

The Economics of Copyright “Fair Use” in a Networked World

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The recent success of file-sharing technologies such as Napster has highlighted the economic question of whether copying increases or decreases the market value of copyrighted works. Contrary to Michele Boldrin and David K. Levine (2002), we show that Napster-type services are likely to reduce copyright value. This economic question of the effect of copying on copyright value largely coincides with the legal question of whether copying is “fair use.” The primary legal determinant of “fair use” (or use that does not require authorization by the copyright-holder) is whether the use adversely affects the present or future economic value of the copyrighted work.¹ However, given this legal standard, it is unclear why copyright-holders ever disagree with the court regarding “fair use.” Our analysis shows that there is no inherent conflict between the court and copyright-holders with regard to particular uses, but why

there may be a conflict with regard to a technology that has both “fair” and infringing uses.

I. Why Napster-Type Services Decrease Copyright Value

Napster attempted to demonstrate that its activities involved “fair uses” that did not reduce the value of the intellectual property protected by the record companies’ copyrights in two ways. First, it claimed that Napster primarily involved consumer “sampling” of individual songs that ultimately increased demand for the full album recording. This potentially makes some economic sense. Promotional activity is especially important for music, with record companies engaging in costly promotional activities to obtain radio play. However, any record company that wished to use Napster in this way could release promotional samples of its music to the Internet to be distributed free. Sampling does not explain the overwhelming majority of songs downloaded by consumers using Napster without record-company authorization.

Second, Napster argued that consumers were engaged in “space shifting,” using Napster to play a CD they already owned, for example, on their computers at work. Napster claimed that this was analogous to the “time shifting” activities validated in the *Betamax* litigation, where the Supreme Court held that consumer taping of a television program for later viewing was “fair use,”² and to the similar “space shifting” activities validated in the *Diamond* case, where the court held that copying a file already stored on a user’s hard drive to a portable listening device was noninfringing personal use.³ The Napster court correctly rejected this argument.

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¹ This implies that “fair use” does not involve the standard economic trade-off of increasing consumption of current creative works at the cost of decreasing the incentive to produce new creative works. Instead, it is more accurate to think of “fair use” as a way to minimize transaction costs regarding uses the copyright-holder would otherwise authorize (Wendy Gordon, 1982). This is an application of the principle that, to minimize transaction costs, property rights should be defined in the way they would ultimately be allocated in a costless-transactions world (see Harold Demsetz, 1966). This legal criterion for “fair use” makes economic sense because, in contrast to patents, a copyright does not grant exclusive rights to an idea, but merely to the specific expression of an idea. Hence, in spite of the fact that the price of copyrighted works is greater than marginal cost, a copyright generally does not create monopoly power.

² *Sony Corp. v. Universal City Studios, Inc.*, 464 U.S. 417, 423 (1983).

³ *Recording Industry Association of America v. Diamond Multimedia Systems, Inc.*, 180 F.3d 1072, 1079 (9th Cir. 1999).

The “space-shifting” that Napster claimed did not reduce (and may even have increased) the economic value of record-company copyrights is a variant of the indirect-appropriability argument originally made by Stan J. Liebowitz (1985) which underlies the Boldrin and Levine analysis. With indirect appropriability the copyright-holder collects for the value of copies in the original sale price. In the simplest case where all consumers make an MP3 copy of a CD they purchase and value the MP3 copy equally, the copyright owner can profitably increase the price at which it sells the original by the amount of the MP3 copy value. However, in the more realistic case when consumers differ in the value they place on copies, the copyright-holder may find it difficult to appropriate the full extra value generated by copying.

