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The perils of copyright regulation

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Abstract The most robust framework for understanding the evolution and consequences of copyright statutes in the United States is the dynamics of interventionism. I apply the framework of Kirzner's (1985) perils of regulation to the general revision of copyright law in 1976, and explore its effects on entrepreneurship and discovery processes. Critics of copyright commonly recognize the distortions of rent-seeking, but I emphasize the utility of interventionism to explain the "unsimulated" and the "stifled" discovery processes set in motion by copyright interventions, which use legal processes to allocate resources, and deter future discovery by raising transaction costs.

Keywords Copyright · Regulation · Intellectual Property · Market Process · Interventionism

JEL Classification B25 · N42 · K39

1 Introduction

Copyright in the United States stands as an undiscovered example of the logic of interventionism. Economists since Adam Smith (1776: Book I, Ch. I, Part 3) have always viewed copyright and intellectual property (IP) rights in general as a necessary legal instrument to provide a public good. In recent years, a number of scholars have attempted to frame an understanding of intellectual property rights and their controversies in a more robust (and often critical) light. Kinsella (2008) notably argues that IP rights are incompatible with ordinary property rights in tangible property. Boldrin and Levine (2008) make a detailed empirical argument that strong IP laws can prove to be detrimental to innovation and creation. Dourado and Tabarrok (2014) summarize the opportunities for how introducing public choice and Bloomington school perspectives can develop further insights into IP's use and abuse. Bell (2014) grounds an analysis of the excesses of copyright in particular through a comparison to common law, noting that copyright is more privilege than property right, and proposes policy solutions to better align it with common law.

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These largely critique the existing classic literature, which argues that intellectual property rights are a necessary response to a market failure of underprovision of creative goods. In the presence of creative goods, the market process remains undiscovered (Kirzner 1985), since ideas, inventions, and art can be easily replicated at low marginal cost, and consequently the incentive to invest in their antecedent large fixed costs is weakened. Thus, experts in IPR traditionally argue that in order to recoup these costs and restore the incentive to invest, intellectual property rights must be granted to secure a temporary monopoly over production and distribution, but carefully calibrated so as to not encourage too much deadweight loss from lost competition (Arrow 1962; Nordhaus 1969; Gilbert and Shapiro 1990; Klemperer 1990; Besen and Raskind 1991).

I argue that the contributions of market process economics can further develop new insights by viewing the entrepreneurial and informational consequences of copyright regulation. I use the logic of interventionism, specifically Kirzner's (1985) insights of the perils of regulation, to serve as this framework for understanding the effects of copyright regulations. This framework is useful because it recognizes the contributions of previous scholars on the effects of copyright regulation on entrepreneurship, while also expanding the analysis to cover other unforeseen and less-studied distortionary effects on discovery.

Kirzner (1985), echoed by Ikeda (1997; 2005) identifies four major channels of regulatory distortion: (1) *the undiscovered market process,* or the absence of awareness about the error-correcting abilities of the market process; (2) *the unsimulated discovery process*, or the absence of a knowledge-generating discovery process analogous to the market process such as the price system, property rights, and profit and loss, which does not assist political agents in reducing errors; (3) *the stifled discovery process*, whereby current market conditions are obscured by intervention, reducing the ability of entrepreneurs to detect and act upon profit opportunities; and (4) *the wholly superfluous discovery process,* whereby new, often unsavory, profit opportunities are unintentionally created as a result of the intervention such as rent-seeking opportunities.

Scholars studying intellectual property rights have primarily concerned themselves with the effects of the wholly superfluous discovery process, recognizing the new political opportunities for producers to generate rents at the expense of new innovators (e.g. Boldrin and Levine 2008; Brito 2012; Johnson 2012; Dourado and Tabarrok 2014; Bell 2014). This line of thinking focuses on how the logic of collective action (Olson 1965) incentivizes small interest groups within these industries to lobby or capture the regulatory apparatus and wield it in their favor (Stigler 1971). Publishing houses, film studios, record labels, and their associated trade groups have had a powerful effect on the creation of copyright statutes and jurisprudence, rendering the law ever more in their favor by extending copyright duration, extending the definition of copyright and infringement, and increasing penalties for infringement. Through this process, they are able to maximize economic rents, as employing the legal system to defend existing work may prove more profitable than actually creating and innovating new material in markets.

