

THE CURRENT COPYRIGHT DEBATE

Nathan Musick
nathanm@cbo.gov

June 2004

The views expressed in this paper are those of the author(s) and should not be interpreted as those of the Congressional Budget Office.

Abstract

Copyright law today is straining to keep pace with rapid technological advance in information technologies. For example, through the Internet today a copy of a digital file can instantaneously and flawlessly enter the collections of many individuals, thus potentially depriving the copyright holder of revenue from licensed sales. As a consequence, holders of copyright on a variety of types of creative works in digital format are questioning the right of consumers to make use of copyrighted materials in potentially infringing ways. Consumers, on the other hand, have begun to chafe at copyright owners' use of digital technologies to impose obstacles to some uses for copyrighted works to which they have become accustomed.

Copyright law has implications not just for producers and consumers of copyrighted material but for society at large. First, economic growth from investments in digital hardware, software and in communications are linked, at least in part, to the availability of creative content in digital form. Hence, when and how the digital copyright debate is resolved may influence the growth of those sectors of the economy. Second, potential revisions to copyright law may have an impact on broader social concerns such as individual privacy and free speech.

The allocation of legal rights between copyright owners and users of copyrighted material will likely continue to be contested as digital processing becomes more powerful and assumes a greater variety of forms, and as high-speed distribution and exchange of digital content becomes more pervasive in society. This paper reviews current copyright law in the United States and considers the novel aspects of digital technology's challenge to it. It assesses the economic weight of industries both directly and indirectly affected by copyright law. The paper also explores the impact on economic efficiency and equity of possible resolutions to digital copyright disputes, ranging from market-based outcomes to a variety of potential revisions to copyright law.

DRAFT

SUMMARY vi

CHAPTER I

WHAT IS AT STAKE IN THE CURRENT COPYRIGHT DEBATE 1

DISPUTED RIGHTS TO CONTROL SUBSEQUENT USES OF
COPYRIGHTED WORKS 3

UNPRECEDENTED OBSTACLES TO COPYRIGHT ENFORCEMENT
..... 5

POTENTIAL IMPACT OF COPYRIGHT ON INNOVATION AND
ECONOMIC GROWTH 7

Core copyright industries 10

Copyright-related industries 14

 Computer hardware and consumer electronics 14

 Telecommunications 17

CHAPTER II

COPYRIGHT LAW AND TECHNOLOGICAL CHANGE 20

THE RIGHTS OF COPYRIGHT HOLDERS 20

LIMITATIONS ON THE RIGHTS OF COPYRIGHT HOLDERS 23

UNSETTLED AREAS OF COPYRIGHT LAW 24

COPYRIGHT LAW MODIFICATIONS TO ACCOMMODATE
PRODUCTION AND DISTRIBUTION OF CREATIVE WORKS
IN DIGITAL FORM 28

Early Legislation 29

The Digital Millennium Copyright Act (DMCA) 31

 Anti-circumvention provisions 32

 Safe harbor / notify-and-takedown provisions 34

TECHNOLOGY CONTINUES TO CHALLENGE COPYRIGHT LAW
..... 36

Diminished control over copyrighted works 37

New obstacles to copyright enforcement 42

CHAPTER III

**COPYRIGHT AND THE ECONOMICS OF INTELLECTUAL
PROPERTY REGULATION** 50

DRAFT

THE REGULATION OF INTELLECTUAL PROPERTY	51
MORE EFFICIENT COPYRIGHT MARKETS	56
Perfect Price Discrimination and Digital Rights Management (DRM) Technology	57
Potential Qualifications	59
Incentives to create	59
Deviations from perfect price discrimination	63
Competition concerns	64
Equity	66
Technological feasibility, implementation and transactions costs	68

CHAPTER IV

EFFICIENCY AND EQUITY IMPLICATIONS OF VARIOUS WAYS OF RESOLVING DIGITAL COPYRIGHT DISPUTES ...	71
PROSPECTS FOR A MARKET-BASED RESOLUTION TO DIGITAL COPYRIGHT DISPUTES	71
Will Markets Increase the Net Social Benefits of Creative Content?	75
Why Might Forbearance not Work	77
EFFICIENCY AND EQUITY EFFECTS OF VARIOUS REVISIONS TO COPYRIGHT LAW	82
Extend compulsory licensing to digital content	82
Broadly revise copyright law	87
Revise in favor of copyright owners	87
Revise in favor of consumers	93
CONCLUDING REMARKS	96

BOXES

1-1	Interpreting Gross Revenue Data	11
2-1	Protection Afforded Collections of Facts	21
2-2	Is it Legal to Use a Computer to Make a Copy of a Music CD for Personal Use?	26
2-3	Recent Legislative Revisions to, and Judicial Interpretations of Copyright Law Prompted by the Digitalization of Creative Works	29

DRAFT

2-4	A Particular Technology Challenge to Fair Use	39
4-1	Trends Over Time in the Incidence of Internet File-Sharing and Popular Attitudes Towards It - Evidence on the Impact of Greater Enforcement Efforts	75

FIGURES

1-1	Distribution of Revenues Across Core Copyright Industries in Billions of Dollars for 2001	13
2-1	Nominal Growth of Recording Industry Shipments and Personal Consumption Expenditures, 1987-2003	45

DRAFT

SUMMARY

An economically efficient outcome in markets for creative works is elusive. As for other goods and services, efficiency requires that the cost of producing the last (or marginal) unit must equal society's valuation of it. However, once created, there are relatively few costs incurred to reproduce and distribute a copyrighted work - especially one in digital form. Hence, offering a creative work at the relatively low marginal cost of reproduction and distribution would not generate the returns needed to recoup the overall expense of supplying it. In order to encourage creative works, copyright law has traditionally allowed for licensing rights that enable pricing at above marginal cost, while placing a limit on the duration of copyright protection to insure that creative works eventually become widely available to society. Copyright law currently accepts some *static* inefficiency - copyrighted works are typically not distributed as widely as economically feasible, once they have been created - in the interests of beneficial *dynamic* effects, i.e., in the interest of getting those works created in the first place.

DRAFT

Is the current copyright regime economically efficient? That is, does current law and practice provide incentives for the greatest amount and quality of creative work to be created and consumed over time, given society's desire for creative works and its endowments of talent, technology and other resources needed to generate and distribute them? An answer to that question is not straightforward; however, the amount of illicit consumption of copyrighted works in digital form today (e.g., music files shared over the Internet, movies and software illegally reproduced and distributed on CD-Rom), suggests potential efficiency gains from applying the ongoing advances in digital technology to legal (or licensed) markets for creative works. Countering that auspicious prospect is the fact that the digitalization of creative content poses in several ways a more serious challenge to copyright law than earlier episodes of technological advance.

First, digital technologies continue to increase the ways in which individuals can consume and enjoy creative works (e.g., by "ripping" music files from a CD in order to store them on a computer or portable music device), in spite of the fact that copyright law does not explicitly allow for those uses without the authorization of the copyright owner. At the same time, advances in digital technologies increasingly enable copyright owners either to restrict outright, or to charge for, different types of subsequent uses of their creative works. A second

DRAFT

challenge to copyright law is the potential for copyrighted works in digital form to be exactly and inexpensively reproduced, and instantaneously distributed world wide. Holders of copyright consequently fear that unauthorized copying and redistribution of their works will cause their economic returns to fall precipitously.

Although the most prominent disputes over digital copyright currently center around the respective rights of copyright owners and consumers of entertainment products such as music and movies, copyright law applies to other products, such as computer software and potentially hardware (which contains electronic components are operated by software covered by copyright). Here again, technological advance has implications for the types of product licenses that manufacturers of software and other products may feel are necessary to protect and/or extend their commercial interests. Such new licensing practices could, however, potentially run counter to consumers' interests.

The impact of copyright law also extends beyond the concerns of producers and consumers of copyrighted material to society at large. For example, economic growth from purchases of both computer hardware and peripherals as well as telecommunications goods and services are linked, at least in part, to the

DRAFT

availability of creative content in digital form. Hence, when and how the digital copyright debate is resolved may influence the growth of related sectors of the economy.

Economic Analysis and the Copyright Debate

Economic theory and analysis can illuminate the search for the right balance between private incentives and social gains on markets for creative works today, but it cannot provide an unambiguously right answer about what is the preferred or economically efficient weighting of copyright holders' and consumers' interests. The "best" policy implies a distribution of returns based as much on what is fair as upon what is efficient. Economic analysis does not provide answers to questions of fairness.

The economically efficient level of copyright protection is also elusive because of the diversity of products protected by copyright; the characteristics of some of those products do not always lend themselves to general economic insights. First, copyright applies to creative works that incorporate varying degrees of creative and artistic expression (from journalism to literature, music and movies) and to works of a more technical nature, such as software programming. There need not be one property rights regime that leads to efficiency in markets for all of those

DRAFT

products.

Second, not all aspects of markets for creative works lend themselves well to economic analysis. For example, when decisions about whether to undertake or pursue some types of creative activity are being made - e.g., whether to begin a novel or compose a piece of music, how much time and effort to devote to such creative activity once begun, etc. - it is unclear that creators can reasonably foresee and incorporate into those decisions future economic returns from them or, for that matter, that economic incentives dominate. That is not to argue that copyright protection is not important to individual creators' financial ability to devote themselves to their craft. One may with some confidence expect abolishing copyright protection altogether to reduce the level and quality of creative output. However, it is not so easy to predict exactly how a less dramatic change in compensating copyright owners - say, through a move from setting a uniform price for copyrighted material to charging consumers according to their respective willingness to pay - will affect the number and/or quality of creative works being produced. In contrast, decisions about marketing and distributing available creative works may rest on more tangible, well-specified factors and, hence, be more accessible to economic analysis.

DRAFT

A third constraint on the ability of economic analysis to inform the digital copyright debate stems from the fact that the technological advance currently challenging copyright law is part of a broader trend in the development of information technologies that affects other issues of interest to society than the creation, distribution and consumption of creative content. For example, some recent applications of copyright law - to protect software products embedded in electronic voting machines - have raised concerns that digital copyrights may constrain free speech. The subpoena power which the Digital Millennium Copyright Act (DMCA) grants copyright owners, and which the Recording Industry Association of America (RIAA) has invoked to obtain identifying information about suspected copyright infringers, has raised concerns about the implications of digital copyright law for personal privacy. On the other hand, regulation of the peer-to-peer (P2P) networks that are at present the primary source of copyright infringement worries may eventually be justified not based on an economic justification of protecting intellectual property, but based on concerns about other types of activity carried out on them and which society chooses not to tolerate, such as the dissemination of computer viruses and software packages that surreptitiously monitor an individual's use of their computer.

DRAFT

A related concern is the public's attitude towards property rights in the Internet age. Changes to copyright impinge on other property rights issues to the extent that modifications to copyright are viewed as too favorable to one side and the general property rights regime, by implication, is viewed as biased or unfair. Such an outcome could be detrimental not just to the emergence of new markets for creative works in digital form, but to attitudes towards property rights on the Internet in general.

Efficiency and Equity Properties of Various Ways of Resolving Digital Copyright Disputes

Because the digital copyright debate is characterized both by its contentiousness as well as by the number and variety of interests with a stake in it, many observers suggest that the Congress may need to intervene to establish some balance in digital copyright law between private incentives and societal gains. On the other hand, however, there are reasons to believe that market-based resolutions to digital copyright conflicts are possible. Pointing to that are recent advances in Digital Rights Management (DRM) technology and the development of new business models that take advantage of those advances. Hence, although the digitalization of creative content has, to the present, been the source of considerable conflict between copyright owners and consumers, it may soon also

DRAFT

allow for a market-based resolution of them.

DRM technology has the potential to enable copyright owners to engage in differential pricing, i.e., to charge a price for their creative work that varies based upon the particular use(s) made of them. Literally, consumers would pay a price that depended on the amount of “rights” which they were able to exercise over a copyrighted work in digital form. For example, DRM technology would prevent those consumers who pay for only a few rights (say, to listen to a music file from a CD or off the Internet, without making a copy of it) from exercising the additional usage rights (both to listen as well as to make copies) available to consumers who pay more. Digital Rights Management technology would also either prevent altogether, or set a price and conditions for, the ability to redistribute the copies that are made.

Although DRM technology can increase copyright holders’ ability to profit from their work, it can also expand consumer access to copyrighted material by lowering the minimum price that creators and distributors of copyrighted works must charge in order to recoup their investment. That is because, under a differential pricing scheme, consumers who value highly a particular type of usage pay accordingly. Those consumers who have a low valuation - in the preceding

DRAFT

example, those who just want to listen to a music file without a making a copy - pay a lower price. Without differential pricing, the latter group might be priced out of the market for that music service.

Because both copyright owners and consumers benefit overall, differential pricing could increase the efficiency of markets for creative works. From an distributional standpoint, however, not all consumers would be net beneficiaries. In particular, those consumers whose valuation of copyrighted materials had previously exceeded the price they were required to pay for them, could be forced to transfer at least some of that extra consumption benefit to copyright owners.

Markets for copyrighted material in digital form are only now beginning to emerge, and the feasibility and, indeed, desirability of either DRM technology or the differential pricing that it enables, may change. For example, the Digital Rights Management technologies eventually applied to implement differential pricing might turn out to be so vulnerable that they cannot prevent copyright infringement or, at least, restrict it to a sufficiently small level so that copyright owners still find it in their interest to make their creative works available in digital form. Additionally, the assumptions underlying economic theory's predictions for differential pricing outcomes are fairly restrictive, and were, for example,

DRAFT

competitive pressures on markets for copyrighted works in digital form to be weak, differential pricing might not achieve the efficient outcome that theory predicts.

An alternative approach to resolving digital copyright disputes would involve revising copyright law to enhance its ability to accommodate current technological advance. Such revisions could take several forms. For example, one option for revising copyright law would be to set a fixed price for certain types of creative works through a compulsory license. The United States has considerable experience establishing compulsory licensing arrangements for copyrighted musical works.

Relative to a differential pricing scheme, setting a fixed price for some types of copyrighted works may be less efficient. That is because the price of using copyrighted material under a compulsory licensing scheme would be common not just to all consumers but to all works covered by the license as well. It is unlikely that a single, flat-rate fee would be “just right” from the standpoint of economic efficiency. Administratively, the price-setting process could also be costly and drawn-out, leading to delays in the emergence of markets for the corresponding creative works. From an equity point of view, levying a fee on computers and

DRAFT

other equipment used to access certain creative works could also impose a tax on the use of such products for activities not related to the copyrighted materials in question. For example, taxing purchases of computers or other digital media in order to compensate recording artists for Internet downloads would force individuals who used computers for other purposes to subsidize the online music consumption of others. Also unclear is whether the amount of use for each copyrighted work could be tracked sufficiently accurately for many copyright owners - and particularly those offering relatively few creative works - to receive appropriate royalty payments.

However, because technological advance is increasing the diversity of ways in which music, movies and other copyrighted material can be consumed, a compulsory license could potentially reduce transactions costs on markets for creative content. The more comprehensive the range of uses of copyrighted material that were permitted to consumers under a compulsory license for a broad class of creative works, the less time consumers would need to spend reading exhaustive licensing agreements for different copyrighted products, the lower would be litigation costs incurred obtaining legal determinations of copyright infringement, and the lower would be enforcement costs. However, those cost savings might be reduced by litigation contesting the royalty rate.

DRAFT

A second option for revising copyright law would be to modify it in favor of one of the groups whose interests are at stake in the copyright debate: copyright owners or, alternatively, users of copyrighted material. Modifying copyright law to favor copyright owners should increase the feasibility of differential pricing and, hence, increase the efficiency in copyright markets. Conversely, revising copyright law in favor of consumers should lead to inefficiency by making differential pricing less feasible.

