3d 643, 649 (7th Cir. 2003) (citing 2 PAUL GOLDSTEIN, COPYRIGHT § 6.1.2 (2d ed. Supp. 2004), *cert. denied*, 124 S. Ct. 1069 (2004).

Napster user base.[276] The court also held that Napster can supervise users.[277] The court concluded: "Napster may be vicariously liable when it fails to affirmatively use its ability to patrol its system and preclude access to potentially infringing files listed in its search index. Napster has both the ability to use its search function to identify infringing musical recordings and the right to bar participation of users who engage in the transmission of infringing files."[278]

Napster disturbs the safe harbor created for device manufacturers in *Sony*. Consumer electronic manufacturers and software companies cannot be sure they will escape liability even though their product is capable of substantial, noninfringing use. The risk of liability arises whenever they arguably have knowledge of infringing use of their product. This risk can be minimized by careful product design. For example, decentralized file-sharing programs might steer clear of both the contributory and vicarious liability theories of *Napster*.[279] Several music file-sharing programs eliminate the searchable centralized directory offered by Napster.[280] Instead, indexing and searching is done over the Internet using the computers in the network. Thus, the distributor of the file-sharing software has less control[281] of and less knowledge about infringing activity.[282] Another way to distinguish a device or service from Napster's service is to

276. *Napster*, 239 F.3d at 1023. Napster did not charge a fee to users. *Id.* at 1011. The Ninth Circuit failed to explain how Napster could ever get any financial benefit, but it does seem reasonable that a bigger user base will bring more revenue to Napster once it figures out how to get revenue.

277. The Ninth Circuit disagreed with the district court regarding how much supervising Napster can do, however. *Id*. at 1023–24.

278. *Id*. at 1027.

279. *See* MGM Studios, Inc. v. Grokster, Ltd., 259 F. Supp. 2d 1029 (C.D. Cal. 2003) (granting summary judgment to defendant seller of decentralized peer-to-peer music file-sharing software). *See also* John Borland, *Judge: File-Swapping Tools are Legal*, CNETNews.com, *at* http://news.com.com/2100-1027_3-998363.html (Apr. 25, 2003) (distinguishing the Napster case on the grounds that Grokster and Streamcast lacked the control of users available to Napster because of its central directory). "[N]either Grokster nor StreamCast provides the 'site and facilities' . . . . [I]f either [one] closed their doors and deactivated all computers within their control, users of their products could continue sharing files with little or no interruption." *Grokster*, 259 F. Supp. 2d at 1041 (quoting *Napster*, 239 F.3d at 1022). The *Aimster* opinion warns, however, that "[w]illful blindness is knowledge, in copyright law" and may be sufficient to create liability as a contributory infringer. *Aimster*, 334 F.3d at 650.

280. John Borland, *RIAA, File-Swappers Ask for Trial's End*, CNETNews.com, *at* http://news.com.com/2102-1023_3-957227.html (Sept. 9, 2002) (reporting that the software used by the current generation of music file-sharing services is decentralized and does not require a central server for swaps or searches).

281. *See Grokster*, 259 F. Supp. 2d at 1045. If software is designed so that the designer has no ongoing control, then maybe there is no liability.

282. *Id*. Practically speaking, the makers and distributors of decentralized file-sharing programs are less attractive targets for litigation.

impose limits on what kinds of files can be shared, whom a person can share with, and how many times a person can upload a file for sharing.[283] For example, RePlayTV limits sharing to other subscribers and imposes quantitative limits.[284]

Indirect copyright liability substitutes for direct enforcement and self-help measures and helps refine the regulation of sharing.[285] Internet service providers and online intermediaries,[286] employers,[287] and universities[288] all have some ability to monitor and control sharing of copyrighted works.

283. The peer-to-peer program, Aimster, offered the option of limiting sharing to those on a buddy list, *see* LITMAN, *supra* note 228, at 166–67, Borland, *supra* note 87, but the program also offered an anonymous file-sharing similar to Napster, *see Aimster*, 334 F.3d at 646.

284. *See ReplayTV May Strip Ad Skipping*, *at* http://www.wired.com/news/business/0,1367,58957,00.html (May 22, 2003) (reporting that a new owner has purchased RePlayTV from the bankrupt SONICblue and is considering removal of the send show and commercial advance features from the product, the features that prompted lawsuits against SONICblue).