The primary contribution of this paper, however, is to combine these documented incentive problems associated with copyright regulation along with the insights of the effects of knowledge limitations to form a coherent framework for exploring the effects and evolution of copyright. Wholly superfluous rent-seeking behavior by producers and industry groups may be the most visible consequence of copyright expansion, but it

is only the tip of the iceberg of distortionary effects. I aim to highlight the neglected importance of the effects of the unsimulated and stifled discovery processes on the creative industries.

Policymakers face limitations on their ability to comprehensively design, apply, and enforce copyright law due to the inherently different dynamics of the political and the market process. Policymakers and established industry players cannot know the profit opportunities that future market conditions will bring, and tend to view them more as threats to be strangled rather than opportunities for new revenue streams. Where prices and markets are blocked from discovering efficient uses of creative resources by legal fiat, the only way to approximate efficient allocative adjustments in is to engage in expensive legal battles in courts and settlements. These create high transaction costs and deter future creation, limiting the ability of entrepreneurs to discover new profit opportunities and ways to satisfy consumers. As the number of players holding legal veto-powers over new market developments increases, the range of abilities for individuals to use or recombine their own property for personal or commercial use narrows.

Further, as enforcement of copyright regulation is entirely dependent upon private copyright-holders engaging unauthorized users in infringement disputes, this topic uniquely highlights how an intervention originating in a government regulation that is delegated to and enforced via private means still provides significant distortionary effects. As such, it serves for a more robust understanding of the Kirzner-Ikeda theory of interventionism, applying it to a subject that appears to be a purely private matter between property-right holders, but instead carries the effects of a prior government policy.

I select the 1976 Copyright Act to serve as the "initiating" intervention, which first deviated from the baseline regime of "non-intervening" interventions prior to 1976 (Bradley 2005: 302).[1] This statute serves as the foundation for the modern copyright legal regime. It was the first general revision of copyright statutes in centuries, and its unprecedented overhaul set in motion a series of subsequent acts of Congress and federal court cases to correct the unanticipated consequences of its own inadequacies. This intervention serves as the appropriate baseline due to the relative stability of the (1) scope, (2) bundle of rights granted, (3) duration of protection, and (4) the procedure for acquiring copyright protection prior to its passage. The 1976 Act was the first substantial departure from precedent across all four margins, setting in motion both the incentive and information dynamics which would alter the incentives and knowledge of private actors, as well as render future government actions necessary to correct its shortcomings.

2 The intervention: 1976 copyright act

2.1 Copyright before the act

Prior to 1978, copyright law in the United States was much more limited in scope, bundle of rights, duration, and acquisition procedure. Copyright protection derives from the so-called "copyright clause" of the U.S. Constitution, which authorizes

[1] The act was passed and signed into law in 1976 but did not take effect until January 1, 1978.

Congress "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" (US Constitution, Article I, §8). Congress first implemented this mandate with the Copyright Act of 1790. The act was transplanted almost verbatim from the English 1710 Statute of Anne, which first introduced the concept of statutory copyright in the modern world (Patterson 1993; Boldrin and Levine 2008; Johnson 2012).

The critical elements of this act, which would remain relatively constant over the next 186 years, were (1) the scope of works covered, (2) the bundle or rights granted, (3) the duration of protection, and (4) the acquisition procedure: Individuals could only seek protection for "maps, charts, and books," would receive the exclusive right to publish and print their work (and transfer this exclusive right to others, and enjoy this protection for 14 years, with the option to renew their copyright for another 14 years if they were still living (and met other conditions) (Copyright Act of 1790). Finally, in order to obtain these privileges, authors were required to register and deposit a copy of their work with the Copyright Office (*ibid.* §3).

Copyright was designed only to protect a small group of publishers for commercial uses. In 1790, there were only 174 publishers in the United States, and of the number of works that were eligible, only 5 % opted to obtain copyright protection of their work (Lessig 2004: 137). This further explains the requirement to affix copyright notices to works: when copyrighting seems to be the exception not the rule, a publisher must make it clear to others that he wishes to join the minority who has their work protected.