However, the advantages of differential pricing are not so clear when that arrangement is facilitated either by the expansion of copyright owners' rights over their creative works at the expense of consumers' fair use rights, or by the imposition of a government-mandated technological measure to protect against copyright infringement. Restricting fair use in those applications where the benefits to society presumably outweigh the revenues denied to the copyright owner - criticism, comment, news reporting, teaching, scholarship, or research - may not bring about as great an increase efficiency as in other applications, because some socially beneficial uses of copyrighted material could become prohibitively expensive. Allowing too much control to copyright owners could exacerbate the compromised efficiency that can result from differential pricing schemes in the presence of weak competitive pressures. As well, costs to society

DRAFT

from greater enforcement of digital property rights could potentially outweigh efficiency gains. Such a scenario could, for example, arise were digital copyright enforcement to be so strict that it either prevented - through a mandated copyright protection or enforcement technology - advances in digital hardware and communications, or curtailed usage and development of the Internet.

Potential costs to copyright owners from revision of copyright law in favor of consumers could be mitigated by either cost savings or increased revenues from the development of new business models enabled by ongoing advances in digital processing and distribution technologies. From the standpoint of equity, the effects of revising copyright law in favor of consumers of creative material would be a transfer from copyright owners to consumers. However, for some incumbent copyright holders, losses suffered from diminished control over their creative works may already have been compensated in part through recent legislation extending the duration of copyright protection.

DRAFT

CHAPTER I

WHAT IS AT STAKE IN THE CURRENT COPYRIGHT DEBATE?

Copyright entitles authors of creative works to control how those works are used. Although that control is very broad in scope and is enjoyed exclusively by the creator (or their assignee), copyright protection is of limited duration. After a copyright elapses the creative work enters the public domain and may be used freely. Copyright law is thus characterized by the balance it seeks to achieve between private incentives to engage in creative activity, and the social benefits that arise from the widespread availability of creative works. That balance has been severely challenged by the digitalization of creative content, and by advances in technologies that enable the distribution and use of copyrighted material in digital form. To provide insights into what is at stake in the current copyright debate, and to explore the implications on economic efficiency and equity of prospective resolutions to those disputes, this paper attempts to answer the following questions:

- o What are the distinguishing features of the current copyright debate?

DRAFT

- o What is the economic significance of industries potentially affected - both directly and indirectly - by changes to copyright law?

- o What are the main features of copyright law?

- o How has copyright law evolved to accommodate the increasing digitalization of creative content, and in what specific ways is it still challenged today?

- o What is the economic motivation for copyright law, and how does it contribute to efficiency in markets for creative works?

- o What insights into the efficiency and equity does economic theory allow for the various ways in which copyright disputes might be resolved?

Relative to earlier copyright conflicts, the strains that technological progress is placing on copyright law today are exceptional in three ways. First, the rapid and ongoing advance of digital technologies is creating new conflicts between copyright owners and consumers about the control that each group should have over subsequent uses of legally-acquired creative works in digital form. Second,

DRAFT

that technological progress is also posing unprecedented obstacles to copyright enforcement both domestically and internationally. Third, because advances in digital technologies affect many other sectors of the economy besides those directly concerned with copyright, copyright law can have an impact on growth in the economy overall.

DISPUTED RIGHTS TO CONTROL SUBSEQUENT USES OF COPYRIGHTED WORKS

The allocation of rights between copyright owners and consumers over subsequent personal uses of creative works is a relatively indeterminate - or unsettled - area of copyright law. The first distinctive feature of the current copyright debate is that digital technology has increased the gains that either copyright owners or consumers might enjoy from exercising control over subsequent uses of legally-acquired copyrighted works digital form. As a result of advances in digital technologies, that allocation has become highly contested.

For example, creative works today allow for consumer interactivity to a degree far beyond that seen previously. A variety of digital media products currently allow individuals new options for making, storing and listening to copies of music tracks that they have purchased (i.e, via stereo, computer or MP3 player). TiVo

DRAFT

and related digital recording devices allow individuals to personalize their television viewing, thus freeing consumers from network scheduling of television broadcasts and advertisements. Finally, products that allow for objectionable material to be removed during the replay of a recorded movie are increasingly available to consumers.¹

Although the digitalization of creative works has expanded the options for consuming a variety of copyrighted material, copyright owners are now beginning to exploit similar technological developments to reign in, or control, those options. As a result, activities to which consumers of creative works have become freely accustomed, for example, making copies of digital music files or television broadcasts for personal use, may in future require the approval of the copyright owner and, in particular, payment of an additional fee to obtain that authorization. Any market-based or legislative attempt to resolve digital copyright conflicts may be caught between consumer ethics and expectations that have become rooted in the ability to make relatively unfettered use of creative works in digital form, and copyright owners' insistence on obtaining greater control over their intellectual

1. See "Coming soon: The smut-free DVD," *BBC News*, April 8, 2004, available at <http://news.bbc.co.uk/1/hi/business/3611969.stm>, and Katie Dean, "Much Ado About Smut-Free DVDs," *Wired News*, June 3, 2003, available at <http://www.wired.com/news/digiwood/0,1412,59071,00.html>.

DRAFT

property.

UNPRECEDENTED OBSTACLES TO COPYRIGHT ENFORCEMENT

Copyright owners today confront two obstacles to enforcement that are more urgent than in earlier copyright conflicts, and that occupy both extremes of potential infringement concerns. Increasingly, copyright is an issue both at the level of the individual consumer of creative works as well as in the international arena.

Digitalization of creative content is lowering the cost of copyright infringement by the individual consumers. Thanks both to greater computer processing power and storage capacity, as well as the proliferation of peer-to-peer networks, the unauthorized use of creative works has become easy. Additionally, the relatively slow emergence of licensed, online distribution of creative works in digital form has perhaps contributed to a reduced taint that such illicit behavior might previously have carried. As a consequence, private individuals, rather than commercial entities, are increasingly the target of digital copyright enforcement efforts.

DRAFT

One implication of that development is that individual privacy may one day become less of a right and more of a commodity, as consumers exchange the right to be monitored (or their use of copyrighted materials tracked) in order legally to gain access to copyrighted materials, or to receive a reduced price that reflected the lower risk they would pose of piracy. Eventually, the advance of information technologies may call into question the nature of both personal as well as property rights currently in force in the economy.²

Because of the ease of replication, and redistribution, of creative works in digital form, one can today speak of the instantaneous, global availability of copyright-infringing works. As a result, the effectiveness of efforts by any nation to protect the rights of its copyright owners depends more than in the past on the degree of international coordination of enforcement and, by implication, on the consistency of copyright law across countries.

International copyright issues are particularly urgent for the United States, whose copyright owners earn considerable revenues from licensed distribution of their

2. See J. Bradford DeLong and A. Michael Froomkin, "Speculative Microeconomics for Tomorrow's Economy," in Brian Kahin and Hal Varian, eds., *Internet Publishing and Beyond: The Economics of Digital Information and Intellectual Property*, Cambridge: M.I.T. Press, 2000, pp. 6-44.

DRAFT

works abroad. For example, reflecting the well-established international popularity of its cinematic products, the American movie industry earns roughly the same amount of box office receipts abroad as it does domestically. The major source of movie industry revenue today, however, comes from movie sales and rentals in DVD format.³ Because movie DVDs (as well as music and software CDs) are particularly vulnerable to infringement through illicit manufacturing operations abroad, the American motion picture industry (together with the sound recording and software industries) increasingly views international harmonization and enforcement of copyright law as a key ingredient of its future revenue growth.

POTENTIAL IMPACT OF COPYRIGHT ON INNOVATION AND ECONOMIC GROWTH

More so than in the past, copyright law today has become enmeshed with developments in industries not directly concerned with copyright. Technological

3. According to the Motion Picture Association, box office receipts earned internationally were \$25.5 billion for the 2000-2002 period, while domestic box office earnings totaled \$25.6 billion (see MPA Worldwide Market Research, available at <http://www.mpa.org/useconomicreview/index.htm>). During roughly the same time, consumer adoption of the DVD format has grown rapidly. Revenues from the sale and rental of movies on DVD now account for over three-fourths of total movie industry revenues (see Frank Ahrens, "Hollywood Sees the Big Picture with DVDs," *Washington Post*, October 7, 2002).

DRAFT

progress continues at a rapid pace in both the hardware, software and telecommunications products that enable the processing and distribution of creative content in digital form. As a result, those industries are making important contributions to the acceleration of productivity growth in the overall economy. A government-imposed technology mandate intended to thwart copyright infringement could risk stymying future innovation and economic growth.

Peer-to-peer (P2P) networking provides a good illustration of the vigor of technological advance in copyright-related industries. Although at present it may be the source of copyright infringement concerns due to the unauthorized file sharing it enables, P2P technology is expected eventually to allow efficiencies in transferring other types of data and information online - by, say, facilitating collaboration among geographically-dispersed workers within a company or reducing the cost of voice calling - and, in general, to make the Internet more reliable.⁴

Sectors of the economy vary in the extent to which they are affected by copyright law. To a first approximation, one can distinguish between core copyright

4. See Simson Garfinkel, "Pushing Peer-to-Peer," *Technology Review*, October 3, 2003.

DRAFT

industries, and those that are copyright-related.⁵ Owing both to data limitations as well as to the conceptual issues that surround them, comparisons of the economic and social importance of the various industries with a stake in the outcome of current copyright conflicts are not straightforward. One important limitation in this context is the fact that industry-specific revenue data do not take into account linkages between industries. For example, greater availability of creative content in digital form can increase the demand for goods and services from the computing and telecommunications sectors; conversely, innovations in digital processing and distribution technologies (e.g, the DVD format) can enhance the production and distribution potential of core copyright industries, such as motion pictures.

Nonetheless, it is noteworthy that the computer hardware and telecommunications industries, which provide goods and services that do not, as a rule, benefit from copyright protection directly but which could be affected by a technology mandate

5. The categorization of “core” and “copyright-related” industries comes from Stephen Siwek, *Copyright Industries in the U.S. Economy: The 2002 Report*, produced for the International Intellectual Property Association (IIPA) and available at their website: http://www.iipa.com/copyright_us_economy.html. That report includes in the core copyright sector several industries excluded from that category by this paper: Advertising and Information and Data Processing Services. That is because it is unclear how many of those activities involve copyrighted - as opposed to trademarked or simply proprietary - materials. On the other hand, this paper recognizes production of telecommunications goods and services as copyright-related industries, because they increasingly enable both the distribution and use of copyrighted material in digital form.

DRAFT

aiming to protect copyrighted works in digital form, have greater economic weight (in terms of their gross revenues) than do the music and movie industries currently at the heart of the debate over digital copyright law. Technological advance in computer hardware and telecommunications has played a key role in the economy's recent growth and, according to all indications, will continue to do so in the future. Hence, deliberations about modifying digital copyright law in order to address the concerns of a particular industry must take into account the consequences for economically important, related industries. At the same time, however, it is important to keep in mind the fact that innovation in those copyright-related industries also benefits - through patent protection - from laws that protect intellectual property.

Core copyright industries

Core copyright industries are those whose revenues depend directly on the production or dissemination of copyrighted works. They have traditionally been found in the news and entertainment sector - journalism, literature, sound recordings and movies, and radio, television and cable broadcasting. More recently, computer software has become an important copyright industry (although software products may also receive patent protection).

DRAFT

Box 1-1 INTERPRETING GROSS REVENUE DATA

Industry comparisons based on gross revenues are subject to several qualifications. First, gross revenues do not reflect net output (or value creation), and so in principal an industry could report higher than average gross revenues simply because it made relatively intensive use of costly inputs. However, the U. S Census Bureau collects input costs for the service sector - in which the core copyright are classified - only every 5 years, and the most recent data are available only for 1997. Gross revenues, in contrast, are available as late as 2002. The projected publication date for U.S. Census statistics needed to calculate value added in the copyright industries can be found at: <http://www.census.gov/econ/census02/guide/INDRPT51.HTM>

Secondly, the amount a particular industry earns in revenues - either gross or net - does not necessarily indicate its importance to society. For example, the relatively low selling price of a plentiful commodity may belie its much larger contribution to society's well-being (the "water-diamond paradox" taught to economics students is a good illustration). Indeed, a later chapter of this paper argues that creative works such as literature, music and film might eventually have a larger impact on society than the revenues currently earned from their production and distribution would suggest.

In spite of those qualifications, revenue measures do allow for some inferences about the various economic interests among the participants in the copyright debate.

DRAFT

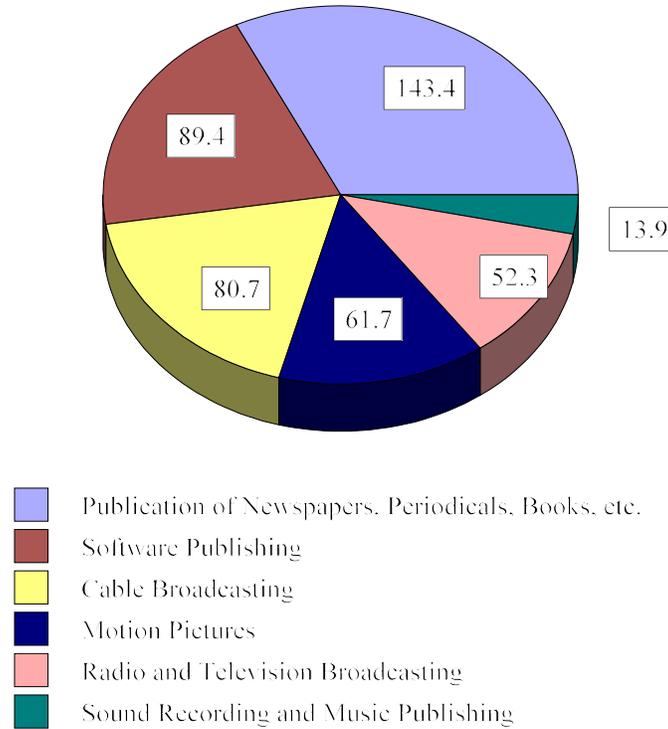
The gross revenue of the core copyright industries totaled \$441.5 billion dollars in 2002 and were divided as shown in Figure 1. Over a third of that total in 2002 (\$143.4 billion) came from newspaper, periodical, and book publishing.

Generating \$13.9 billion in gross revenues in 2002, the music industry is the smallest segment.

In deliberations on digital copyright law, it is important to keep in mind the diversity of industries directly affected by changes to copyright law. For example, both the production as well as distribution of works of journalism traditionally takes place in a different fashion than for music or movies. News organizations typically produce and distribute content on a more frequent, or at least regular, basis than do music and motion picture enterprises. Because journalism and news operations provide value in part through the timeliness of their efforts, they may have alternative ways of appropriating revenues from their copyrighted works (e.g., through newspaper subscriptions and advertising) than do other core copyright industries. As a consequence, the importance of rigorous application of digital copyright law may differ by industry.

DRAFT

Figure 1-1: Distribution of Gross Revenues Across Core Copyright Industries, in Billions of Dollars for 2002



Source: Service Annual Survey: 2002, U.S. Census Bureau.

Notes: Several data limitations deserve mention. First, the data do not reflect the value to society of copyrighted works that are pirated, i.e., that copyright owners are entitled to but unable to claim because copies have been made and distributed without a license. Second, the Software Publication category does not include all software production that may be covered copyright. For example, private firms may generate / contract out for software for their own use in addition to making purchases from software publishers. According to the Bureau of Economic, total business investment in software was \$180.4 billion in 2001. Third, the data reflect some double-counting to the extent that receipts from licensed broadcasts of music and movie are included in revenues both for those producing industries as well as for the Radio, Television and Cable Broadcasting industries. In 2002, for example, broadcast rights and music license fees in the Radio and Television Broadcasting industry were \$12.8 billion; program and production costs - which should include more than license fees - for the Cable Broadcasting industry were \$24.4 billion (both expenses reported by employer firms).