285. *See* WILLIAM LANDES & DOUGLAS LICHTMAN, INDIRECT LIABILITY FOR COPYRIGHT INFRINGEMENT: AN ECONOMIC PERSPECTIVE 12 (John M. Olin Law & Economics Working Paper No. 179, 2003), *at* http://www.law.uchicago.edu/Lawecon/index.html (proposing a negligence rule that could be applied to the design of devices that facilitate copyright infringement). *See generally* Assaf Hamdani, *Who's Liable for Cyberwrongs?*, 87 CORNELL L. REV. 901 (2002) (exploring the issue of Internet service provider ("ISP") liability). The threat of indirect liability pushed manufacturers in Europe to accept taxes on devices and media used to copy music, movies, and text. *See* Kevin Davis, *Fair Use on the Internet: A Fine Line Between Fair and Foul*, 34 U.S.F. L. REV. 129, 166–67 (1999). In the United States, digital audiotape manufacturers agreed to a tax as part of a bargain to avoid indirect copyright liability. *See* Ku, *supra* note 19, at 312–13.

286. ISPs that limit outgoing bandwidth can regulate P2P systems. Bernhard Warner, *Music Exec: ISPs Must Pay Up for Music-Swapping*, *at* http://www.canadianisp.com/cgi-bin/forums/ikonboard.cgi?act=ST&f=22&t=903 (Jan. 18, 2003) (reporting that the RIAA has threatened to sue ISPs unless they block user access to illicit music file-sharing sites). *See also* Kelly Yamanouchi, AP Online, *EBay Monitors for Copyright Woes*, *at* 2001 WL 15175237 (Feb. 28, 2001) (reporting that eBay and other online auction sites use software and employee inspection to detect and remove items that infringe copyright).

287. *See* John Borland, *Labels Turn Guns on Workplace Pirates*, CNETNews.com, *at* http://news.com.com/2100-1023-984548.html (Feb. 13, 2003) (reporting that the music and movie industries are pressuring employers to stop file-swapping on their networks); Lisa M. Bowman, *Labels Settle At-Work Song-Share Dispute*, CNETNews.com, *at* http://news.com.com/2100-1023_3-879308.html (Apr. 9, 2002) (reporting that a company paid $1 million to settle a claim of indirect infringement based on employee song swapping using the company server); Factiva Advertising and Media Digest, *Music Group Sends Piracy Complaints to 300 Firms*, *at* 2003 WL 4428323 (Mar. 18, 2003) (reporting that RIAA sent letters warning employers of fines for copyright infringement).

288. *See* Dawn C. Chmielewski, *Colleges Ambivalent About Anti-Piracy Role*, *at* http://www.siliconvalley.com/mld/siliconvalley/news/5205893.htm (Feb. 18, 2003) (reporting that colleges assist copyright owners by combating sharing of music and video files by college students); Brad King, *USC to Students: No Sharing Files*, *at* http://www.wired.com/news/mp3/0,1285,55159,00.html (Sept. 13, 2002) (reporting that the University of Southern California warned students that they could lose access to the university's computer system and face disciplinary action for swapping music and movies online). At the peak of Napster's popularity, seventeen universities banned the service from their computer systems. King, *supra*.

Indirect liability should be limited to cases in which it reduces enforcement costs;[289] there is a danger that it will inefficiently shift enforcement monitoring costs to third parties[290] and significantly discourage diffusion of works with little corresponding gain in incentives.[291] The threat of indirect liability can add to social welfare by encouraging the design of products to minimize unlawful sharing, but it can also chill the development and diffusion of legitimate multi-purpose technology.[292] Finally, it creates a danger of opportunistic and anticompetitive lawsuits,[293] and encourages potential targets of indirect copyright suits to take costly evasive actions.[294]

289. Two significant practical problems limit the ability of digital copyright owners to control third parties. First, the global nature of the Internet encourages infringers to act in nations where it is hard to enforce indirect copyright infringement claims. *See* Jonathan Zittrain, *Internet Points of Control*, 44 B.C. L. REV 653, 683 (2003) (relating that in August 2002, thirteen American record companies filed suit against five major American ISPs in an effort to block access to listen4ever.com, a China-based web site providing unauthorized music downloads). Second, many third party targets are judgment proof start-ups, or even more elusive open-source software communities. *See* Tim Wu, *When Code Isn't Law*, 89 VA. L. REV. 679, 731–32 (2003) (noting that Gnutella, an open source protocol, is a decentralized file-sharing system intentionally designed to avoid lawsuits).