Only two other major Acts of Congress on copyright were passed between 1790 and 1976, and maintained the general spirit of the 1790 law. The Copyright Act of 1831 simply amended the 1790 Act by doubling the original term from 14 to 28 years, while maintaining the optional 14-year renewal term, extending the maximum duration of protection to 42 years.[2] The Copyright Act of 1909 doubled the renewal period from 14 years to 28 years, granting a total maximum protection of 56 years. It also extended protection to "unpublished works designed for exhibition, performance, or oral delivery," and that "proprietors of musical compositions were granted initial mechanical recording rights, subject to a compulsory licensing provision"[3] (Rudd 1969: 141). It further affirmed that copyright protection is *only* secured "by the publication of the work with notice of copyright" affixed (ibid: 141). This removed any doubts about works that were not registered, they were officially considered a part of the "public domain" and no copyright protection was available for them.

2.2 Copyright since the 1976 act

The Copyright Act of 1976 and subsequent amendments to 17 U.S.C. featured the following four major changes to the prior regime:

[2] It also first extended copyright protection to "musical composition," but only in printed form as sheet music, rendering them no different from printed books (Bracha 2008).

[3] This licensing provision allowed anyone to make a mechanical reproduction of a musical composition without consent of the owner, provided the copy adhered to the terms of the license under section 1(e) of the act (Copyright Office 1973: 66).

2.2.1 Scope of works protected

The Copyright Act of 1976 defines the categories of works that are eligible for protection as:

(1) literary works;
(2) musical works, including any accompanying words;
(3) dramatic works, including any accompanying music;
(4) pantomimes and choreographic works;
(5) pictorial, graphic, and sculptural works;
(6) motion pictures and other audiovisual works;
(7) sound recordings[4]

(17 U.S.C. §102).

This coverage now extends to works far greater than the "maps, charts, and books," covered under the previous regime. The greater scope of copyrighted activities implies a radical shift in the property rights structure. Today, instead of targeting only the rights of commercial publishers to publish their works for commercial use, it now restricts the freedom of individuals to engage in activities with their own property.

2.2.2 Bundle of rights granted

Under the Copyright Act of 1976, the copyright holder now "has the exclusive rights to do and to authorize any of the following:

(1) to reproduce the copyrighted work in copies or phonorecords;
(2) to prepare derivative works based upon the copyrighted work;
(3) to distribute copies or phonorecords of the copyrighted work to the public by sale or other transfer of ownership, or by rental, lease, or lending;
(4) in the case of literary, musical, dramatic, and choreographic works, pantomimes, and motion pictures and other audiovisual works, to perform the copyrighted work publicly;
(5) in the case of literary, musical, dramatic, and choreographic works, pantomimes, and pictorial, graphic, or sculptural works, including the individual images of a motion picture or other audiovisual work, to display the copyrighted work publicly; and
(6) in the case of sound recordings, to perform the copyrighted work publicly by means of a digital audio transmission."

(17 U.S.C. §106)

The greatest addition is the exclusive right to (2) prepare derivative works, which implies that no other individual has the right to do so. Until the 1976 Act, copyright only granted the exclusive right to publish the original work, allowing others to marginally improve upon the original work and sell it as their own (i.e. create a derivative) without worrying about infringement (Lessig 2004). Derivatives account

[4] (8) architectural works" was added by the Architectural Works Copyright Protection Act of 1990.

for a vast amount of material tied to the original work, which vastly restricts the creative ability of individuals by raising their cost of innovation, while simultaneously consolidating market power to existing copyright holders (Boldrin and Levine 2008).

2.2.3 Duration of protection

Prior to 1976, the maximum copyright protection available was 56 years (28 year initial protection with an optional 28 year renewal). The 1976 Act substantially increased the term in two ways. First, it extended protection for "a term consisting of the life of the author and 50 years after the author's death" (17 U.S.C. §302). Anonymous, pseudonymous works, and works-for-hire by a corporate body were granted protection for 75 years. Additionally, any non-expired copyright that existed prior to the enactment of the law on January 1, 1978 was retroactively extended to 47 years, making the total protection one of 75 years (17 U.S.C. §304).[5]

Furthermore, the new law did away with the two-stage structure of copyright: instead of an initial term with optional renewal period, copyright is now a "one size fits all" period: the maximum term.[6]

2.2.4 Acquisition procedure

Under the 1909 Copyright Act, any work that was published but not containing a copyright notice affixed on the work did not receive copyright protection, and was considered a part of the public domain. The new 1976 Act granted copyright protection to any work that is "fixed in a tangible medium of expression" (17 U.S.C. §101).