DRAFT

Copyright-related industries

Copyright-related industries produce goods used in conjunction with copyrighted materials. Examples include the computer hardware and consumer electronics industries and, increasingly, telecommunications and the Internet. Detailed industry data are only available for 2001.

Computer hardware and consumer electronics

According to the U.S. Census Bureau's Annual Survey Manufactures: 2001, \$78.7 billion dollars of computers and peripheral hardware were manufactured in the United States in 2001, together with another \$8.3 billion of radio, television and stereo equipment. In addition to their considerable weight in the economy - relative to many of the core copyright industries - both the past performance as well as future prospects of manufacturing in those industries display very rapid rates of technological advance. Those figures do not reflect all of the retail and wholesale trade, present and forecast, carried out over the Internet and which could be affected by digital copyright legislation that targeted Internet activity. They also do not take into account the many other products (such as automotive components) which incorporate computer chips supported by software, and which are thus potentially subject to copyright law.

DRAFT

As a result of sustained progress in manufacturing techniques - manifesting itself as continual quality improvement coupled with stable or even declining unit sale prices - the growth in the volume of final sales of computer and peripheral hardware averaged 26 percent annually between 1998 and 2001. Such technological advance in semiconductor and computer manufacturing is predicted by many observers to continue well into the future. Because those products are used throughout the economy, that trend constitutes one of the few reliable contributors to future productivity and output growth of the overall economy.⁶ However, realizing the full potential of such technological progress may well depend upon a suitable outcome to current digital copyright disputes.

For example, the nature of computer demand is changing, with consumer purchases in particular moving away from the Personal Computer (or PC) platform to media devices that incorporate hardware and software elements traditionally found in computers. Digital Video Recorders (DVRs), which allow for recording and replay of television programs, may come with hard drives of

6. Final sales of computers consists of total domestic production minus net imports: see Bureau of Economic Analysis, "Spreadsheet of Computer Purchases," (November 25, 2003), available at: <http://www.bea.doc.gov/bea/dn/comp-gdp.XLS>; for a review of the recent literature on productivity and output growth in the United States, see Congressional Budget Office, *The Role of Computer Technology in the Growth of Productivity* (May 2002).

DRAFT

160 gigabytes, while the typical home PC today has only a 40 gigabyte hard drive. Some hard disk manufacturers report that demand from consumer electronics is growing roughly 7 times faster than demand from traditional computer-related markets, and could eventually account for one-half of their business. As well, the requirements of processing and displaying video in digital format are claiming processor and terminal production that would otherwise have been allocated to PCs, with consumers of consumer electronics benefitting from the same technological advances.⁷

Some commentators suggest that, partly as a result of that convergence of personal computing and consumer electronics, purchases by consumers may claim a greater share of total demand for computing products at the expense of investment by business (which has in the past been by far the largest source of demand for computer hardware and peripherals).⁸ However, owners and distributors of creative content such as literature, music and movies are unwilling to make copyrighted material widely available in digital format unless they are sure that they can adequately protect such material from piracy. Consequently,

7. See John Markoff, "New Intel Chip for Digital TV Could Remake the Market," *New York Times*, December 17, 2003.

8. See Simon London, Richard Waters, Scott Morrison and Tom Foremski, "The Two-Speed Tech Sector," *The Financial Times*, December 1, 2002.

DRAFT

continued growth in consumer purchases of digital processing equipment and, by extension, continued enjoyment of technological progress and productivity gains from the manufacture of that equipment, is linked to a resolution of digital copyright disputes. The outcome of the current copyright debates is one among many factors, including the level of research and development, important to the future growth of information technology industries.

Telecommunications

More and more, goods and services from the telecommunications industry are used in conjunction with copyrighted materials. Networks that transmit voice calls also carry Internet traffic, which is increasingly comprised of copyrighted material in both legitimate and pirated form. Enjoying rapidly-growing popularity among consumers at present is equipment for digital networking in the home, which enables computing and digital entertainment devices to exchange data. The underlying technology (Wi-Fi) is more generally seen as a relatively inexpensive way of providing wireless broadband Internet access. Reflecting the convergence of computing and consumer electronics described earlier, other telecommunications products, such as wireless phones, are acquiring the functions of traditional computing devices in order to receive and process voice, video and

DRAFT

audio content.⁹

Investment by private business in telecommunications equipment totaled \$90.6 billion in 2001, which roughly equals the amount produced in the United States that year. [Many consumer telecommunications products, like cell phones, are imported.] Similarly to computer and peripheral hardware, innovation in telecommunications equipment is also robust, although not always captured by official economic statistics.¹⁰ The rapid growth in telecommunications investment in the late 1990s, which contributed significantly to overall economic growth during that period, was spurred by the economic potential seen in the Internet. Accordingly, continued investment in the telecommunications sector depends in part on the demand for high-speed Internet service, which in turn depends upon the availability of quality content that can be accessed via those networks. Again, copyright owners are hesitant to make their creative works available until their concerns about copyright infringement are satisfied.

9. See Matthew Maier, "Mobile Entertainment Goes Hollywood," *Business2.com*, December 11, 2003, and "The Many Shapes of Tomorrow's PC," *BusinessWeek*, November 4, 2003.

10. See Congressional Budget Office, *The Need for Better Price Indices for Communications Investment*, CBO Paper (June 2001).

DRAFT

Gross revenues of Telecommunications Services totaled \$367.2 billion in 2001. Over \$78 billion of those 2001 revenues came from cellular and other wireless communications services, the value of which more than doubled, in nominal terms, after 1998 and thereby accounted for over half of the increase in the value of Telecommunications Services between 1998 and 2001.

Future increases in both the quantity and variety of cellular communications services are reliant on additional wireless spectrum, which in turn depends upon television broadcasters shifting from the frequency range in which they currently transmit to smaller frequency bands suitable for digital broadcasts. Often cited by television broadcasters as determining the speed of that transition is the availability in digital form of copyrighted creative content, such as movies and sports programs, which copyright owners make contingent on satisfactory safeguards against infringement.

Exactly what does and does not constitute copyright infringement, the rationale for making such distinctions and the challenges - past and present - to copyright law from advances in digital technologies, is the subject of the following chapter on copyright law and technological change.

DRAFT

CHAPTER II
COPYRIGHT LAW AND TECHNOLOGICAL CHANGE

Copyright law attempts to balance private incentives to produce and distribute creative works with the benefits to society from widespread access to those works. That attempt at balance is seen in the Constitutional language which authorizes Congress to establish copyrights and patents. Article 1, section 8, of the United States Constitution grants Congress the “Power ... to Promote the progress of Science and useful Arts, by securing for limited Times to Authors and Inventors the exclusive Right to their respective Writings and Discoveries.” The respective rights that copyright owners and consumers can claim over creative works are not always well-defined, however, and some areas of copyright law remain unsettled.

THE RIGHTS OF COPYRIGHT HOLDERS

A copyright exists once an “original work of authorship (is) fixed in any tangible medium of expression ... from which (it) can be perceived, reproduced or otherwise communicated,” 17 U.S.C. 102(a). However, a copyright applies only

DRAFT

to the expression of an idea in a creative work, and not the idea itself.¹¹

Box 2-1

PROTECTION AFFORDED COLLECTIONS OF FACTS

The courts have held that the terms under which the Constitution grants to Congress the power of copyright, also prevent facts or collections of facts from receiving copyright protection unless, in the latter case, there is a sufficient component of originality and creativity (e.g., in the selection, coordination, arrangement, etc.). Even then, only those original and creative components, and not the facts to which they attach, can be copyrighted. A case to this effect concerned whether phone books could be copyrighted (*Feist Publications v Rural Telephone Service, Inc.*, 499 U.S. 340 (1991)).

As a result, databases that do not contain an original or creative component do not qualify for any protection under copyright law. Currently they are protected by state-level prohibitions against misappropriation and unfair business practices. Database suppliers argue that the investment needed to generate databases may be compromised in the digital era by unauthorized copying and redistribution, and that stronger protection is needed, which would preempt state laws and thereby assure uniformity in its application. As an alternative to copyright protection, The Database and Collections of Information Misappropriation Act (H.R. 3261) was introduced in the 108th Congress. H.R. 3261 establishes the conditions necessary for invoking misappropriation under the Commerce Clause in order to enforce property rights over certain types of databases and collections of information.

Reflecting the particular property rights regime embodied in copyright law, in

Dowling v. United States, the Supreme Court recognized a distinction between

11. Copyright protection is similarly denied to any “procedure, process, system, method of operation, concept, principle, or discovery, regardless of the form in which it is described, explained, illustrated, or embodied in such work,” 17 U.S.C. 102(b).

DRAFT

copyright infringement and theft.¹² It pointed out that “the copyright owner ... holds no ordinary chattel. A copyright, like other intellectual property, comprises a series of carefully defined and carefully delimited interests to which the law affords correspondingly exact protections” through specifying the penalties for infringement. In the particular case, the infringing parties, while causing pecuniary damage to the copyright owner, were not guilty of theft by their unauthorized pressing and sale of vinyl albums of Elvis Presley recordings because they had not “assume(d) physical control over the copyright nor wholly deprive(d) its owner of its use.”

Private incentives to create are supported by the exclusive rights which owners of copyright enjoy. Copyright owners alone have the right to carry out or to authorize (i) reproduction or distribution of their work; (ii) preparation of derivative works; and, for literary, musical and a variety of visually-based works, (iii) public performance or display of their work. Among other advantages, such as insuring attribution for, and the integrity of, copyrighted material in authorized uses, those exclusive rights enable copyright owners to realize economic returns from their creative efforts.

12. 473 U.S. 207 (1985).

DRAFT

Reflecting the Constitutional goal of promoting science and the arts, however, are several constraints placed on the rights of copyright owners. First, copyright is granted for only a limited time. On works of individual authorship, copyright extends for the life of the author plus 70 years. On works-for-hire (i.e., works typically done either as condition of employment or upon commission, and which contribute to a collective work), copyright runs for 95 years from first publication or 120 years from creation, whichever expires first. After copyright protection has elapsed in either case, the work enters the public domain and may be used without authorization of the copyright owner.

LIMITATIONS ON THE RIGHTS OF COPYRIGHT HOLDERS

Copyright law also imposes limitations on the exclusive rights that copyright owners enjoy during the life of a copyright. Some of those limitations apply to the use of a particular product, such as consumers' ability to make an archival copy of a software program without authorization of the copyright owner, 17 U.S.C. 117. Others are much broader in scope, applying to copyrighted works generally. The most prominent examples of comprehensive limitations on the exclusive rights of copyright owners are the "First Sale" doctrine and exemptions from copyright

DRAFT

infringement as determined by “fair use” criteria.

The First Sale doctrine stipulates that the owner of a legally obtained copy of a copyrighted work may “sell or otherwise dispose of the possession of that copy” without the authorization of the copyright owner, 17 U.S.C. 109(a).¹³

Certain unauthorized uses of copyrighted material may also be exempt from copyright infringement, if they satisfy fair use criteria. As illustrative of the types of uses of copyrighted material that typically qualify as fair use, copyright law lists “criticism, comment, news reporting, teaching (including multiple copies for classroom use), scholarship, or research,” 17 U.S.C. 107.

UNSETTLED AREAS OF COPYRIGHT LAW

For uses of copyrighted material that do not clearly fall into the fair use categories explicitly stated by copyright law, determination of fair use is a legal judgment

13. The First Sale doctrine does not, however, apply to the “rental, lease or lending” of a phonorecord or computer program.

DRAFT

made on a case-by-case basis.¹⁴ That makes fair use a relatively indeterminate area of copyright law, and one that can quickly become contentious upon the advent of a new technology that changes how creative works are produced and used.

For example, consumers of copyrighted works may currently believe that they have a legal right to enjoy creative material in particular ways - say, by making a copy for personal use without first getting authorization from the copyright owner - even though such activity has not been recognized as a general consumer right under fair use. Consumers' belief to the contrary may in part be due to the lack of legal precedent. In order for the legality of any type of personal copying to be established, i.e., in order for either the Congress to modify correspondingly copyright law or for the courts to be called upon to make a fair use determination, copyright owners or consumers must have sufficient incentive to force the issue legislatively or judicially. That presupposes for copyright owners in particular that they feel sufficient economic injury from the unauthorized copying, and that an eventual prohibition against it can be implemented successfully. Both those

14. Criteria which the courts must apply under copyright law to determine fair use are the type of use - i.e., who is using the copyrighted work, how much of it they are using and for what purpose - and the potential economic losses to the copyright owner from that use.

DRAFT

conditions have not always been present.

As a result, the legality of making personal copies under the fair use provision of copyright law may be unclear or have been misunderstood by creators and/or consumers of copyrighted material. With the availability today of digital technologies that allow consumers to enjoy copyrighted works in a variety of new ways in addition to making copies, but which also enable copyright owners to exercise greater control over subsequent uses of their works, fair use is an unsettled area of copyright law.

Box 2-2

IS IT LEGAL TO USE A COMPUTER TO MAKE A COPY OF A MUSIC CD FOR PERSONAL USE?

With the availability of computer hardware that allows music tracks to be “ripped” from a CD-Rom and transferred to a computer or other digital device, making copies of digital music files without the authorization of the copyright owner has become very popular. Is that practice legal under current copyright law?

Copyright law does not explicitly exempt that particular type of copying from copyright infringement. Hence, barring any aspect of such copying that would violate a particular clause in the copyright law - such as the prohibition against circumventing access protection technologies of 17 U.S.C. 1201(a) - a determination of its legality would depend on whether the courts held it to be a fair use of copyrighted material. The courts have not yet provided a ruling on that issue.

DRAFT

A prominent example of how a new technology for consuming creative works prompted a legal clarification of fair use comes from *Sony v. Universal Studios*.¹⁵ Universal Studios argued that individuals' use of videocassette recorders (VCRs) to make copies of television broadcasts would lead to a loss of advertising and other revenues, and that the production or import of VCRs be banned on the grounds that they contributed to copyright infringement.

The Supreme Court held that making television broadcasts for later viewing - a practice known as "time-shifting" - was fair use. Surveys of VCR owners also found that videocassette recorders were primarily used for that purpose, and that non-taped TV viewing overall - and hence the economic health of the broadcasting industry - had not declined. On that basis, the Supreme Court held that the sale of VCRs did not constitute contributory infringement of copyright in spite of the potential application of that equipment in other, infringing uses (i.e., through making and selling multiple unauthorized videocassette copies to the economic detriment of the copyright owner).

15. 464 U.S. 417 (1984).

DRAFT

The allocation of rights between copyright owners and consumers has been increasingly challenged by advances in information technology, as more and more creative works have been put into digital form, and advances in processing and distributing that content have become more rapid. The following section considers both judicial and legislative responses to the challenges posed to copyright law by advances in information technologies.

COPYRIGHT LAW MODIFICATIONS TO ACCOMMODATE PRODUCTION AND DISTRIBUTION OF CREATIVE WORKS IN DIGITAL FORM

Legislative and judicial attempts to retool copyright law for the digital era (see Box 2-1) have attempted to balance the rights of copyright owners - and hence private incentives to engage in creative activity - with the rights of consumers and the interests of society more broadly. With the increasing digitalization of creative works and the expansion of the Internet, however, copyright disputes have intensified. Copyright owners fear a loss of control over their works in digital form and, as a consequence, reduced economic returns from their work. Users of copyrighted material, on the other hand, argue that copyright owners may exploit digitalization to expand their control over those same works, thereby restricting consumers' ability to enjoy them without getting prior consent from the

DRAFT

copyright owner. As a result, several features of copyright law, and in particular, fair use, are being increasingly contested.