290. *See* LANDES & LICHTMAN, *supra* note 285, at 2 (arguing that indirect liability is socially valuable because it encourages third parties to monitor and control direct infringers); Netanel, *supra* note 3, at 11–17 (describing how copyright owners have attempted to shift enforcement costs related to file-sharing to third parties).

291. Libraries are protected by § 108 from indirect liability attributable to spontaneous photocopying. 17 U.S.C. § 108 (2000). Without this protection libraries might withdraw photocopiers or monitor them closely. If libraries could negotiate a license on behalf of spontaneous copyists, then they might have an incentive to limit patronage; for example, universities would have a stronger incentive to exclude non-university library patrons. *Cf.* Princeton Univ. Press v. Mich. Document Servs., Inc., 99 F.3d 1381,1389 (6th Cir. 1996) (en banc) (suggesting that users are free to delegate copying to an agent and that the agent should be able to claim the same fair use privilege as ultimate consumer).

292. LANDES & LICHTMAN, *supra* note 285, at 4 (arguing, on the one hand, that indirect liability is socially valuable because it encourages companies like Sony and Napster to design products and services in a way that discourages infringing use, but, on the other hand, indirect liability can be socially harmful because it chills the development of new technology and interferes with noninfringing activities). *See* John Borland, *Hackers: iTunes Can Be Shared over Net*, CNETNews.com, *at* http://news.com.com/2102-1027_3-1001121.html (May 12, 2003) (observing that Apple iTunes can be programmed to allow anonymous streaming of music over the Internet, and that the limited bandwidth available to most users means that a machine can only support a few listeners at a time); Jim Hu, *AOL Pulls Nullsoft File-Sharing Software*, CNETNews.com, *at* http://news.com.com/2102-1032_3-1011585.html (May 30, 2003) (reporting that a division of AOL has developed software that enables secure, small-scale file-sharing networks open only to authorized participants); Neil Strauss, *Apple Finds a Route for Online Music Sales*, N.Y.TIMES, May 29, 2003, at E1 (reporting that Apple removed a service that allowed friends to stream music to each other because third parties developed software that allowed the service to be used for file-sharing).

293. *See* John Borland, *Kazaa Strikes Back at Hollywood, Labels*, CNETNews.com, *at* http://news.com.com/2102-1023_3-982344.html (Jan. 27, 2003) (reporting that the owner of file-sharing service Kazaa sued members of the music industry for misuse and antitrust violations, based on their alleged refusal to provide copy-protected music files for distribution, and is seeking to bar enforcement of music copyrights). *See generally* Michael J. Meurer, *Controlling Opportunistic and*

The threat of an indirect infringement suit gives copyright owners some control over products that facilitate sharing, but they hope to gain more direct control.[295] The movie and music industries are pushing for a federal mandate requiring that computer, television, and consumer electronics manufacturers facilitate copy control by incorporating technology in their devices that will block unauthorized copying.[296] A coalition of computer and other hi-tech companies has formed to oppose the legislation.[297] Consumer resistance and pressure by consumer allies may result in the opposite outcome. [298] Proposed legislation gives

Anti-Competitive Intellectual Property Litigation, 44 B.C. L. REV. 509 (2003) (describing the conditions that give rise to opportunistic and anticompetitive intellectual property lawsuits). The district court judge in the *Napster* case found evidence that the music industry might have violated the antitrust laws in the market for digital music distribution. *See In re* Napster, Inc. Copyright Litig., No. MDL 00-1369 MHP, 2004 U.S. Dist. LEXIS 7236, at *38, *58 (N.D. Cal. Feb. 22, 2004). The Department of Justice is investigating music industry activities in markets for digital music. *See* Borland, *supra*. *See also* Dawn C. Chmielewski, *Napster Troubles Leave Investors Wary of New Technologies*, *at* http://www.siliconvalley.com/mld/siliconvalley/5222200.htm (Feb. 20, 2003) (relating that venture capitalists have been discouraged from funding certain technologies that might face indirect copyright infringement suits).

294. *See* Graham, *supra* note 213 (reporting that new music file-sharing services claim they can protect the identity of music downloaders).

295. It is unlikely, but possible, that a copyright owner could obtain some control over technology through injunctive relief against an indirect infringer. *See* Netanel, *supra* note 3, at 13 (relating that the music industry requested an injunction seeking to control routing systems in the Internet network backbone).