Most significant in this wording is the omission of the requirement to affix the work with a notice of copyright. The familiar © symbol or the word "copyright" are no longer are necessary for a work to ensure protection.[7] Instead, all that is required is that a work be instantiated in a tangible form. Copyright is now automatic, quite literally as soon as one puts pen to paper, the resulting work can potentially enjoy copyright protection (Lessig 2004: 137).

Furthermore, in addition to affixing a notice of copyright to the work, authors had always been required to register and deposit a copy of their work with the Copyright Office to obtain protection. The 1976 Act reversed this precedent, declaring "[s]uch registration is not a condition of copyright protection" (17 U.S.C. §408). Registration is still made available to authors, and is a prerequisite to claim remedies at civil law for copyright infringement.[8] As a result, presently any work that fits within the above 8 categories is automatically copyrighted as soon as it enters existence through a tangible medium.

Table 1 summarizes the major differences between the two copyright regimes. Copyright historically was a relatively modest legal and economic protection policy

[5] Today, due to an additional 1998 Act of Congress, the term is even greater, as explained in section 4

[6] The Copyright Renewal Act of 1992 did away with the renewal period for copyrighted works published before 1978, completing the transition to all copyrighted works enjoying the single maximum term.

[7] Of course, it has become the norm due to its presence providing greater evidence against infringement in civil court cases.

[8] However, even without registration, copyright holders may still successfully sue infringements if the Register of Copyrights becomes a party to the suit, or if a court determines otherwise (17 U.S.C. §411).

Table 1 Major differences between copyright regimes before & after the 1976 Act

Margin	Regime Era	
	1790–1976	1976–present
Scope	Literary works (books, maps, charts)	Literary works
	Musical works (printed only, after 1831)	Musical works
		Dramatic works
		Choreographs
		Visual arts
		Motion pictures
		Sound recordings
		Architectural works (after 1990)
Duration	28 years & (28 year renewal option)	Author's life+70 year
		OR
		90/120 years (corporate works)
Exclusive right	To publish	To publish
		To prepare derivates
		To perform (audio/visual)
Procedure	Publish	Fix in tangible medium
	Affix copyright notice	
	Register with copyright office	
	Deposit copy with copyright office	

for a small group of publishers explicitly claiming its use. In modern times, it has been transformed into a broad grant of restrictive "rights" and veto-claims to nearly anyone automatically. This was bound to create new conflicts, both seen and unseen.

3 The perils of modern copyright regulation

Following the framework of Kirzner (1985), this section describes the general contour of the effects on entrepreneurship and the evolution of copyright since the 1976 Copyright Act. I begin with reviewing the best-explored effect of copyright, the wholly superfluous discovery process of industry rent-seeking and regulatory capture. I then outline and explore two of the under-explored effects, the unsimulated and the stifled discovery processes generated by copyright regulation.

In general, this comprehensive framework describes the specific channels through which major developments in technology and the government process generate economic distortions. Similar effects can often be seen to repeat with the introduction of the cassette tape, the VCR, the DVD, the mp3, and the torrent file. Additionally, this framework can connect the causes and the consequences for the major statutes that have emerged in the last 30 years to augment the lacunae in the 1976 Copyright Act in response to these distortions, while simultaneously generating them anew.

3.1 The wholly superfluous discovery process

> "Whenever a copyright law is to be made or altered, then the idiots assemble." - Mark Twain (Time 1976)

The most visible consequence and best-developed scholarly (and popular) criticism of modern copyright has been the incentives created for copyright holders (or their industry advocates) to engage in rent-seeking. Indeed, nearly all the criticism of the traditional view of intellectual property rights by scholars and pundits have been along public choice lines: arguing that copyright does not increase innovation, but instead causes creators to *slow* original creation by generating stronger incentives that promote the acquisition and enforcement of monopoly rights solely to quash their competition (Lessig 2004; Boldrin and Levine 2008; Johnson 2012; Bell 2014). Regulation over the content industry is, just like many other forms of regulation, so often captured by the very special interest that regulators aim to restrain (Stigler 1971).

A wealth of research and populist outrage in media has documented the effects that modern copyright has had on the content industry's ability and motivation to lobby Congress. Following the logic of collective action (Olson 1965), small but strongly organized interest groups such as the Recording Industry Association of America (RIAA) and the Motion Picture Association of America (MPAA), which each constitute a collection of major record labels and movie studios respectively, have been able to exert their political influence over copyright statute and jurisprudence.