A. *The Inability To Price-Discriminate*

Liebowitz (1985) argues that a copyright-holder may be able to appropriate the value of copying in the case where consumers differ in the value they place on copies if the copyright-holder can price-discriminate among consumers. The example he discusses is a price-discriminating publisher of research journals. Because the publisher knows journals in libraries will be copied much more than journals purchased by individuals, it charges libraries higher prices for subscriptions to appropriate the value of copying. However, if the copyright-holder can separate buyers based on the likelihood they will make copies and prevent arbitrage, it need not permit copying. The journal publisher could charge libraries a higher total amount and merely ship them multiple copies of the journal. A copyright-holder will find copying profitable only if copying facilitates price discrimination, for example, if relatively lower-valued users who cannot otherwise be distinguished by the copyright-holder make more copies.⁴ The more likely explanation for Liebowitz’s example is that copying lowers the costs of distribution by more efficiently supplying the library with the

desired number of copies of the particular articles demanded by consumers.

In the case of copying facilitated by file-sharing technology, such as Napster, price discrimination is not possible. Record companies cannot easily separate out and charge higher CD prices to consumers who make copies. Moreover, there are huge differences among consumers in the value they place on copying. As the Napster court recognized, consumers are not just making copies for their own use and the use of immediate friends and family, but are, in effect, indirectly making thousands of copies by exposing the copyrighted material to reproduction and distribution by the general public. This makes it essentially impossible for a record company to appropriate the value of copying by price discriminating among consumers.

B. *The Inability To Control Prices*

The extreme ease of making copies with Napster-type technology also makes it impossible for copyright-holders to indirectly appropriate the full value of copying. Although the copyright-holder can charge for the future value of all copies in its initial original CD price, the future value of copies will be substantially reduced. In particular, assuming that β copies can be made per CD per period, the rental price of the copyrighted work, R_t , will fall over time at a rate equal to

$$(1) \quad \frac{R_{t+1}}{R_t} = \frac{1}{1 + \beta}.$$

Therefore, with copying technologies such as Napster, prices will fall very rapidly over time. For example, if 10,000 copies can be copied per week, prices will fall at a rate of 99.99 percent per week.⁵

⁵ Equation (1) follows directly from an intertemporal arbitrage condition: if one copy today can be converted into two copies tomorrow, the price today must be twice the price tomorrow. More precisely, the rate of change of prices is equal to $(1 + r)/(1 + \beta)$. However, since the interest rate, r , is essentially zero for the short relevant period for which β and R_t are defined, say, a week, equation (1) is a reasonable approximation. The derivation of equation (1), along with a more detailed economic analysis of this model is presented in Klein et al. (2002).

⁴ This may explain why software suppliers often do not enforce the prohibition on copying for home (as opposed to business) users. A home user’s proclivity to copy and share software among friends may efficiently separate out lower-valued from higher-valued home users.

This price path implies that the value of copyrights will be substantially reduced with unregulated use of Napster-type copying technologies. Although the copyright-holder can set the initial price of the original CD to reflect the discounted stream of rental revenues that can be earned downstream from copies of the original, the copyright-holder loses complete control of prices over time, since prices fall solely as a function of β . Therefore, instead of prices being set by the record company at the profit-maximizing price at every point in time, prices will be too high in the first few periods and, as they fall very rapidly, become too low (essentially zero) in the later periods of consumption.

Boldrin and Levine (2002) reach the opposite conclusion (that copying generally will be profitable to the copyright-holder) by making what appears to be the innocuous assumption that the copyright-holder's demand is elastic. Therefore, as price falls over time, output increases more than proportionately, and profit rises. Since the profit-maximizing price is close to zero and profit-maximizing quantity is infinite under this condition, it is not surprising that a copying technology that increases the number of copies available for sale each period increases the profits that can be indirectly appropriated in the original CD sale price. This result, which holds only under Boldrin and Levine's arbitrary demand assumption, clearly conflicts with actual record-company pricing. That is, if Boldrin and Levine were correct, why are record companies not pricing CDs as low as possible?

II. Why Copyright-Holders and the Courts May Reach Different Conclusions Regarding "Fair Use"

The court agreed with the record companies that Napster decreased the value of copyrights. Given the legal standard for "fair use," an obvious question is why the court and copyright-holders would ever disagree. Is there an inherent conflict between copyright-holder and court estimates of the effects on copyright values that explains the numerous cases where copyright-holders have unsuccessfully challenged what turned out to be "fair uses"? We attempt to provide economic insight into this question by examining the *Betamax* and *Diamond* cases.