296. *See* Benefit Authors Without Limiting Advancement or Net Consumer Expectations (BALANCE) Act, H.R. 1066, 108th Cong. (2003); Netanel, *supra* note 3, at 14–15 (noting that copyright owners have proposed legislation that would require consumer electronics manufacturers to aid digital rights management efforts); John Borland, *New Technology Could Help Squelch Digital Music Piracy*, CNETNews.com, *at* http://news.com.com/2102-1023_3-250340.html (Dec. 27, 2000) (reporting that the National Committee for Information Technology Standards is developing a hardware standard that "could prevent protected songs or movies from being copied using devices containing" copy-protection technology); *Consumers Could Lose out with Proposed Copy Protection Law*, *at* http://www.siliconvalley.com/mld/siliconvalley/2820764.htm (Mar. 8, 2002) (proposed federal legislation would require digital electronic devices to include technology that prevents copying of copyrighted music or movies); Amy Harmon, *Movie Studios Press Congress in Digital Copyright Dispute*, N.Y. TIMES, July 29, 2002, at C3 ("[S]everal members of Congress urged the Federal Communications Commission . . . to require that makers of computers, television sets and recording devices embed technology into their machines to prevent TV viewers from redistributing digital broadcasts over the Internet."); *Lawmaker Pushes for Digital TV Deadline*, CNETNews.com, *at* http://news.com.com/2102-1023_3-958685.html (Sept. 19, 2002) (reporting that consumer electronics manufacturers and media companies have failed so far to reach an agreement over the features of a system that would allow consumers to make recordings of television programs for home use but prevent them from sharing programs over the Internet).

297. *See* Borland, *supra* note 5; Declan McCullagh, *Tech Firms Fight Copy-Protection Laws*, *at* http://zdnet.com.com/2100-1106-981882.html (Jan. 23, 2003).

298. *See* Mike Musgrove, *Microsoft Easing up on DVD Restrictions: Copied Discs to Play on More Devices*, WASH. POST, Oct. 9, 2002, at E3 ("Microsoft Corp. announced yesterday that it is easing

consumers "the right to make backup copies of digital works for use on other devices" and protects "consumers who bypass technological locks to view a DVD movie on their laptops."[299] The legislative approach has similar costs and benefits, but it probably poses a greater risk to innovation because it is less flexible and more susceptible to political rent-seeking.[300]

B. TAXES ON EQUIPMENT AND MEDIA

Commonly, European copyright statutes permit private copying but also impose taxes on copying equipment and media that are paid to copyright owners.[301] For example, the taxes collected on blank audiotapes and audio recording equipment are paid to music copyright owners.[302] The only American experience with this approach to regulating sharing is the little-used Audio Home Recording Act of 1992.[303] This Act imposes a tax on digital audio tapes and digital tape recording machines that are distributed to music copyright owners.[304] The European Union is extending

the DVD-copying restrictions it planned to build into new entertainment software coming out this fall, in response to consumer protests.").

299. Dawn C. Chmielewski, *Lofgren Bill Backs Digital Copying for Personal Use, at* http://www.siliconvalley.com/mld/siliconvalley/news/5365373.htm (Mar. 11, 2003). *See also* H.R. 1066, 108th Cong. § 3(b)(1)(a)(2) (2003).

300. *See* John Markoff, *A Safer System for Home PCs Feels Like Jail to Some Critics*, N.Y. TIMES, June 30, 2003, at C1 (reporting that new copy-protection technology "'will kill innovation . . . [and] mean that fewer software businesses succeed and those who do succeed will be large companies.'") (quoting Ross Anderson, computer security expert at Cambridge University).

301. *See* Lunney, *supra* note 84, at 853 n.137 (listing European levy provisions); Edmund L. Andrews, *Fighting Free Music, Europeans Take Aim at Personal Computers*, N.Y. TIMES, Feb. 14, 2001, at A1 (noting that many European countries impose copyright fees on audio and videocassette recorders and blank tapes). For a description of a system of levies on devices and materials used in private copying, see discussion *supra* text accompanying notes 94–111. The revenue, however, from the European private copying levies is small compared to the revenue derived from European performance rights payments. *Cf.* Lunney, *supra* note 14, at 1008 n.137 (explaining that European nations typically allow users to make private copies of movies and music, but they must pay taxes that are distributed to copyright owners on copying equipment and blank tapes).