Litman (1987, 2006) and Patry (1996) document the nature of the legislative process through which modern copyright statutes are crafted: "most of the statutory language was not drafted by members of Congress or their staffs at all [but] instead through a process of negotiation among authors, publishers, and other parties with economic interests in the property rights the statute defines" (Litman 1987:861).

The best evidence for the effects of the wholly superfluous discovery process is the collection of relevant statutes Congress has passed since 1976 affecting copyright. Nearly all of them come down in favor of copyright holders, who have pushed Congress to extend (often retroactively) the duration of existing copyrights, and to increase the severity of punishment for copyright infringement.

Copyright duration has been effectively extended twice since the 1976 Act, first in 1992 with the Copyright Renewal Act which removed the optional renewal of pre-1978 works, automatically extending them to meet the new maximum term; and second, with the 1998 Copyright Term Extension Act (CTEA), which extended copyright protection to the life of the author plus 70 years, and for corporate authors, 90 years after the date of creation or 120 years after the date of publication, whichever occurred first (Public Law 105–298 §102). Notably, the CTEA *retroactively* extended the copyright of previous works such as Disney's *Steamboat Willie*, and combined with Disney's $800,000 in contributions during the 1997 campaign cycle, this prompted some to call the act the "Mickey Mouse Protection Act" (Lessig 2004:218). For all of the industry's efforts, Boldrin and Levine (2008: 101) estimates that the revenue boost to authors from the CTEA was a mere 0.33 %. In general, over the last decade, expenditures on lobbying efforts from

these industries have increased by 425 %, from $4 million in 2000 to $17.5 million in 2009 (Gain 2011).

Industry players have also encouraged Congress to pass tougher laws against individuals and technologies that risk infringing copyright. The No Electronic Theft Act ("NET Act") of 1997 provided criminal sanctions against individuals who infringe copyright, even if there is no commercial gain. It sets penalties of up to $250,000 in fines and 5 years in prison. The Digital Millennium Copyright Act ("DMCA") of 1998 criminalizes the production and use of any technology which can be used to circumvent digital rights management (DRM) controlling access to copyrighted material. This was made a crime regardless of whether or not the technology was used to actually infringe copyright.

Through these mechanisms, copyright holders and their agents can at best, maximize rents, and at worse, minimize losses from competition. This *wholly superfluous discovery process*, however, is but one major channel of regulatory distortion among others, albeit perhaps the most visible to the public and scholars.

3.2 The unsimulated discovery process

> "Only one thing is impossible for God: to find any sense in any copyright law on the planet." - Mark Twain (Time 1976)

Not trusting innovation to be left purely to market forces, the changes inspired by the Copyright Act of 1976 further substituted the political process for market processes in determining property rights over artistic creations. Due to the nature of the political process, which has no market prices to guide action efficiently, copyright law has developed quite cumbersomely. Changes in market conditions, especially the introduction of new technologies, result in greater discoordination and uncertainty regarding property rights over creations.

Due to the "unsimulated discovery process," policymakers were unable to anticipate future technological conditions that would result in copyright protection yielding greater conflict and discoordination (Kirzner 1985; Ikeda 1997). New advances in music, video, and computer technology brought greater regime uncertainty than stability. These developments were unanticipated by the original statutes, and thus would challenge the content and applicability of the statutes. Ultimately, courts would make initial rulings to carve up new property rights. In response to this and further unforeseen technological advances, new statutes would be passed by Congress to attempt to enforce copyright amidst greater levels of infringement.

These new developments are not only unknown, but *unknowable*, as it is the process of entrepreneurial discovery through prices and profits and losses which establish the best use of resources (Hayek 1945; Buchanan 1982). As Kirzner (1985: 131) notes, "[t]o announce that one can improve on the performance of the market, one must also claim to know in advance what the market will reveal." Industry groups and policymakers cannot foresee profit opportunities, and tend to only view new developments, from cassette tapes to torrents, as threats to established business models. Boyle (2008:63–64) calls this the "20/20 downside" effect – where policymakers and

entrenched industries see threats of new technology to their business, but fail to recognize the potential profit opportunities. For example, the rise of the videocassette recorder (VCR) in the 1980s was viewed as a threat by film studios for its ability for consumers to record and copy television and movie programming. This lead MPAA president Jack Valenti to testify before Congress in 1982 that the MPAA was "fighting a terrorist war" (Valenti 1982: 65) against pirates defiling private property rights,[9] and ultimately lead to the decision in the famous *Betamax* case[10] where the Supreme Court permitted use of VCRs and as fair use. Of course, the VCR lead to the emergence of the video rental market, which turned out to comprise about *half* of the film industry's revenues prior to DVDs (Boyle 2008: 64).