Box 2-3

RECENT LEGISLATIVE REVISIONS TO, AND JUDICIAL INTERPRETATIONS OF COPYRIGHT LAW PROMPTED BY THE DIGITALIZATION OF CREATIVE WORKS

Legislative Revisions

- PL. 101-650, Computer Software Rental Amendments Act of 1990
- PL. 102-563, Audio Home Recording Act of 1992
- PL. 105-147, No Electronic Theft Act of 1997
- PL. 105-304, Digital Millennium Copyright Act of 1998
- PL. 107-276, Technology, Education, and Copyright Harmonization Act of 2002
- PL. 107-321, Small Webcaster Settlement Act of 2002

Judicial Interpretations

- RIAA v Diamond Multimedia Systems, 180 F. 3d 1072 (9th Cir.1999)
- MGM Studios v Grokster, 259 F. Supp. 2d 1029 (C.D. Cal. 2003)
- RIAA v Verizon Internet Services, 2003 U.S. App. LEXIS (D.C. Cir. 2003)

Early Legislation

The earliest digital copyright legislation applied to software and displays an effort to balance interests of copyright owners and consumers. For example, in 1980 the

DRAFT

Congress amended the copyright law to allow, for archival purposes, copies of computer software programs to be made without infringing copyright.¹⁶ In the Computer Software Rental Amendments Act of 1990, Congress revised copyright law to protect the interests of copyright owners by prohibiting software purchasers from renting out their copies.¹⁷

The first major legislative act devoted exclusively to digital copyright law was the Audio Home Recording Act (AHRA) of 1992.¹⁸ An attempt to balance the rights of copyright owners and consumers is evident here as well. Prompted by the emergence of digital equipment capable of making flawless reproductions of music recordings, that law prohibited the manufacture or import of “digital audio recording devices” unless such equipment incorporated a mandated technology (or its equivalent) to prevent serial copying, i.e., making copies of copies. It also imposed a levy on the sale of that equipment and on the digital recording media (DAT tapes) associated with it, with receipts from that levy going to copyright owners. In exchange, the AHRA explicitly granted consumers an exemption from copyright infringement for their use of either an approved digital audio recording

16. Public Law 96-517, §10(b), 17 U.S.C. §117(a).

17. Public Law 101-650, §802, 17 U.S.C. §109(b)(1)(A).

18. Public Law 102-563, 106 Stat. 4237 (1992) (codified in scattered sections of 17 U.S.C.)

DRAFT

device, or analog equipment, to make personal (“noncommercial”) copies of musical recordings.

Subsequent digital copyright legislation has tended to focus on emerging Internet-based activities. For example, the No Electronic Theft (NET) Act of 1997 established penalties for certain types of sharing or distribution of copyrighted materials over the Internet regardless of whether that exchange is commercial in nature.¹⁹ In contrast to the enforcement emphasis of the NET Act, the Technology, Education, and Copyright Harmonization Act of 2002 (TEACH) specifies the conditions for extending, to the use of copyrighted materials in distance learning, an earlier exemption from infringement under copyright law for certain performances and displays for educational purposes.²⁰

The Digital Millennium Copyright Act (DMCA)

The digital copyright legislation that features most prominently in current disputes

19. Public Law 105-147, 111 Stat. 2678 (1997), 17 U.S.C. 506. Specifically, the NET Act made subject to criminal prosecution the willful infringement of copyright which is done either (i) for “purposes of commercial advantage or private financial gain, or (ii) through the reproduction or distribution, including by electronic means, during any 180-day period, of 1 or more copies or phonorecords of 1 or more copyrighted works, which have a total retail value of more than \$1000,”(17 U.S.C. 506).

20. Public Law 107-273, §13301(b), 116 Stat. 1910 (2002), 17 U.S.C. §110.

DRAFT

is the Digital Millennium Copyright Act.²¹ The DMCA modified the details of copyright law in a variety of ways, including instituting a royalty-setting process for Internet music broadcasts (webcasting) and specifying exemptions for library and archival copying. It also established two major provisions of current digital copyright law - the anti-circumvention clause and the safe-harbor requirements for Internet Service Providers (ISPs) - which are intended to enhance copyright owners' ability to protect their work from infringing uses, and to identify and prosecute those found to be infringing copyright. The DMCA was therefore an early attempt to respond to the enforcement challenge posed by the increasing digitalization of copyrighted materials.

Anti-circumvention provisions

The DMCA makes it illegal to circumvent a technology that controls access to copyrighted materials, 17 U.S.C. 1201(a). An example of such a technology would be an encryption program that prevented unauthorized viewing of a movie on the Internet. Similarly to buying a cinema ticket or paying for a movie rental, an Internet consumer would have to obtain the copyright owner's authorization to view the movie by paying for the decryption key needed to view the digitized video file.

21. Public Law 105-304, 112 Stat. 2869 (1998) (codified in scattered sections of 17 U.S.C.).

DRAFT

The DMCA further prohibits manufacturing or trafficking in products “primarily designed or produced for the purpose of circumventing” technologies that control either access to copyrighted material (as in the above example of a movie distributed via the Internet) or the ability to use such material in an infringing way, 17 U.S.C. 1201 (a) and (b). An example of an infringement-preventing technology would be a copy control program that prevented making unauthorized copies of a movie once it had been accessed. Indeed, a notable current application of the trafficking prohibitions of DMCA is the ban on the manufacture or sale of products that circumvent the copy controls on Digital Video Disks (DVDs), the cinematic content of which cannot, under current law, be copied for any purpose without the authorization of the copyright owner.

In contrast, the DMCA does allow for some circumvention or trafficking activities or products that do not infringe copyright. For example, copyright law explicitly recognizes software copying for archival purposes as a limitation on the exclusive rights of software copyright owners. Hence, were a software manufacturer to apply a copy control technology to prevent unauthorized copying of their product, that technology could legally be circumvented in order for a lawful purchaser to make an unauthorized archival copy.

DRAFT

The example of software copying illustrates a central principle of copyright law: copyright owners have no legal obligation to facilitate activities that qualify as limitations on their exclusive rights or fair use generally. On the other hand, for the prohibitions of DMCA to be effective legal instruments for deterring infringement, copyright owners must take measures to protect their intellectual property from unauthorized access and use.

DMCA details a number of activities that are exempt from the circumvention prohibition.²² Beyond those specific exemptions, the DMCA requires the Registrar of Copyrights to conduct a triennial rule-making in order to establish whether additional activities should be exempt from the prohibitions.²³

Safe harbor / notify-and-takedown provisions

The safe-harbor provision of the DMCA reflects an early attempt to clarify the potential liability of an Internet Service Provider for contributory copyright

22. Those activities include gaining access to copyrighted material by libraries, archives and educational institutions in order to make an acquisition appraisal; law enforcement actions; reverse engineering to achieve inter-operability of software programs; some encryption research; protection of personally identifying information, and security testing.

23. The standard for exemption is whether “persons who are users of a copyrighted work are, or are likely to be in the succeeding 3-year period, adversely affected by the (circumvention) prohibition (of 1201(a)) in their ability to make non-infringing uses under this title of a particular class of copyrighted works,” 17 U.S.C. 1201(a).

DRAFT

infringement. It stipulates that ISPs cannot be held liable for copyright infringement either for the transmission or storage of copyright infringing materials on their networks, or for supplying links to infringing material, provided that the ISP fulfills certain obligations. For example, the ISP must not have prior knowledge of the copyright infringement. Further, in the event that copyright infringing material “resides” on the ISP’s network, the Internet Service Provider must comply with the “notify and takedown” terms of DMCA. Specifically, once alerted to such copyright infringement - and the DMCA spells out the measures which an ISP must undertake to insure that it can be promptly informed - the Internet Service Provider must remove (or “take down”) from its network the copyright-infringing materials, notifying the responsible party of their removal. Finally, upon receiving a subpoena issued by a court clerk, an ISP must disclose to the copyright owner the identity of parties suspected of copyright infringement on its network.²⁴

24. In order to obtain a subpoena under DMCA, copyright owners must identify the work(s) on which copyright is being infringed and the material that is claimed to be infringing, supply the location of that material on the ISP network and contact information for the copyright owner, provide statements of both the accuracy of the information provided (particularly of the status of copyright owner or agent) as well as a “good faith belief” that the copyright in question is being violated, and make a sworn statement that the information obtained will be used only for copyright protection purposes, 17 U.S.C. §512(h).

DRAFT

TECHNOLOGY CONTINUES TO CHALLENGE COPYRIGHT LAW

The tension created between copyright owners and consumers through the digitalization of creative content continues to grow as computing equipment - and the copyrighted software programs that run it - improves and becomes more pervasive in the economy, and as the means of reproducing and distributing copyrighted materials in digital form become more powerful and accessible.

Technological advance is outpacing existing digital copyright legislation in two dimensions. First, by enabling consumers to enjoy creative works in new ways while, at the same time, expanding the potential scope of copyright owners' control over their work, it increasingly puts into question the allocation of rights between consumers and copyright owners. Second, it raises new obstacles to the efforts of copyright owners to limit and penalize copyright infringement. While the Congress attempted to accommodate fair use and other consumer rights (e.g., personal privacy on the Internet) in crafting the anti-circumvention and notify-and-takedown provisions of the Digital Millennium Copyright Act, technological advance is placing growing strains on whatever balance had previously been achieved between the rights of copyright owners and consumers to use creative works, and to allow for the enforcement of the property rights applying to them.

DRAFT

Diminished control over copyrighted works

Although the Audio Home Recording Act of 1992 granted consumers an exemption from copyright infringement for their use of an approved digital audio recording device to make personal copies of musical recordings, computers were not classified as such equipment. At present, whether unauthorized ripping / burning of audio tracks, for personal or commercial use, is generally exempted from copyright infringement has not been established judicially or legislatively, and inferences from other, related cases are unclear. For example, many of those who argue that making personal copies of digital files is not copyright infringement, invoke the decision in *RIAA v Diamond Multimedia Systems*. That case did not, however, establish a general precedent for personal copying, but provided instead an interpretation of a specific clause of copyright law in the context of a particular type of digital copying.²⁵

25. In *RIAA v Diamond Multimedia Systems*, the U.S. Court of Appeals for the Ninth Circuit considered allegations of violation of the Audio Home Recording Act of 1992 through the manufacture of portable (Diamond Rio) MP3 players which make copies of a digital audio file from a computer hard drive. It found that, since the MP3 player in question could only make reproductions of a digital music file through an attached computer, and since a computer did not qualify as a “digital audio recording device” under the AHRA, consequently, the manufacturer was not required by the AHRA to incorporate technology to prevent serial copying or to pay royalties. The ruling also pointed out that “the Rio’s operation is entirely consistent with the (AHRA’s) main purpose -- the facilitation of personal use,” citing the Senate report accompanying the AHRA that “(t)he purpose of (the Act) is to ensure the right of consumers to make analog or digital audio recordings of copyrighted music for their private, noncommercial use,” S. Rep. 102-294. However, the court only addressed whether the MP3 was covered by the AHRA, and it did not address whether copying from computers for personal use constitutes a general limitation on the exclusive rights of copyright owners (i.e., as an element of fair use).

DRAFT

Copy-control techniques are increasingly envisioned by copyright owners for content distribution on CDs in the United States (as they are already applied to DVDs, and to CDs in Europe), but are contested by consumers who have grown accustomed to ripping audio files from CDs they purchase. And to make it difficult or disadvantageous to thwart both existing and anticipated copy control measures, owners of copyright on music and movies advocate maintaining, if not strengthening, the DMCA's prohibition against circumventing technologies that either control access to, or prevent infringing uses of, copyrighted works.

Copyright owner concerns about their ability to control subsequent uses of their work are not limited to the Internet. For example, thanks to progress in both networking technologies as well as electronic media devices, consumers today enjoy the prospect of attractive new applications for digital content, provided that they can make use of copyrighted material in those ways. However, if copyright owners cannot maintain control over their works in digital form, those are potentially uses for which they will not be able to charge and which, in some scenarios, could present economic worries similar to illicit file-swapping of audio files on the Internet.²⁶ For example, localized networking may allow movies to be

26. See "A Real Hollywood Horror Story," *BusinessWeek Online*, March 23, 2003, available at: http://www.businessweek.com/magazine/content/03_10/b3823088_mz063.htm?c=bwinsi

DRAFT

transferred from room to room either in a single household, an apartment building or a college dormitory. Digital Video Recorders (DVRs) may change how television content is paid for and marketed (see text box).

Box 2-4

A PARTICULAR TECHNOLOGY CHALLENGE TO FAIR USE

In *Sony v. Universal Studios*, the Supreme Court held that time-shifting of television viewing through video tape is fair use and, hence, that devices for recording television broadcasts do not contribute to copyright infringement. In contrast to tape innovations in digital recording allow for Digital recording. Recently, Digital Video Recorders. Some digital equipment currently used for time-shifting (ReplayTV units made by SonicBlue) have offered features that allow for commercials to be skipped automatically or removed altogether, and for copies of a recorded program to be sent over the Internet. That capability poses a more serious economic threat to copyright owners of televised content, and they have consequently initiated litigation against the manufacturer (who has since declared bankruptcy). Even though other Digital Video Recorder (DVR) models do not currently promote the contested features of ReplayTV units, the technology that has enabled those and other potentially copyright-infringing functions remains available to future DVR makers. For example, upcoming DVR models will offer larger hard drives and remote, virtually real-time programming, further weakening broadcasters ability to shape their programming schedule in order to attract particular types of viewers and, hence, to maximize advertising revenues. That loss of potential advertising revenue is compounded by the fact that cable providers have begun taking advantage of the new technology to offer cable-on-demand services, (see "Tomorrow's TiVos," *The New York Times*, January 16, 2003, and Julia Angwin, Peter Grant and Nick Wingfield, "In Embracing Digital Recorders, Cable Companies Take Big Risk," *The Wall Street Journal*, April 26, 2004).

[dermar1&n=link2&t=email.](#)

DRAFT

The First Sale clause, 17 U.S.C. §109, of copyright law is another area in which control over copyrighted works has become unclear. The ease with which creative content in digital form can be transferred among users makes resale markets more threatening to creators and distributors of that content, particularly when copyright owners cannot confirm that the purchased copy has not been deleted after resale.²⁷

Some software manufacturers have tried to exercise greater control over the resale of their products by imposing more stringent licensing conditions than the First Sale doctrine allows. Examples include software manufacturer attempts to prevent at resale the unbundling of components of a software suite, and to require purchasers to obtain permission before publishing reviews of its products. The courts have not yet ruled on the viability of licensing practices that conflict with the First Sale clause.²⁸

The increasing use of the Internet to distribute copyrighted materials will likely

27. For example, Internet-based auctions now allow consumers of a legally-downloaded copyrighted work to resell it online (see Alorie Gilbert, "iTunes Auction Treads Murky Legal Ground," *CNET News.com*, September 3, 2003).

28. In one case, although the courts held that the restrictive licensing practices of defendant software maker were unenforceable, they did so for reasons other than inconsistency with the First Sale clause. See *Softman Products Company, LLC, v Adobe Systems, Inc.*, 171 F. Supp. 2d 1075 (2001).

DRAFT

lead to additional new types of consumer resale efforts and manufacturer attempts to tighten product licensing and, as a consequence, may require additional legislative or judicial scrutiny. For example, efforts to standardize licenses for software acquired across states through the Internet, embodied in the Uniform Computer Technology Information Act, have also proven contentious, with only a few states ratifying it so far.