Many European countries also give the copyright owner a lending right that provides a fee based on the volume of lending activity. *See* Ginsburg, *supra* note 125, at 196 (describing Nordic countries' photocopy license fees set as a price per page copied, as a lump-sum payment from each user, or occasionally as a lump sum per inhabitant or per student).

302. *See* Eugene Ulmer & Hugo von Rauscher auf Weeg, *Germany (Federal Public), in* INTERNATIONAL COPYRIGHT & NEIGHBOURING RIGHTS 414, 422 (Stephen M. Stewart & Hamish Sandison eds., 2d ed. 1989).

303. 17 U.S.C. §§ 1001–10 (2000). *See* GOLDSTEIN, *supra* note 90, at 162–63.

304. The act also imposed a sales tax of 3% on digital tapes and 2% on digital tape players. 17 U.S.C. § 1004.

this approach to digital content,[305] and there are proposals to do likewise in the United States.[306]

American copyright law prefers to give the seller the right to control sharing in order to encourage a blanket license, and when a blanket license is not feasible, American law favors fair use. For example, home videotaping of televised movies cannot be licensed because of transaction costs; American copyright law gives users the right to copy but Europeans favor a tax on blank videotapes. Similarly, photocopier uses with low transaction costs are subject to licensing in the United States, and uses with high transaction costs are fair use. Again, many European countries favor a tax on photocopy supplies and equipment. It is difficult to tell which approach leads to greater social welfare.[307]

Taxation and blanket licensing both discourage the development of copying technology.[308] This social cost[309] is probably greater for blanket

305. New EU regulations preserve the private copy provisions for digital content. These provisions allow consumers to make a small number of copies and share them with friends as long as the copyright owner receives fair compensation. *See* Council Directive 2001/29/EC, art. 5(2)(b), 2001 O.J. (L 176) 10, 16; Lunney, *supra* note 84, at 854; Andrews, *supra* note 301 (reporting that the German music industry supports fees on computer components that are used in copying music); *Intel, Others to Oppose Copyright Tax*, *at* http://www.siliconvalley.com/mld/siliconvalley/news/editorial/5109624.htm (Feb. 5, 2003) (reporting that the German patent office recommends a tax of twelve euros on every computer sale with the revenue used to compensate digital copyright owners).

306. *See* William Fisher, *Digital Music: Problems and Possibilities*, *at* www.law.harvard.edu/faculty/tfisher/Music.html (Oct. 10, 2000) (describing a tax and royalty scheme to support music production); Netanel, *supra* note 3, at 35–59 (proposing a tax on consumer products and services associated with file-sharing of copyrighted digital content). *But see Music Execs Go after Internet Services in Song-Swap War*, *at* http://www.usatoday.com/tech/news/techpolicy/2003-01-24-music-isp_x.htm (Jan. 24, 2003) (reporting that the RIAA has no plans to develop compulsory licensing arrangements for Internet music swapping).

307. Janusz Ordover and Robert Willig develop a model of library photocopying and show that library lending fees are part of a socially optimal copyright policy. *See* Janusz A. Ordover & Robert D. Willig, *On the Optimal Provision of Journals qua Sometimes Shared Goods*, 68 AM. ECON. REV. 324, 333–34 (1978). They observe that the user who is indifferent between library use and personal subscription will choose a subscription to avoid a lending fee. This causes a first order increase in profit but causes only a second order loss to the consumer. A reduction in subscription fees that returns sellers to their original profit level will increase consumer surplus. *Id.* Liebowitz counters that a public lending right is unnecessary because copyright owners price discriminate by charging libraries a higher subscription fee than they charge to individuals. *See* Liebowitz, *supra* note 87, at 194.

308. *See* Lunney, *supra* note 84, at 856–57 (arguing that a levy inefficiently discourages the diffusion of copying technology); Netanel, *supra* note 3, at 68–73 (noting that a levy might impede the development of certain technologies but arguing a levy can be tailored to mitigate this problem). *Cf.* LANDES & LICHTMAN, *supra* note 285, at 12 (noting that indirect liability functions like a tax).

309. This might be socially desirable if the copying technology is inefficient compared to the seller's distribution technology. It might also be socially desirable as a way to discourage a technology "arms race."

licensing because licensing usually leaves less surplus to consumers.[310] Consumer surplus from using the copying technology is an incentive to create it.