In general, the two central challenges in the legal history of copyright since 1976 have been "is X copyrightable?" and secondly, "does action Y violate existing copyright?" The law provided by the 1976 Act insufficiently described all of the potential technologies that could fall under the seven categories of copyrightable works. Indeed a 1976 report by House of Representatives affirms this shortsightedness,

> Authors are continually finding new ways of expressing themselves, but it is impossible to foresee the forms that these new expressive methods will take. The bill does not intend either to freeze the scope of copyrightable subject matter at the present stage of communications technology or to allow unlimited expansion into areas completely outside the present congressional intent. [The bill] implies neither that that subject matter is unlimited nor that new forms of expression within that general area of subject matter would necessarily be unprotected (Kastenmeier 1976: 51).

Since Acts of Congress do not have a feedback mechanism analogous to the price system of the market, they cannot calculate whether the law will generate efficient results. The only feedback for the potential efficiency of a copyright is for it to enter into an expensive and protracted legal battle between private agents. Thus, the courts are forced to determine what statute cannot.

In answering the first challenge, courts have had to determine whether copyright protection covers, e.g. computer software (it does),[11] images and sounds in video games (it does),[12] computer RAM (it does),[13] and what constitutes the minimum creative effort sufficient to obtain a copyright.[14]

In answering the second challenge, courts have had to determine what infringes copyright and how to sanction infringement, e.g. whether or not infringement of copyright is "stealing" (it is different from physical theft),[15] whether sampling music violates copyright (it does),[16] whether technologies which allow recording of content

[9] In light of this invisible upside effect plus the wholly superfluous discovery process, this argument has aged so well that one might expect Valenti to be discussing Napster or Bittorrent, rather than the VCR.
[10] *Sony Corp. of America v. Universal City Studios, Inc*., 474 U.S. 417 (1984)
[11] *Apple Computer, Inc. v. Franklin Computer Corp*., 714 F.2d 1240 (3rd Cir. 1983)
[12] *Stern Electronics Inc. v. Kaufman*, 669 F.2d 852 (2nd Cir. 1982)
[13] *MAI Systems Corp. v. Peak Computer, Inc*, 991 F.2d 511 (9th Cir. 1993)
[14] *Feist Publications, Inc., v. Rural Telephone Telephone Service Co*., 499 U.S. 340 (1991)
[15] *Dowling v. United States*, 473 U.S. 207 (1985)
[16] *Grand Upright Music, Ltd. v. Warner Bros. Records, Inc*, 780 F.Supp. 182 (S.D.N.Y. 1991)

for personal use (e.g. Video Cassette Recorders) infringe copyright (they do not, they are "fair use"),[17] and whether file sharing software owners can be held liable for vicarious and contributory infringement by enabling infringement by their users (they can be).[18]

This is a mere sample of the myriad court cases (and their appeals) that have emerged in the last 40+ years to resolve the two difficult challenges above. For each and every new technology, there is an equal and opposite court case challenging its legality. This process reiterates itself each time a new technology emerges in the market (e.g. cassette tapes, VCRs, PCs, floppy disks, CDs, DVDs, mp3s, internet websites, peer-to-peer networks, and torrents).

3.3 The stifled discovery process

The results of the Copyright Act's changes to property rights over creations have also led to distortions in the regular discovery process of markets. The evolving definition of which goods are copyrightable, and the list of potential acts that infringe copyright and risk criminal sanctions has restricted the set of activities that one can engage in with their own property, and the permissible contractual provisions that must be met for a legal exchange. These restrictions have emerged largely as a result of the extension of copyright's scope, the bundle of rights granted, and the relaxation of copyright acquisition procedures.