A related control challenge to copyright law stems from the growing incorporation of computer chips, and the software which regulates them, in a variety of products in the economy. To the extent that such software is protected by copyright, an original equipment manufacturer may try to use the access circumvention prohibition of the DMCA to prevent rivals from making their competing components interoperable with their product and, intentionally or not, stifle the innovation that comes from experimentation by users more broadly.²⁹

For example, in *Lexmark International v Static Control Components* currently before the U.S. District Court, Eastern District of Kentucky, Lexmark charges that the Static Control Corporation violated the DMCA by circumventing the

29. See Hal Varian, "New Chips Can Keep a Tight Rein on Consumers," *The New York Times*, July 4, 2002.

DRAFT

authentication feature that controls access to the copyrighted software regulating how the printer interacts with the print cartridge.³⁰ That allowed Static Control Components to offer replacement cartridges that competed with those of Lexmark, the original equipment manufacturer. Some observers have suggested that such an application of the DMCA threatens both competition in numerous component markets, such as for automobiles, as well as innovation in the economy that relies on the ability to reverse-engineer new products.³¹

New obstacles to copyright enforcement

Perhaps the most well-known illustration of information technology's current challenge to copyright enforcement is the unauthorized sharing of digital music files on the Internet through peer-to-peer networks. For several years software has been readily available from retailers and over the Internet to "rip" audio files from CDs and then store them, typically in compressed digital versions (MP3 format)

30. 253 F. Supp. 2d 943 (E.D. Ky. 2003)

31. In the latest triennial rule-making required by the DMCA, Static Control requested an anti-circumvention exemption. On October 28, 2003, the Registrar of Copyrights denied Static Control's request, pointing out that the DMCA's statutory exemption for reverse engineering provided sufficient guidance for the courts to make a determination about copyright infringement. Regardless of the legal outcome, the *Lexmark International v Static Control Components* illustrates the potential for unintended consequences from modifying copyright law in the digital era.

DRAFT

on personal computers. During this time, both the computer processing power available for audio file conversion and the amount of storage space available on personal computers to store those files, has increased tremendously.

Contemporaneous with those trends is the growing individual access to broadband Internet connections and the emergence of peer-to-peer networks, which allow individual computer users to make files on their hard drive available to others through the Internet. As a result, unauthorized copying, storing and sharing of digital files has become inexpensive and easy.

P2P file sharing has grown dramatically in the past several years. As of December 21, 2003, CNET News.com counts roughly 310 million downloads of the most popular type of Peer-to-peer software KaZaA (followed by about 118 million downloads of runner-up Morpheus), over 4 times the number of registered users of Napster at its peak in 2000.

In contrast, the value of music sales in the United States fell approximately 4 percent in 2001, 8 percent in 2002 and 6 percent in 2003, respectively (see Figure 1-1). Both the persistence as well as the magnitude of those revenue declines are exceptional in recent history, and are regularly attributed to unauthorized file-sharing across peer-to-peer systems.

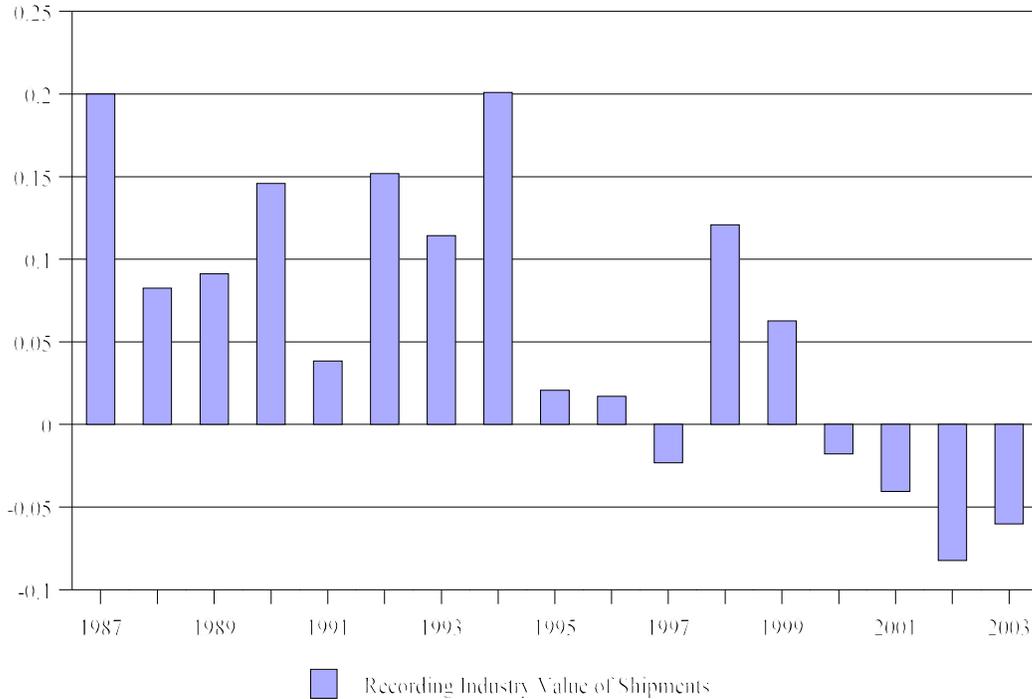
DRAFT

However, some people argue that the impact of peer-to-peer sharing on music sales is overstated. They emphasize unsustainable growth in music sales during the mid-1980s and early-1990s owing to the introduction of the CD format, high CD prices, a reduction in total music titles available for purchase, and competition from other entertainment, such as DVDs and electronic games.³² Indeed, even music industry executives have recently begun to acknowledge that file sharing may not be the entire cause of declining sales.³³

-
32. See Stan Liebowitz, Will MP3 Downloads Annihilate the Record Industry? The Evidence so Far,” June 2003, and Felix Oberholzer and Koleman Strumpf, “The Effect of File Sharing on Record Sales - An Empirical Analysis,” March 2004, available from http://www.unc.edu/%7Ecigar/papers/FileSharing_March2004.pdf. Unfortunately, conclusions from such studies are often weakened by data limitations.
33. See Neil Strauss, “Executives Can See Problems Beyond File-Sharing,” *New York Times*, September 9, 2003.

DRAFT

Figure 2-1: Nominal Percentage Growth in Value of Recording Industry Shipments



Sources: Recording Industry Association of America.

The popularity of music file swapping shows the ease with which copyrighted material can be obtained and redistributed on the Internet today. Additionally, while the rate of data transfer allowed by the Internet currently makes the distribution of movie-length video much more time-consuming than audio files and, hence, the incidence of illicit sharing of that content less frequent than for audio files, movie and software companies (especially computer-game makers) are increasingly worried

DRAFT

that technological advance in digital compression, transmission and file-sharing technologies will similarly threaten them with piracy of their copyrighted content.³⁴ Estimates of daily unauthorized downloads of movies over the Internet at present vary widely, from 150,000 to 600,000, and represent by some measures a 20 percent increase in that activity during the past year. According to the Motion Picture Association of America, the number of web sites offering pirated movies increased from 143,000 in 2002 to approximately 200,000 by the end of 2003.

Although the Digital Millennium Copyright Act explicitly provided copyright owners with the means to enforce their intellectual property rights on the Internet, it was promulgated in an era of a different type of network distribution: server-based rather than peer-to-peer. As a result, copyright owners' ability to prosecute unauthorized reproduction and distribution of copyrighted materials on the Internet by suing the enabling file-sharing services has come into question. While those measures were successful against the Napster service, which utilized its own computer servers to direct file requests to available content on individual computers, newer peer-to-peer services do not rely on centralized servers but, instead, on enabling software that is not administered by a single entity. Further, in the recent *MGM Studios v Grokster*,

34. See, for example, "Hollywood's Piracy Epic," *FT.com*, September 12, 2003, and "File Swapping Shifts Up a Gear," *CNET News.com*, May 27, 2003.

DRAFT

259 F. Supp. 2d 1029 (C.D. Cal. 2003), the court held that because the Grokster file-sharing service had substantial non-infringing uses, it was not liable for contributory copyright infringement. That ruling is currently being appealed.

As a result of the proliferation of peer-to-peer file sharing, individuals rather than larger, web-hosted entities have become the target of the subpoena provisions of the DMCA. Until recently, the courts have upheld the ability of copyright owners to obtain from Internet Service Providers identifying information of individuals suspected of infringing copyright. The Recording Industry Association of America has used that information to file roughly 400 lawsuits. However, that subpoena power has been checked - at least temporarily - by a December 19, 2003 decision by the United States Court of Appeals for the District of Columbia Circuit.³⁵ That court ruled in favor of Verizon Internet Services, Inc., which was contesting the application of the DMCA's subpoena provisions to cases of copyright infringement in which the suspected infringing material resided not on an Internet Service Provider's server but, rather, on an individual's PC for which the ISP was simply acting as a conduit for data transfer.

35. *RIAA v Verizon Internet Services*, 2003 U.S. App. Lexis 25735 (D.C. Cir., Dec. 19, 2003). That decision is currently being appealed, with both the U.S. Department of Justice and the Copyright Office filing legal briefs in support of the RIAA.

DRAFT

In response, the RIAA has initiated “John Doe” lawsuits, which target groups of suspected copyright infringers. Only after considering the merits of each lawsuit will the court issue a collective subpoena for identifying information on individuals in the group. This is in contrast to the options for legal action thus far afforded by the DMCA’s subpoena provisions, under which identifying information was obtained first, and lawsuits filed thereafter on an individual basis.

Copyright owners may attempt to obtain subpoenas under the DMCA from other courts, or they may petition Congress to revise copyright law to allow explicitly for subpoenas in the context of peer-to-peer networks. Given concerns for individual privacy and the occasionally erroneous enforcement actions by the RIAA in its recent lawsuits, the subpoena provisions of the DMCA will likely continue to be a source of controversy.

Finally, enforcement abroad is becoming increasingly important for American copyright owners. Manufacturing advances are enabling even small-scale piracy operations to produce large numbers of unauthorized CDs and DVDs. Such illicit activity is particularly common in Asia, is hard to shut down (often being connected to organized crime), and economically harmful to copyright owners of both music as well as movies. For example, the Motion Picture Association of America claims

DRAFT

that global piracy of DVDs cost it \$3.5 billion in revenues during 2002. Another concern of American copyright owners is increasing Internet penetration in Europe and Asia, where many of those countries have laxer copyright laws than does the United States.³⁶ As a consequence of those developments, the protection of intellectual property has moved center stage in both multilateral and bilateral trade negotiations between the U.S. and other nations, most notably China and other developing countries.

To better understand the economic rationale for why copyright law has its current form, and why copyright owners and users of copyrighted materials are typically on opposing sides of modifications to it, the next chapter addresses the role of property rights in an economy. In particular, it discusses why the characteristics of both creative works, such as those covered by copyright law, call for a different system of property rights than those applied to most other types of property. It also considers how markets for copyrighted works in digital form might evolve to provide the greatest benefits to society.

36. See See Geoffrey A. Fowler, "Hollywood's Burning Issue is Piracy of DVDs and CDs," *Wall Street Journal*, September 18, 2003, and Mark Landler, "U.S. is Only the Tip of Pirated Music Iceberg," *New York Times*, September 26, 2003.

DRAFT

CHAPTER III
COPYRIGHT AND THE ECONOMICS OF INTELLECTUAL
PROPERTY REGULATION

Copyright is a subset of the larger category of property rights to both tangible as well as intangible property. Property in the latter category is also known as intellectual property, and includes both creative works - protected by copyright and trademark law - as well as technical and scientific works, which are protected by patent law. Well-defined and -administered property rights are fundamental to the functioning of market economies. The ownership of traded goods and services, and the recourse each party has in a dispute arising from any exchange, must be established in order for arms-length transactions among individuals to be feasible. Also, decisions to save and invest, or to undertake education, skill building or research and development, depend on the likelihood of being able to claim in future the wealth which those activities may eventually generate.

Government policy that regulates and enforces property rights, as copyright law does, plays a crucial role in economic well-being. However, features of intellectual property argue for a type of government regulation different from that applied to most

DRAFT

other forms of tangible property.

THE REGULATION OF INTELLECTUAL PROPERTY

One way of assessing the performance of a particular set of property rights is based on the notion of economic efficiency. An economy is efficient if there is no way of making any individual better off, without making someone else worse off. The markets for most goods and services can achieve an efficient allocation of resources under a standard set of property rights and regulations, for example contract law, that applies to virtually all market transactions. Some goods and services, however, have characteristics that require additional regulations in order for a private market to generate an efficient outcome. Intellectual property is among those products and, as a consequence, is subject to a different property rights and regulatory regime than for most tangible goods.

In order for an economy to be efficient, the marginal cost to produce any good or service should equal society's marginal valuation of it. If not, society could obtain valuable output by reallocating some of the resources currently at its disposal. Efficiency requires that the production of goods and services that have a marginal value to consumers greater than the additional resource cost to produce them should

DRAFT

be increased at the expense of goods and services that impose a cost on society greater than their valuation by consumers.

Creative works differ from most goods and services in two ways that would produce an inefficient outcome in the presence of only the standard set of property rights necessary to make most other markets work. Once a work is created, it must be made available to consumers. The cost solely to reproduce and distribute a creative work will typically not reflect the expense incurred during its creation. As a result, prices that were set equal to the marginal cost to reproduce and distribute creative works would, *once those works had been created*, efficiently supply them to consumers. However, such prices would typically not generate the revenues necessary to compensate creators economically for their efforts to produce that material in the first place. As a result, a less-than-efficient amount and/or quality of creative work would be undertaken.

As the costs of reproduction and distribution of creative works in digital format continue to fall, copyrighted material can be made available to many consumers at a very low cost and can thus be effectively non-rivalrous in consumption. (A product is non-rivalrous if it can be consumed by many individuals at once.) For example, once the costs to create a software program or computer game have been incurred,

DRAFT

those files can be transferred to a CD-Rom very cheaply, or distributed over the Internet at a still smaller cost. Again, charging a price for that product at the very low marginal cost of supplying it would not allow the software manufacturer to recoup the entire expense of production and distribution, and would result in an under-provision of creative products. By granting copyright owners an exclusive right for a limited period of time, copyright law enables software manufacturers and other producers of intellectual property, such as record labels and movie studios, to charge prices above marginal cost in order to recoup their total costs. That increases the too-low supply of creative products that would be brought to the market without copyright protection.

A second and related characteristic of a creative work is that it is often difficult and, in some cases, even unfeasible for society to exclude a person from consuming the work once it is created. It can be difficult to exclude individuals from consuming some types of intellectual property because those works are particularly vulnerable to theft or misuse. For example, once a copyrighted photograph or a work of graphic art is published, a reproduction - albeit approximate - can readily be made and redistributed without the authorization of the copyright owner. Copyright owners are granted exclusive rights to produce and distribute their works because, without them, competitors could simply replicate and distribute the existing creative work and

DRAFT

thereby deprive the creator of revenue necessary to recoup the costs of originating it. Licensing terms for the use of some types of intellectual property are often specified more strictly than is the case for tangible property. For works of visual arts, for example, copyright owners have exclusive rights not just to reproduce, distribute and make derivative works, but also to receive attribution any time a particular image is published.

In some cases it may also be simply unfeasible for society to exclude consumption of creative works. The benefits of the knowledge underlying creative works and the works themselves are often cumulative: in myriad and indeterminate ways, creative works today supply the intellectual foundation for future creativity. For example, readers of a particular writer of prose fiction may benefit from that author's intimate familiarity with earlier works of literature, even though they themselves would not purchase those particular books. Economists refer to such phenomena as spillover effects. Because of them, copyright owners may not be able to appropriate all of the gains to society from the underlying creative efforts. The socially beneficial element of non-excludability argues for eventually making intellectual property widely available. The compromise struck in property rights governing creative works, as indicated, is to place a time limit on the exclusive rights of the creator or owner of intellectual property. Once the work enters the public domain, its price should

DRAFT

reflect the low marginal cost of production and distribution - for example, Dickens' Tale of Two Cities can be bought a price far lower than even the bottom entry on the current best sellers list.