Taxation and blanket licensing have a similar effect on the market for the shared work—sharing is permitted and the tax revenue received by the copyright owner rises as the number of people sharing rises. Compared to licensing, profit is generally lower under a tax scheme, even if the tax revenue is paid to the copyright owner. Profit tends to be lower because sellers lose control over sharing; a single linear tax rate is chosen by the government. Site licensing permits each seller to choose a nonlinear royalty schedule for each copyrighted work. This point can be illustrated in an example in which *X* and *Y* each have a valuation of 3 and they form a coalition with a total valuation of 6. *Z* has a valuation of 5. Suppose that sharing requires the use of equipment or media bearing a tax that will be collected and paid to the copyright owner. If the tax is set at 2, then the seller will choose a price of 4, sell two units, and collect sales plus tax revenue of 10. This is less than the 11 that can be obtained with the optimal site license. If the tax is reduced to 1, then the seller will set a price of 5, sell two units, and collect a total profit of 11. If the tax is greater than or equal to 3, then *X* and *Y* will not share, the seller will set a price of 3, sell three units, and collect a total profit of 9. Incorrectly setting the tax hurts both profit and social welfare. The government might do poorly setting the tax because of informational problems and the hazard that private interest groups will exert control over the tax rate.[311]

Taxation and licensing both discourage the formation of marginal coalitions and marginal sharing,[312] but taxation is normally a greater deterrent to sharing because the seller will design a blanket license to encourage as much sharing as possible.[313] Blanket licenses often use lump-sum royalties that are linked to observable characteristics of the customer, rather than royalties that rise with the number of sharing users. Sellers choose lump-sum schemes because they want to encourage the optimal level of sharing and then extract surplus from the sharing users with a high lump-sum fee. A high lump-sum fee may deter the formation of a marginal

310. *See* Liebowitz, *supra* note 29, at 10 (arguing against taxes but noting that writeable CDs and their drives might be a sensible target for a tax).

311. *See* LANDES & LICHTMAN, *supra* note 285, at 13.

312. *See* Lunney, *supra* note 84, at 855–56 (noting that a levy inefficiently discourages use).

313. A tax on copying devices might act like a sunk cost—that is, a cost that does not influence sharing behavior. This is likely the case for general purpose technologies and when the tax is relatively small.

coalition, but it never discourages marginal sharing by licensees. Taxes that discourage sharing by small coalitions leave a bi-modal pattern of large coalitions and singletons. Profit suffers because the coalition diversity effect is worsened. When everyone is part of a coalition and coalition size is endogenous, then the tax pushes coalition size up. This creates a social cost because coalitions are too big, which aggravates waiting times. On the other hand, it reduces demand dispersion by increasing the aggregation effect.

VIII. CONCLUSION

Optimal policy toward sharing tries to satisfy two goals that are often in conflict: providing an appropriate incentive for the creation of copyrighted works, and maximizing total surplus from consumption of these products once they are created. Copyright owners decry sharing because it threatens productive incentives. Users' rights advocates defend sharing that mitigates market failures and increases access to copyrighted works. A policy that always forbids sharing without permission is probably not optimal. It does have the desirable effect of maximizing the incentive for creation. But a right to share may be socially desirable because the current incentive for creation is too large, or because giving users the right to share causes total surplus to grow significantly relative to the loss of profit-based incentive.

When the law requires permission to share, a rational seller will authorize sharing if and only if it increases profit. Sellers profit from sharing when it is an efficient means of producing and distributing their product, when it smoothes demand, when it increases the value of their product, or when it facilitates price discrimination. Often, the seller's profit motive is aligned with the social interest in maximizing total surplus; thus, sellers authorize socially valuable forms of sharing and prevent socially costly forms of sharing.

A mismatch between sellers' profit motives and the public interest in total surplus maximization may arise when sellers use copyright law to push for the development of too many markets. If there were no market at all for a copyrighted work, then probably there would be too little incentive to produce the work. Therefore, establishing the "first" market for the work is socially desirable. An economist would say that the positive externality problem was solved by creating a market. Copyright-protected industries are unusual because there are often multiple markets governing different uses of a single copyrighted work. The economic presumption in favor of

creating the first market does not apply to these additional markets. Additional markets might be socially desirable because they promote expanded output (such as the market for public performance of music), or they might be socially harmful because they engender relatively high social costs (as is the case, perhaps, with the market for photocopy licenses applicable to corporate research). Good policy toward sharing of copyrighted works should not encourage more markets; it should encourage the right number of markets.