A. *Betamax*: Copyright-Holder Mistakes?

The commonly accepted claim is that the studios and TV networks made a mistake in challenging *Betamax* because they did not see the large growth in future demand for their product that would be fueled by VCRs playing prerecorded videocassettes. This story is inconsistent with the facts. Rather than the Supreme Court barely (5–4) saving the studios from their own myopia, when the *Betamax* case was brought to court in 1981 the sale and rental of prerecorded videocassettes was already \$308 million, or more than 25 percent of domestic theatrical revenues.⁶ Although this is a small fraction of the ultimate size of the videocassette market, which has since grown to more than twice domestic theatrical revenues, videocassette revenue clearly was not trivial when the studios and TV networks decided to challenge *Betamax*.

The studios recognized the value of the VCR in creating additional revenue from the sale and rental of prerecorded videocassettes, and therefore, the minimum injunction they requested only required Sony to make the *Betamax* incapable of recording copyrighted works off the air. This would have eliminated the potentially large risk to TV program value associated with consumers "zapping," or fast-forwarding through commercials when replaying copied TV programs. While "zapping" did not turn out to be a significant problem, the risk was real. On the other side of the ledger, the cost to copyright-holders as a group of avoiding this risk by requiring modification of the *Betamax* was trivial. This is because time-shifting activities could be expected to produce little increase in the overall demand facing program suppliers and broadcasters.⁷ The court reached its

⁶ Sources: Paul Kagan Associates and Motion Picture Association of America.

⁷ A unique characteristic of the TV market is that the total TV audience is largely independent of programming quality. For example, the total number of TV households watching TV during prime-time in "sweeps weeks" (when the TV networks put on their best, often most expensive, programming) increases only trivially compared to non-sweeps weeks. For instance, there was, on average, less than a 1-percent increase in total TV viewership during the February and November 2000 sweeps compared to periods two weeks before and two weeks after the sweeps weeks (Nielsen Media Research data reported in *Variety* [31 January–26 March 2000 and 30 October–31 December 2000, weekly issues]).

conclusion that the sale of Betamax copying equipment did not constitute contributory copyright infringement by minimizing the likely harm from commercial “zapping” and correctly recognizing that the Betamax had substantial non-infringing “fair uses” (e.g., personal time-shifting without “zapping”) that clearly did not adversely affect the market value of the original copyrighted work.

B. Diamond: *New Technologies Produce Both Positive and Negative Effects on Copyright Value*

The fact that a technical innovation that has some significant uses with neutral or positive effects on copyright values may be considered non-infringing, in spite of the fact that it may have an overall negative effect on copyright values, explains the differing views of copyright-holders and the court in *Diamond*. While a portable device that stores MP3 files like the Diamond Rio may increase the value of the original copyrighted recording, it also has the effect of encouraging Napster-type copying that reduces copyright value. Since the device cannot distinguish between MP3 files obtained from an original purchased CD and MP3 files illegally copied using a Napster-type service, it was not unreasonable for the record companies to challenge it. Rather than considering the overall net negative effect on copyright values from the portable MP3 device, the court concluded that the technology was not infringing, because there were substantial non-infringing uses of the device,⁸ leaving it up to the record companies to challenge Napster and the infringing uses that reduced copyright value.

⁸ Strictly, the court did not apply to the Rio the restrictions of the Audio Home Recording Act of 1992 that protected devices with substantial private, otherwise non-infringing uses.

The record companies have responded to this decision and the continued growth of file-sharing technologies by introducing copy protection on their CDs. However, rather than representing an attempt by copyright-holders to increase their profits by controlling legally established “fair uses,” such as moving a copy of one’s own purchased CD to a portable MP3 player, the obvious record-company motivation is to reduce the illegal piracy that is encouraged by the technology. Eliminating a “fair use” is not a benefit to the record companies; it is an unfortunate cost they have to bear to solve the much larger problem of infringing uses. The record companies face competitive pressure to avoid these costs by developing technologies that distinguish infringing from non-infringing copying.

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