Although markets for intellectual property require unique property rights, as with other goods and services, an efficient amount and quality of a copyrighted work once created is brought to market when consumers' willingness to pay matches the cost to reproduce and distribute that work. In particular, the marginal purchaser should pay a price equivalent to the incremental cost of supplying that product. Currently, copyright law does not produce such prices: the need to insure an adequate return for creators leads to prices for creative works that, over the life of the copyright, exceed the costs of reproduction and distribution. As a result, some consumers who value the product at less than the market price, but who would still pay a higher price than the marginal cost of supplying it, may be priced out of the market until the work enters the public domain. Hence, copyright law currently accepts some *static* inefficiency - copyrighted works may not be distributed as widely as economically feasible, once those works have been created - in the interests of beneficial *dynamic* effects, i.e., in the interest of getting those works created in the first place.

The ease and low cost of digital reproduction and dissemination today highlights the

DRAFT

fact that, from the point of view of economic efficiency, the balance of costs and benefits to society of specific copyright laws have likely always been less than perfect. Yet, it also could be the case that digital technologies offer the prospect of improving the benefits and cost of the copyright regime in future by allowing producers to adopt refined pricing practices that allow more consumers to purchase creative products at prices that approximate their willingness to pay while, at the same time, enabling copyright owners to realize higher revenues for their work and thereby obtain greater resources for future creative efforts.

MORE EFFICIENT COPYRIGHT MARKETS: PRICE DISCRIMINATION AND TECHNOLOGY

Absent an all-knowing regulator, it is likely that the prices for creative products that are in part set by current copyright laws and policies will either under supply such products or over charge for them compared to an efficient outcome. Yet, economic analysis of markets with attributes similar to those for intellectual property - where pricing at marginal cost calls forth too little supply - yields a potential solution that produces an efficient outcome called perfect price discrimination. Under such pricing, each consumer is charged a price that corresponds to what the individual is willing to pay for a particular use of the intellectual property in question.

DRAFT

Under perfect price discrimination, the problem of covering the cost of creative products can be solved by charging those consumers with relatively strong demand a higher price, and the objective of wide dissemination achieved by charging those consumers with a lower willingness to pay a lower price. Price discrimination can only occur when consumers in a market charging higher prices can not purchase the product in question in markets where lower prices are charged. Yet, the basic economic idea behind price discrimination holds if it is variants of a basic product that are being offered—thereby segmenting a market—rather than an identical product offered in completely separated markets. Advances in information technologies are increasing the feasibility of such arrangements and opening the prospect of numerous variants of products with the same underlying creative content.

Although markets for such creative content in digital format may offer the prospect of an improved balance between returns necessary to call forth new creative effort and wide availability, they are only now emerging and that prospect is not foreordained. Markets governed by rules consistent with digital rights management need not, in practice, produce a more efficient outcome.

Perfect Price Discrimination and Digital Rights Management (DRM) Technology

DRAFT

Digital technologies that have reduced the cost of reproducing and disseminating intellectual property may facilitate a more perfect form of price discrimination than that which currently is applicable to markets for copyrighted products. Developments in digital rights management (DRM) technology suggest that perfect price discrimination - or simpler variants of it, known generally as differential pricing - may soon become more feasible for copyrighted works in digital format. In particular, DRM would enable copyright owners to charge a price for their creative works which varied depending upon the particular use(s) made of them. Literally, consumers would pay a price that depended on the amount of “rights” which they were able to exercise over a copyrighted work in digital form.

For example, an individual buying a music CD in order both to listen to it on a standard CD player as well as to make copies for transfer to a variety of digital devices (such as a computer or portable music player), would typically pay the same price for the CD, but likely enjoy greater benefits, than would a person purchasing the CD simply to listen to it on a standard CD player.³⁷ Even though the cost, at the margin, to reproduce the musical recording physically on a CD is minimal, some individuals in the latter group of potential consumers may, owing both to the

37. For another example relevant to copyrighted works in digital form, see Hal R. Varian, “Buying, Sharing and Renting Information Goods,” *mimeo*, available at: <http://www.sims.berkeley.edu/~hal/Papers/sharing.pdf>.

DRAFT

relatively small value they would realize from the more limited use they envision for the CD as well as the uniform pricing of it, be priced out of that market. On the supply side, some creative music projects that would be distributed on a CD may not be undertaken, because setting a common price for all units would not yield enough revenues, while allowing for differential pricing would. The efficient outcome is one of perfect price discrimination, in which each consumer pays exactly their own, individual valuation of each type of use.³⁸

Potential Qualifications

Notwithstanding its strengths when viewed in the context of economic theory, there are several potentially important qualifications to the advantages in practice of both differential pricing as well as DRM technologies.

Incentives to create

Although perfect price discrimination may be efficient in a static sense, i.e., in distributing a creative work among as many consumers as economically feasible once that work is created, its dynamic effects on creativity are less clear. By enabling copyright owners to engage in differential pricing and thereby to realize higher

38. See the discussion of the Lindahl price mechanism in Agnar Sandmo, "Public Goods," published in *The New Palgrave Dictionary of Economics*.

DRAFT

revenues for their work, DRM should provide greater resources for future creative efforts. However, it is not always the case that those greater resources will lead to a change in the number and/or quality of creative works that improved social welfare.

For example, there will be some creative works that are too new or demanding to be commercially successful. As is the case currently, those works will likely continue be funded by public funds or private endowments, and the creative output that they represent will not be altered by the introduction of new, market-based pricing schemes.

Additionally, relatively little is known about what motivates individuals to engage in creative activity, and how those influences differ from the perhaps more pecuniary motivations and incentives of the entities that often acquire copyright to creative works in order to reproduce and distribute them. In other words, economic theory has not yet specified a “creative production function.” That is not to argue that copyright protection is not important to individual creators’ financial ability to devote themselves to their craft. One may with some confidence expect abolishing copyright protection altogether to reduce the level and quality of creative output.³⁹

39. For a contemporary discussion of how widespread copyright infringement may reduce creative activity in an economy, see Ien Cheng, “Pirates drain the life from the HK film industry,” *Financial Times*, April 13, 2004, and Graham Gori, “In Mexico, Pirated Music

DRAFT

However, it is not so easy to predict exactly how a less dramatic change in compensating copyright owners - through, say differential pricing schemes - will affect the number and/or quality of creative works being produced and distributed.

Some commentators emphasize the distinction between creation and other activities in markets for copyrighted material, such as distribution. While each group may include owners of copyrighted works, the two groups would differ in their objectives and, hence, the importance that they place on the various protections offered by copyright. For example, the former group would more likely be motivated by non-pecuniary factors - creative drive and desire for attribution and insuring the integrity of their work, etc. - while the latter are more likely to respond to pecuniary incentives. As a result, the existence of copyright and, in particular, exclusive rights over subsequent use, may simply motivate distributors of copyrighted works to engage in socially unconstructive marketing and promotional activity.⁴⁰

Outsells the Legal Kind," *New York Times*, April 1, 2002. For an an historical example, see the discussion of the removal of copyright protection in post-revolutionary France in part 3 of Charles C. Mann's "Who Will Own Your Next Good Idea?" *The Atlantic Monthly*, Volume 282 (No. 3), September 1998, pp. 57-82.

40. See Mark S. Nadel, "Questioning the Economic Justification for (and thus Constitutionality of) Copyright Law's Prohibition Against Unauthorized Copying: Section 106," available at http://papers.ssrn.com/paper.taf?abstract_id=322120.

DRAFT

Even were creators to respond fully to economic incentives, a prediction of greater beneficial dynamic effects from perfect price discrimination in digital copyright markets cannot be made with certainty. For example, it is possible that a greater number of creative projects may not actually be undertaken. This is because making a strict distinction over time between consumers and copyright owners may not be feasible, since consumers of copyrighted material are also, by varying degrees, creators who either sell their creative output or use it for their own pleasure. Hence, if those are the consumers who would end up paying more in a scenario of perfect price discrimination than before, then that may counter-act the expected positive boost to potential creators owing to greater receipts from their efforts.⁴¹

Alternatively, it is not inconceivable that too many creative projects will be undertaken. Allowing copyright owners to exploit differential pricing for the duration of copyright protection granted to them by U.S. law may generate returns to creativity that exceed those from, say, education or other socially beneficial activities. The supply of aspiring musicians, movie-makers and writers might increase at the expense of teachers or scholars.⁴²

41. See William M. Landes and Richard A. Posner, "An Economic Analysis of Copyright Law," *Journal of Legal Studies*, Volume 18, 1989.

42. See Glynn S. Lunney, Jr., "Re-examining Copyright's Incentive-Access Paradigm," *Vanderbilt Lw Review*, 49 (1996): 483-656.

DRAFT

Deviations from perfect price discrimination

Economic theory indicates that perfect price discrimination in the provision of copyrighted materials in digital form may solve the market failure that arises from the fact that, because such intellectual property approximates non-rivalry in consumption, marginal cost pricing is impractical. However, perfect price discrimination may not always be feasible, and other types of differential pricing arrangements are likely to emerge instead. Particularly apt to emerge on markets for creative content in digital format are prices that vary not across individuals, but across groups of consumers based on their shared type of use (e.g., listening to, versus making copies, of music tracks, renting versus buying a book or movie, etc.). A rule of thumb for expecting a more efficient outcome from such differential pricing arrangements is that the loss to those customers that find themselves priced out of the market for a relatively feature-rich product variant - because its price is now higher than the uniformly-priced commodity with those same features that was available before - be offset by the gains to the additional consumers newly able to consume a new, lower-priced variant of the product.⁴³

43. A more complete, and theoretical, discussion of differential pricing regimes is found in Jean Tirole, *The Theory of Industrial Organization*, Cambridge, MA and London, England: The MIT Press, 1988. For an assessment of the efficiency and welfare impacts of differential pricing on a variety of markets for creative works, see Michael J. Meurer, "Copyright Law and Price Discrimination," *23 Cardozo Law Review* 55, 2001.

DRAFT

With the very low marginal cost of supplying creative works in digital form, greater consumption from differential pricing is not unrealistic. Indeed, differential pricing is already widely applied to some digital copyrighted works. For example, the per-user cost of site licenses for software products often declines with the number of user at the site. That provides the client with an incentive to purchase a license for even those software users who would make only marginal use of the software. Since the cost to produce and distribute the software is independent of the number of users (abstracting from installation and support services, which may be priced separately), software companies can lower the per-user price in order to sell as comprehensive a license as possible to an organization and still profit. Another type of differential pricing of software products takes the form of price rebates for customers who purchase particular bundles of software packages. Again, the price rebate provides customers with an incentive to purchase additional software packages for which they might not be willing to pay the stand-alone price.

Competition concerns

In order for differential pricing not to reduce the benefits of existing consumers - by forcing them to opt for an inferior product variant than before - there to be a adequate diversity in the versions of a given copyrighted work in digital form. That presumes sufficient competitive pressures on markets for creative works. Almost by definition,

DRAFT

however, creative products are unique: there is something peculiar to each that either appeals to or displeases consumers. As a result, there may be less substitutability between creative works of a given type than among a set of other commodities grouped similarly, and competitive pressures may be less on markets for copyrighted works than elsewhere.

For example, many DVDs prevent the viewer from skipping over promotional materials that precede the film. Economic efficiency would argue for DVDs with and without promotional material to sell at different prices, reflecting both the copyright owner's value from advertising as well as viewers' willingness to pay in order to avoid the delay in getting to the featured programming. Competition in the market for movies in DVD format should produce that outcome. However, to the extent that movies are poor substitutes for one another, such competitive pressures may be weak. For example, distributors of popular movies might simply opt not to offer DVDs without promotional material, leading to a less efficient outcome than the differential pricing model would predict. Unfortunately, important sources of creative content, such as music and movie companies, have either been found guilty of, or have come under scrutiny for, anti-competitive behavior.⁴⁴

44. See David Ho, "Recording Firms Meet their Match," *Daily Telegraph*, July 31, 2003; Claudia H. Deutsch, "Suit Settled over Pricing of Recordings at Big Chains," *New York Times*, October 1, 2002; Daniel Dombey and Francesco Guerrera, "Brussels Probe Puts

DRAFT

In contrast, one software maker's recent, and aborted, attempt to force consumers to register their purchase of its popular tax software - in order to circumscribe the number and type of installations possible from a given purchase of it - may offer an illustration of a competitive outcome. Consumers resisted such restrictions on their potential use of purchased copyrighted materials, perhaps owing to the implicit price increase which that new installation constraint represented. The software maker did not simultaneously reduce the price of its software product, even though that price presumably included some premium to recoup losses from the unauthorized copying which the new registration process was intended to prevent. Confronted with consumer outrage - and the availability of competing product - the company rescinded the registration policy.⁴⁵

Equity

The introduction of differential pricing schemes may also provoke concerns for equity among consumers, who might consider unfair copyright owners' greater ability to profit from their works. That could be especially true for those consumers

Hollywood in Spotlight," *Financial Times*, July 6, 2003.

45. See Eric Hellweg, "Intuit's Lesson for Microsoft and Hollywood," *Business 2.0*, available at: <http://www.business2.com/articles/web/0,,49577,00.html>.

DRAFT

who were previously enjoying creative material at a lower price than what they would have been willing to pay, but who - under a differential pricing scheme - now must pay a higher price corresponding to their greater valuation. For those individuals, their prior excess benefit in consumption over the purchase price is transferred to copyright owners.⁴⁶ However, the differential pricing outcome does enable other consumers, previously priced out of that market, to purchase the copyrighted material. Indeed, charging customers with higher valuations a commensurate price is important in order to recoup up-front costs of creation and, thereby, to allow consumers with lower valuations access to that creative content. Those consumers consequently benefit since, having previously been priced out of the market for that particular creative content, they were allocating their available resources among menu of goods and services less desirable to them. And the larger potential revenues that copyright owners may realize from their creative efforts through differential pricing, could provide financing for additional creative efforts that should, subject to the qualifications above, benefit all consumers.

46. In the case where differential pricing applied to groups of consumers by type of use of copyrighted material, rather than to individual consumers as under perfect price discrimination, the monetary transfer from consumers to copyright holders is mitigated. Each group of consumers engaging in the same use of copyrighted material pays the price acceptable to the marginal consumer among them, even when other members of that group value that particular use more highly (see Hal Varian, "Differential Pricing and Efficiency," *First Monday*, Vol.1 No.2 - August 5th. 1996, available at: <http://www.firstmonday.dk/issues/issue2/different/>).

DRAFT

Technological feasibility, implementation and transactions costs

Because they are only now beginning to take form, it is unclear how markets for creative works in digital content will function and whether those markets could impose costs on society which exceeded the expected efficiency gains.

For example, it might prove to be very costly to develop and implement Digital Rights Management technologies sufficiently powerful to enable differential pricing, i.e., technologies that would either prevent copyright infringement entirely or suppress it to a sufficiently small level so that copyright owners still find it in their interest to make their creative works available in digital form. Alternatively, and as currently evidenced by copy-protected music CDs that do not work in some car stereos and computers, anti-piracy protections may impose unexpected burdens on consumers.⁴⁷

Another consideration is the magnitude of transactions costs. If the consumption of creative works is priced by each particular type of use, then both suppliers and consumers may have to make a different, and perhaps more complex, set of calculations than before. For example, rather than buying a collection of songs by

47. See Andrew Orłowski, "Copy-crippled CDs launch in UK, baffling Auntie Beeb," *The Register*, February 13, 2004, available at http://www.theregister.co.uk/2004/02/13/copycrippled_cds_launch_in_uk/.

DRAFT

a single artist on CD, a consumer might choose between individual tracks from both that artist and others. How readily might the terms of use of a copyrighted work be renegotiated by the consumer after their initial purchase, if they subsequently chose to use the copyrighted material in a different way than initially envisioned? What types of payments systems will be required for pay-per-use business models to work, and will they introduce large transactions costs? Will different types of DRM technologies be interoperable and standardized, so that a consumer will not risk purchasing copyrighted material only to be frustrated when they cannot use them with copyrighted materials from other sources or with a variety of types of software and digital processing equipment? ⁴⁸ More generally, what length and complexity of licenses for using copyrighted digital products will consumers be required to read through and comply with (when they now, in many cases, may simply ignore them)?

Other concerns about large transactions costs are broader. Will the measures that copyright owners employ to discourage illicit use of their works on the Internet (e.g., spoofing) pose obstacles to Internet usage in general? A related issue is the amount of individual privacy will consumers have cede in order for a copyright owner to be

48. See Gregory T. Huang, "The Web's New Currency," *Technology Review*, December 2003/January 2004; John Borland, "Stalemate on Digital Content," *CNET News.com*, November 6, 2003, available at: <http://news.com/2100-1025-5103601.html?part=dht&tag=ntop>.

DRAFT

able to charge according to the particular use which an individual, or groups of individuals, makes of their creative product.⁴⁹

The potential qualifications - in practice - to the efficiency in theory of differential pricing on markets for creative works, suggest that their implementation by copyright owners may not be uncontested. Revision to copyright law may be necessary. The next chapter considers the arguments for and against the feasibility of a purely market-based resolution to digital copyright disputes. It also explores the efficiency and equity effects of a variety of ways in which copyright law may be revised in order for it better to accommodate the increasing digitalization of creative content.

49. See Robert Lemos, "Digital Rights Group Knocks 'Trusted-PCs'," *CNET News.com*, October 2, 2003, available at: http://news.com.com/2100-7355_3-5085442.html?tag=fd_nbs_ent.

DRAFT

CHAPTER IV
EFFICIENCY AND EQUITY IMPLICATIONS OF VARIOUS WAYS OF
RESOLVING DIGITAL COPYRIGHT DISPUTES

An essential element of resolving the current copyright debate is reaching a new social and legal consensus about the rights of owners to defend their copyrights and the right of consumers to fair use. Through both the impending increase in the supply of content control technologies by the private sector, as well as new services providing creative content in digital format, such consensus might be possible within the framework of existing copyright law. However, if market-based solutions do not gain support among both copyright owners and consumers, revisions to copyright law may be needed. In that case, it is possible to indicate which groups could gain or lose from a given modification to copyright law. Indeed, the equity consequences of different revisions, that is, how a particular modification might redistribute benefits among copyright holders and consumers, are often easier to infer than are the impacts on economic efficiency.

PROSPECTS FOR A MARKET-BASED RESOLUTION TO DIGITAL
COPYRIGHT DISPUTES

DRAFT

Unauthorized use of copyrighted materials has grown for several reasons. The first may be the fact that individuals are unfamiliar with copyright law (see Box 4-1), and what constitutes an infringement of it. In particular, consumers may have become accustomed to particular types of uses for copyright materials for which they are granted no explicit right under copyright law. Growing consumer awareness of copyright law (spurred in part by legal actions such as recently undertaken by the Recording Industry Association of America) may provide some remedy. Some polling data indicate such awareness is growing, implying that rampant illegal use of digital reproduction and transmission of copyrighted material might decrease.

Another factor contributing to unauthorized use of copyrighted materials has been the slow emergence of licenced copyrighted materials available online. In particular, content companies have claimed that insufficient means to copyright protection and enforcement hinder them from making content available online. However, thanks to the maturation of technologies that enable copyright owners to better control their content, there are now signs that this is changing. Illustration of that is provided by the recent surge in the number of commercial ventures that are licensed for online

DRAFT

music distribution, and which are typified by Apple Computer's "iTunes" service.⁵⁰

50. See Nick Wingfield, "Shakeout May Mute Music-Download Services," *The Wall Street Journal*, March 23, 2004.

DRAFT

Box 4-1

TRENDS OVER TIME IN THE INCIDENCE OF INTERNET FILE-SHARING AND POPULAR ATTITUDES TOWARDS IT - EVIDENCE ON THE IMPACT OF GRATER ENFORCEMENT EFFORTS

In January, 2004, the Pew Internet Life Project and comScore Media Metrix reported that the share of Internet users downloading music files with the most popular file-sharing software (KaZaa) had fallen by roughly half - from 29 to 14 percent - over a roughly 9-month period ending December 14, 2003. Both the authors of that study as well as other commentators have attributed that sharp drop-off to a broad response by file-sharers to legal actions, taken the prior summer by the Recording Industry Association (RIAA) of America, against individuals offering on the Internet copyright-infringing music files.

While conceding that the RIAA's legal campaign has had an impact on file-sharing activity, spokesmen of several companies that monitor and track file-sharing activity have argued that the survey results from Pew et. al. were not entirely representative of file-sharing trends. For example, the results were taken from phone interviews with individuals eighteen years and older. Relative to adolescents - considered very active file-sharers - such respondents would be more likely either to have curtailed or, in the context of a phone interview, to deny their file-sharing activity as a result of the RIAA lawsuits. Additionally, measuring file-sharing through the use of KaZaa and other programs for transferring music files, misses the growing use of more powerful peer-to-peer software programs (e.g., eDonkey and BitTorrent) that allow exchange of video and movies.

Surveys on individuals' attitudes towards file-sharing paint an unclear picture of the impact of the RIAA's recent legal actions on the popular perception of its legality. A survey commissioned by the RIAA and carried out by Peter Hart Research has found that the share of respondents who consider unauthorized file-sharing to be illegal rose from 37 percent in November, 2002 to 64 percent in November, 2003. In contrast, both a New York Times / CBS News poll from September, 2003 as well as a HarrisInteractive Poll from October, 2003 find that between two-thirds and three-quarters of respondents consider sharing music files for personal use to be "all right" or "legal", respectively. In comparison with earlier surveys, those results suggest a growth in the popular acceptance of file-sharing. For example, a September, 2002 survey by the Pew Internet Life Project had also found that roughly half of Internet users consider music downloading not to be "stealing".

DRAFT

Will Markets Increase the Net Social Benefits of Creative Content?

A new consensus about copyright might or might not set the stage for markets to produce efficiency gains and thus net social benefits. As was discussed in analyzing the basic economics of price discrimination and differential pricing, efficiency gains could, but need not, be associated with wider applications of these strategies in the context of digital rights management. Consequently, the market-based implementation of the DRM technologies that would enable differential pricing, offers a greater prospect of efficiency gains on markets for creative works than was possible in the past. From the standpoint of equity, the same distributional issues as described in the presentation of differential pricing remain. However, allowing the market to experiment with different business models for the digital provision of copyrighted material may, from a dynamic point of view, be superior to government mandates or other regulation in terms of assuring both efficiency as well as increased benefits to both copyright owners and consumers from advances in digital technologies.⁵¹

51. The Economist Magazine (“Music to their Ears (DRM advances),” September 19, 2002) provides a good illustration of potential new business models through the applications of Digital Rights Management platforms, which could benefit both copyright owners as well as consumers:

For example, subscribers to some commercial online-music services are now given the option to send encrypted copies of songs to friends. In exchange for the key to unlock the content, record labels can choose to charge or give the song away free if the friend

DRAFT

The adaptation to video cassette recording of producers and distributors of creative content on the one hand, and consumers on the other hand, is a standard against which the success of differential-pricing outcomes might be judged. In that instance, in very broad terms, many producers of content viewed the new home recording technology as a threat to their intellectual property and sought to undermine a technology that consumers were rapidly adapting. Yet ultimately, a consensus between providers and consumers was reached that defined socially and legally acceptable uses of the new technology. Markets adapted in such away that the net benefits of the production of intellectual property to society likely increased. From an efficiency point of view, once new rules were established, a beneficial form of differential pricing was the market outcome. Returns to producers were sufficient to provide a substantial supply of new content. Variants of essentially the same creative content provided consumers with more choice, as renting or buying the cassette expanded choice beyond going to the cinema. Moreover, consumers with a wide range of valuation of the creative product found prices consistent with their willingness to pay: the willing consumers exercised

provides, say, demographic details about himself.

Another example of DRM in use is Arista's recently launched web channel for fans of the band Boyz II Men. The channel serves up unreleased tracks, early access to concert tickets, exclusive videos, lyrics and singing lessons from members of the band for an annual subscription of \$25-35.

DRAFT

the option to pay more and own the movie to view it repeatedly at times of their choosing, while less willing consumers exercised the option to rent the cassette for home viewing at a lower price in a constrained period of time.

Why Might Forbearance not Work

However, several factors weigh against the success of forbearance as an approach to the current copyright debate. First, although they in theory offer the prospect of greater efficiency in markets for copyrighted works, in practice both differential pricing schemes and the DRM technologies used to implement them may, on their own, prove unsatisfactory. The same DRM technology that may allow copyright owners to stop the piracy of their works, may also be used to deny consumers the benefits of the lower reproduction and distribution costs afforded by digital technologies. In particular, if the forces of competition are weak producers may not have incentives to seek returns by exploring new variants of their creative content that match consumers' willingness to pay a broad range of prices.

Alternatively, consumers may find the new restrictions on their uses of creative content unacceptable and attempt to thwart them.⁵²

52. Indeed, soon after it had patched a flaw that had inadvertently allowed unauthorized sharing of downloaded files from its popular new online music service, Apple was the target of a successful hack which disabled that patch. Consumer resistance remains, however, and programs that circumvent Apple's DRM technology continue to emerge (see, respectively, Leander Kahney, "iTunes Music Swap Just Won't Die," Wired News, June

DRAFT

Some observers argue that a scenario especially apt to require revision to copyright law is one in which DRM technologies restricted consumer usage of copyrighted materials in ways that stymied the fair use rights of consumers. While U.S. copyright law allows for fair use, it does not require owners to facilitate it. Further, because copyright law characterizes fair use in very broad terms, its validity in specific instances must be determined legally or legislatively.

For instance, circumvention of a technological measure protecting access to a copyrighted work, even if that access circumvention were done in order to make fair use of that material, is prohibited by the Digital Millennium Copyright Act (17 U.S. 1201(a)). Users of that material who had legally gained access to it and who wished to make a copy for what they believed to be a fair use purpose (e.g., to archive a web page for future reference during a research project) could, if that material were copy-protected by some technological measure, be forced either to devise their own means of circumventing that technology or to acquire an illegal means of circumvention (since the DMCA prohibits trafficking in general-purpose circumvention tools). Were the copyright owner to contest, the researcher having made the copy would have to defend that action legally, in order for the courts to

6, 2003, and See Rob Pegoraro, "Restrictions and Price Remain iTunes Turnoffs," *The Washington Post*, April 18, 2004).

DRAFT

determine whether that particular use of that material qualified as fair use. There, however, well-funded interests may be better able to participate, lobby and eventually prevail, and determinations of fair use may be skewed towards their interests. In particular, individual consumers looking to make what they believed to be fair use of a copyrighted work may simply opt not to do so. There may be many other uses of copyrighted material - only gradually coming to light as the applications enabling them emerge - that copyright law would otherwise make allowance for, but that could be restricted by Digital Rights Management technologies. In such a scenario, proponents of consumer rights claim that, absent legislative intervention, technology could effectively “trump” copyright law.⁵³ Indeed, few provisions in copyright law currently allow for redress upon copyright owners’ making inappropriate use of their rights. One exception is found in 17 U.S.C. § 512(f), in provides that anyone who knowingly misrepresents that material on an Internet network is infringing shall be liable for payment of court costs and damages associated with the Internet Service Provider complying with the “notify-and-takedown” requirements of that section.

A second reason why a resolution to digital copyright debates may not be feasible

53. See the seminal work of Lawrence Lessig in *The Future of Ideas*, New York: Random House, 2001.

DRAFT

absent some revision to copyright law is that successful application of Digital Rights Management platforms may require much closer monitoring of individuals' activities online and impose on consumers a loss of privacy. At a Spring, 2003 rule-making carried out by the United States Patent and Trademark Office, suppliers of DRM technologies uniformly called for strengthening the enforcement provisions of the Digital Millennium Copyright Act. Unclear, however, is just how much sacrifice of personal privacy is necessary for Digital Rights Management (DRM) technologies to work satisfactorily (i.e., to prevent enough illicit activity to insure that it is profitable to supply creative content in digital form), and whether government intervention will eventually be needed to establish the type of personal data that may be collected, how it is collected, and the other uses (e.g., promotional) to which it is may be put.

Third, unless other countries conform on their own to the United States standard, negotiations on copyright law and enforcement will be necessary in the future in order to regulate international commerce in digitized creative works. Such international harmonization of copyright law would require legislative approval. For example, the Copyright Term Extension Act of 1998 brought the term of copyright protection in the United States (70 years after death for individual copyright owners, and either 95 or 120 years for works for hire) into conformance

DRAFT

with European Union (EU) standards, and thereby allowed both reciprocal protection in Europe for works copyrighted in the United States.

One example of the potential need for international harmonization of copyright law is provided by unauthorized file sharing on peer-to-peer networks.

Compulsory licensing arrangement - under which copyright owners to accept substantial limitations on the rights they may claim over their works, in exchange for receiving payments based on the amount, as opposed to type of use made of their copyrighted material - have been suggested as remedies to the copyright infringement that takes place on those networks. However, because P2P networks operate across national borders, raising revenues in some way on Internet uses in one country in order to compensate copyright owners through a licensing arrangement, could subsidize the consumption of those copyrighted works by P2P users in other countries. Hence, international harmonization of licensing arrangements for some types of copyrighted material may be another scenario requiring legislative action.

Additionally, the Commission of the European Communities has assessed prospective “rights management” regimes for copyrighted works, which include both compulsory licensing arrangements as well as Digital Rights Management

DRAFT

systems. The Commission concluded that the development of DRM systems, for example, “should, in principle, be based on their acceptance by all stakeholders, including consumers, as well as on copyright policy of the legislature.” While the digital copyright law of most EU members resembles that of the United States (especially as regards the anti-circumvention provisions of the Digital Millennium Copyright Act), some EU countries - such as Germany and France - allow for greater fair use rights to consumers (e.g., making more personal copies) than does the United States. Consequently, the European Union and the United States may each opt to allow different sets of restrictions on consumers from DRM-based delivery of digital content, and revision of U.S. copyright law to remove those divergences - e.g., to harmonize fair use rights or to achieve consistency in copyright enforcement - could become necessary.⁵⁴

EFFICIENCY AND EQUITY EFFECTS OF VARIOUS REVISIONS TO COPYRIGHT LAW

Extend compulsory licensing to digital content

-
54. See “The Management of Copyright and Related Rights in the Internet Market,” Communication from the Commission to the Council, the European Parliament and the European Economic and Social Committee, Commission of the European Communities, Brussels, April 16, 2004, and “Part IV: Fair Use Doctrine,” in *iTunes - How Copyright, Contract, and Technology Shape the Business of Digital Media - A Case Study*, The Berkman Center for Internet & Society at Harvard Law School, April 10, 2004.

DRAFT

One potential modification to copyright law would be to depart from a differential pricing regime altogether, and explicitly establish the price of creative content and the terms on which that content must, in exchange, be made available. That is currently the case for musical works, which are subject to compulsory licensing for sound recordings: once recorded, a musical work becomes available for other artists to record upon payment of a set fee (or royalty). Compulsory licensing has recently been proposed by peer-to-peer advocates in order to compensate recording artists for file-sharing and, as a consequence, to make legal the use of copyrighted material on those networks.

The rationale for compulsory licensing is that peer-to-peer networks will never be sufficiently regulated so as to allow copyright owners to exercise meaningful control over their works, once that copyrighted material has - inevitably - found its way onto a peer-to-peer network. Hence, a practical solution to obtaining compensation for copyright owners in that context would be for copyright officials or an entity designated by them could monitor the number of transfers of each copyrighted work among P2P network users and then distribute a pool of revenues - assessed either by general taxation or by levies on the digital processing equipment associated with peer-to-peer activity - according to the

DRAFT

relative usage of each copyrighted work.⁵⁵

Compared to a differential pricing scheme, setting a fixed price for some types of copyrighted works is less efficient. That is because the price of using copyrighted material under a compulsory licensing scheme would be common not just to all consumers, but to all works covered by the license. It is unlikely that a single, flat-rate fee would be “just right” from the standpoint of economic efficiency. In the framework developed in the previous chapter, content prices would not be well matched with consumers willingness to pay. It is also unclear that a single fee could generate sufficient revenues to allow for creative efforts with the diversity of scale and quality made possible by the pricing flexibility (and higher revenues) potentially obtainable to copyright owners from differential pricing.

Setting a compulsory license fee could also bring with it substantial costs, both from administration of the royalty regime as well as from losses occurred through short-comings in the rate-setting process. For example, registering and tracking the use of the universe of copyrighted works accessed on peer-to-peer networks

55. For examples of compulsory licensing schemes proposed for peer-to-peer networks, see Neil Weinstock Netanel, “Impose a Noncommercial Use Levy to Allow Free Peer-to-Peer File Sharing,” *Harvard Journal of Law & Technology*, Volume 17, Number 1, Fall 2003, and chapter six of William W. Fisher, *Technology, Law, and the Future of Entertainment*, forthcoming, Stanford University Press, 2004.

DRAFT

may be expensive. The process of fixing the compulsory license may be costly, time-consuming and subject to manipulation by vested interests. For example, the establishment of royalty rates for certain types of Internet music broadcasts (i.e., non-subscription webcasting), begun in the 1990s, dragged on for several years beyond the projected termination date, as a contested initial arbitration process to set webcasting rates gave way to an unpopular rulemaking by the Registrar of Copyrights and, finally, a last-minute, legislatively-brokered agreement among the competing groups (which remains under appeal by some parties). The uncertainty that such a process would engender could impede the development of markets for digital copyrighted goods subject to those royalty rates. There is also the possibility that, by the time the royalty-setting process had been completed, peer-to-peer networks could have become sufficiently regulated - owing to socially-undesirable activity on peer-to-peer networks that was unrelated to copyright infringement - e.g., spyware and other surreptitiously-operating software programs - so as to enable strict copyright enforcement. Indeed, the Internet today remains a relatively unregulated environment and, as it is integrated into business and household use, it may well become subject to greater control and monitoring.

Additionally, the collection and allocation of copyright revenues under compulsory licensing could be inequitable. For example, were the compulsory

DRAFT

license revenues collected through applying a levy on computers or other multipurpose digital equipment or media—new computer systems, for example, individuals not using those products to consume copyrighted works would be forced to pay a tax. Among consumers of copyrighted material, benefitting most would be those using most intensively the digital equipment and media that were subject to a levy. It is also unclear whether the amount of use for each copyrighted work could be tracked sufficiently accurately for all copyright owners - and particularly those offering relatively few creative works - to receive appropriate royalties.

However, because technological advance is increasing the diversity of ways in which music, movies and other copyrighted material can be consumed, a compulsory license fees could potentially reduce transactions costs on markets for creative content. The more comprehensive the range of uses of copyrighted material that were permitted consumers under a compulsory license for a broad class of creative works, the less time consumers would need to spend reading exhaustive licensing agreements for different copyrighted products within that class, the lower would be litigation costs incurred obtaining legal determinations of copyright infringement, and the lower would be enforcement costs (although those cost savings might be reduced by litigation contesting the royalty rate).

DRAFT

Broadly revise copyright law

Another potential revision to copyright law would be to modify it in favor either of copyright owners or consumers. Currently, copyright law is very complex, displaying the cumulative impact of amendments designed to accommodate specific changes in technology. Hence, a broad revision of copyright law could reduce the losses both from uncertainty with respect to its implications. For example, for fear of litigation consumers might shy away from engaging in some uses of copyrighted materials, and businesses might not offer some types of services involving copyrighted materials.

Revise in favor of copyright owners

One option is to reduce the types of uses of copyrighted material which currently qualify as limitations on the exclusive rights of copyright owners or, generally speaking, that qualify as fair use. That would mean that consumers might have to pay for some uses of copyrighted material for which they currently are not charged. For example, consumers might have to pay for the ability to make archival copies of computer programs, whereas now that practice is considered fair use. Presumably the price for making such copies would be set to compensate for the potential losses to software manufacturers from unauthorized redistribution.

DRAFT

To the extent that tightening fair use restrictions increased price differentiation among consumers, they could also increase efficiency. Indeed, some commentators argue that the rationale for fair use comes not from a balance between private incentives and societal benefits, but from considerations of minimizing transactions costs in obtaining authorization to use copyrighted material in particular ways. From that perspective, one result of improvements in communications technologies and data delivery may be that fair use is no longer needed as a remedy for such costs.⁵⁶

However, copyright law makes explicit provision for fair use in some activities where the benefits to society presumably outweigh the revenues denied to the copyright owner: criticism, comment, news reporting, teaching, scholarship, or research. Restricting fair use in those applications may not bring about as great an increase efficiency as elsewhere, because some socially beneficial uses of copyrighted material could become prohibitively expensive.

The potential difficulties of setting new prices for uses of some types of

56. See Benjamin Klein, Andres V. Lerner and Kevin M. Murphy The Economics of Copyright “Fair Use” in a Networked World, *American Economic Review*, May, 2002, pp. 205-208 and, for a defense of fair use in spite of reduced transactions costs, Ben Depoorter and Francesco Parisi, “Fair Use and Copyright Protection: A Price Theory Explanation,” *Working Paper No. 01-03*, George Mason University School of Law, 2001.

DRAFT

copyrighted material also argue against too great, or rapid, a tightening fair use at present. In setting prices for online music downloads, for example, the music industry continues to experiment with pricing intellectual property that is well-defined and for which markets in other formats have existed for some time.⁵⁷

Such pricing difficulties may be especially present when the value of consumer uses is difficult to determine for technological reasons. For example, purchasers of computer software inscribed on a CD-Rom may wish to be able to make a back-up copy in case the original disk becomes damaged or reveals itself to have be defective. Because such digital media are relatively new, their durability is still unclear. In the event - until recently considered unlikely - that a CD-Rom were to deteriorate materially and the software program stored on it to become inaccessible, the ability to have made a back-up copy could turn out to be unexpectedly valuable or, conversely, the value of a software program that could not be archived could turn out to be unexpectedly low.⁵⁸

57. See Ethan Smith, "Downloading Music Gets More Expensive," *The Wall Street Journal*, April 7, 2004, and Amy Harmon, "What Price Music?" *The New York Times*, October 12, 2003.

58. See Peter Svensson, "CDs and DVDs Not So Immortal After All," *Associated Press*, May 6, 2004.

DRAFT

Finally, where competitive pressures on markets for copyrighted works were weak the efficiency of differential pricing schemes could conceivably be compromised if fair use were sharply curtailed. Where consumer valuations are determined by versioning - i.e., setting prices that vary across groups of consumers based on each group's shared use of a particular version of the same product - the supplier can have an incentive to make the least attractive variant of very poor quality, in order to induce consumers to purchase a more feature-rich variant.

For example, some railroads in the 19th century put third-class carriages in the front of trains, which exposed them to cinders from the engine compartment, in order to force all those who could afford to pay more into more comfortable second- and third-class carriages. A more contemporary example of such practices is the "damaged good" approach, in which a low-cost version is purposefully made inferior in order to induce customers to purchase a higher-quality variant.

Economic efficiency in those outcomes is compromised because the characteristics and price of the lower-quality variant are set not so much to respond to demand in the low willingness-to-pay market niche, but to motivate customers to opt for variants of higher quality and price. To the extent that fair

DRAFT

use is restricted, and consumers of copyrighted material would be able to engage in only a few uses of a creative work for which they would not have to pay, copyright owners could similarly manipulate the product spectrum.⁵⁹

Another approach to revising copyright law in favor of copyright owners would be to strengthen the anti-circumvention and enforcement provision of copyright law. Again, to the extent that such measures would increase differential pricing, by preventing consumers from making use of copyrighted products in ways for which they had not paid, economic efficiency could be increased.

However, it is important to consider the particular implementation of those enforcement provisions. For example, several bills (recent legislation has envisioned either mandating use of a specific technology in order to insure the security of creative works in digital format (S. 2048), or safe harbor for copyright owners who access the computers of those suspected of copyright infringement in order to identify and disable infringing material (H.R. 5211). Either case could result in an outcome detrimental to both efficiency and equity.

59. See Andrew Odlyzko, "Privacy, Economics and Price Discrimination on the Internet," in *ICEC2003: Fifth International Conference on Electronic Commerce*, N. Sadeh, ed., ACM, 2003, pp. 355-366, and available at <http://www.dtc.umn.edu/~odlyzko/doc/recent.html>.

DRAFT

From the perspective of efficiency, technology mandates could stymie innovation. For example, forcing new digital technologies to conform to a particular security standard for digital content could potentially rule out the development of superior products. As well, concern about susceptibility of being (unjustly) hacked by copyright owners exploiting a safe harbor, could deter individuals from using and experimenting with the Internet.

From the point of view of equity, were a technology mandate to impose costs on either manufacturers of digital hardware and software or purchasers of that equipment. In the event that the mandated copyright protection technology was thwarted, the cost to develop that technology may be unrecoverable. Were existing digital products rendered obsolete by the mandated technology, that would impose costs on consumers of existing products. In the case of a safe harbor, owners of computers are forced to share some burden, in the form of potential damages to their equipment from online enforcement efforts, in order for copyright owners to protect their property.

Other types of enforcement measures could, if poorly designed, have detrimental impacts on both efficiency and equity. For example, not all copyright owners may wish to prevent the same type of unauthorized uses of their creative works. As the

DRAFT

Supreme Court wrote in its decision in *Sony v. Universal Studios*, in contrast to the movie industry, owners of copyrights on other types of television broadcasts may in fact have wished for viewers to be able to make unauthorized tapes of their programming (e.g., in order to expand their audience). Declaring manufacturers of videocassette recorders liable for copyright infringement would have protected the rights of the movie industry at the expense of other copyright owners.

Similarly, a poorly designed enforcement measure could deprive some copyright owners of making their content as widely available to consumers as they would wish. Such a measure would be both inefficient, since copyright owners and consumers respectively would be deprived of supplying, and consuming, copyrighted material at a cost that each party was willing to bear, as well as inequitable, since one group of copyright owners would benefit at the expense of other copyright owner and consumers.

Revise in favor of consumers

Several bills have proposed to increase the rights of consumers of creative content. For example, H.R. 1066 would significantly expand the range of activities which qualify as fair use, and require copyright holders to aid consumers in making fair use of their content.

DRAFT

In theory, the efficiency implications of an expansion of fair use are the opposite of those from increasing price differentiation. If copyright owners were able to charge for fewer types of uses of their material, they would have to raise the price on those uses for which they could charge. The resulting higher prices could prohibit consumption of that material by some consumers. The decrease in overall receipts to copyright owners could also reduce the supply of creative works, were creators not able to devote as much time or resources to their efforts as before.

In general, copyright owners would then have to devise new business models to accommodate the diminished control which they could in future exercise over their intellectual property. However, advances in Information Technology may facilitate the development of such new business models, by allowing in particular cost savings or new opportunities for production, marketing and distribution which could offset those revenue losses.

For example, after following a strategy of trying to thwart and to prosecute infringers, software companies have opted to encourage licensed use by providing those users with product updates and customer service. In the future, recording companies could evolve from artistic development and marketing enterprises to

DRAFT

businesses that help music listeners navigate through a catalog of essentially self-produced artists (thanks to advances in digital recording techniques) both to find matches for their existing music preferences as well as to develop new ones.

Television broadcasters and movie makers could make up for traditional advertising or royalty receipts by increasing the supply of television-on-demand and using information gained in providing that on-demand service to focus and improve advertising efforts.

From the standpoint of equity, the effects of revising copyright law in favor of consumers of creative material would be a transfer from copyright owners to consumers. However, for some incumbent copyright holders, losses suffered from diminished control over their creative works may already have been compensated in part through recent legislation extending the duration of copyright protection.⁶⁰

60. See “The Copyright Term Extension Act of 1998: An Economic Analysis,” *Brief 02-1*, *AEI-Brookings Joint Center For Regulatory Studies*, May, 2002, and Mark A. Lemley, “Ex Ante versus Ex Post Justifications for Intellectual Property,” forthcoming, *University of Chicago Law Review*.

DRAFT

CONCLUDING REMARKS

Historically, U.S. copyright law has sought to balance private incentives to engage in creative activity with the social benefits that arise from the widespread availability of creative works. The emergence of new technologies, for example, the copy machine and the videocassette recorder, has in the past threatened to tilt the scales of the existing copyright regime by loosening the control that copyright owners enjoy over subsequent uses of their works. On its own, such a development could reduce the ability of creators and distributors of copyrighted material to profit from their efforts and, in principal, undesirably restrict the future supply of creative works. In those and other cases, however, balance - perhaps imperfect when held against the standard of economic efficiency - has been maintained by judicial interpretation of existing copyright law, new legislation, and the ability of the holders of copyrights and the industries that market and distribute creative products eventually to apply those new technologies to generate returns large enough to maintain the flow of new creative works.

DRAFT

Ongoing advances in digital technology may similarly allow for a resolution to current copyright disputes. In particular, Digital Rights Management technologies offer the prospect of approaching an economically efficient outcome in which each consumer would pay according to their valuation of the copyrighted product, sometimes called a consumer's "willingness to pay". In that way, the marginal consumer would pay a low marginal price, while those consumers with higher valuations could, by paying accordingly, provide higher revenues to the copyright owner; together, these revenues could be sufficient to cover the up-front costs of creation. Numerous qualifications aside, contemporary advances in digital technology may enable, for the first time, the emergence of markets for creative works that better approximate that efficient outcome.

However, revisions to copyright law may also be necessary. Although economic theory may not be able to determine the precise copyright regime necessary for economic efficiency, i.e., for society to obtain the largest net benefit possible from the creative efforts of its members, it can provide insights into the most appropriate way to structure private incentives and social benefits on markets for creative works. With that perspective, it is possible to state useful principles for legislative deliberations of revisions to copyright law in the presence of technological change:

DRAFT

- Property rights and other elements of a regulatory regime for creative works, should be considered simply as instruments for allocating creative resources. Hence, existing copyright law should not be considered as an absolute, inviolable set of rights to which either creators or consumers are entitled. Rather, those laws should be assessed with regard to their consequences for efficiency on markets for creative works and other products;

- Revisions to copyright law should be made with particular emphasis to promoting society-wide benefits and without regard either to the propagation of incumbent economic models of production and distribution of creative works, or to the vested interests of business and consumer groups;

- Property rights are not free. For a system of property rights to become accepted and adhered to, the costs of establishing and enforcing that regime must not exceed the eventual benefits from it. Because periods of technological change are most apt to result in unintended consequences from modifying copyright law, revisions to it should be undertaken with great circumspection.