Prior to the 1976 Act, copyright was limited to primarily publishing books, maps, and charts (and to a lesser extent, after 1830 and 1909, musical compositions). Since 1976 it has expanded to cover not just these works, but also dramatic works, choreographs, visual art, motion pictures, sound recordings, and (with the 1990 Act) architecture. These nature of these "performance goods" requires that copyright provide a new kind of right to creators not only to exclude people from viewing these acts without permission, but for other people to perform the act for any reason without consent. Thus, if one wanted to watch the play *Westside Story* being performed, must go to Broadway in New York, which has purchased the rights to perform the play from the author. However, one cannot perform a rendition of this play outside of their own house, even if they did not charge admission.

The extension of copyright over sound recordings also caused considerable structural impact on the music industry, especially after the 1991 ruling in *Grand Upright Music*, which found that sampling music infringes copyright. This ruling has had a disproportionate impact on the development of hip-hop and rap genres of music, which heavily featured small samples of previous works to create new, complex songs (Lindenbaum 1999; McLeod 2005). Artists must now clear each individual sample from the previous owner by purchasing the right to play those precious seconds. This creates incentives for artists to try to work around these barriers, such as the current trend of "interpolation," of re-recording the original sample with new instrumentals and other slight modifications (such as changing the vocals) and compensating the original songwriter with a smaller royalty. This also explains a lot of the "not quite the original" soundtracks behind many contemporary television and radio advertisements.

[17] *Sony Corp. of America v. Universal City Studios, Inc.*, 474 U.S. 417 (1984)
[18] *A&M Records, Inc. v. Napster, Inc.,* 239 F.3d 1004 (2001)

Additionally, with the major extension of copyright to cover preparation of derivative works, which are the vast majority of new creative works, a far greater swath of inputs now are copyrighted and prevented from free use in future creation (Lessig 2004; Boldrin and Levine 2008). Traditionally, one has been able to create a new work based off of a previously existing (and copyrighted work), so long as they substantially altered the previous work in distinguishable way. The Supreme Court has upheld this precedent in *Feist*. As an iconic example, Walt Disney's famous 1928 film *Steamboat Willie*, featuring the first instance of Mickey Mouse, was a parody of a previously existing 1928 film *Steamboat Bill, Jr.* What distinguished *Steamboat Willie* from *Steamboat Bill* was the introduction of sound to accompany the visuals. However, such an unlicensed creation today would be more likely a violation of copyright (barring limited fair use), with the right to prepare derivatives held exclusively by the creator (Lessig 2004: 22–23; Boldrin and Levine 2008: Ch.7).

Furthermore, as a result of additional laws passed in the 1990s, the ordinary discovery process in the market continues to be stifled by other restrictions and regulations. The No Electronic Theft (NET) Act of 1997 criminalizes any action that infringes copyright even if there is no monetary gain. That is, any unauthorized action which uses copyrighted material, such as performing a play, screening a movie, reading aloud a book, in public, even if one is not charging admission or otherwise receiving anything in exchange is no longer permitted. The 1998 Digital Millennium Copyright Act (DMCA), among other things, further criminalizes the production and distribution of devices that have the potential to circumvent copyright, holding the manufacturer and retailer liable (Copyright Office 1998). This has led to some notorious clashes, one notable one is ongoing - between Viacom and Google,[19] over the claim that Google's mega-popular YouTube video-streaming service is a vehicle "brazen" and "massive" copyright infringement, for which Viacom is seeking $1 Billion in damages. Aside from expensive commercial disputes, many have argued that the DMCA also produces a "chilling effect" on academic research, product innovation, and engineering for legitimate purposes (Lohmann 2010). Lessig (2004: 155–157) documents a case of legal threats against legitimate research by Edward Felten for the U.S. government in the Microsoft Antitrust case in the 1990s, where Felten was nearly prevented from presenting his cryptography research at an academic conference by the DMCA.

New technologies, such as mp3s or torrenting, which are intended to bring value to consumers and better coordinate economic interactions by lowering transactions costs, actually can end up bringing greater economic *dis*coordination. While it would be true that any improvement in technology would disrupt existing business models or property right values, under copyright, specific types of production and entry are blocked by legal fiat, not by threat of entry or being outpriced by rival competitors. Copyright statute has created a class of veto-holding entrepreneurs who can block the production of others in a tragedy of the anti-commons (Heller and Heisenberg 1998; Heller 2008; Buchanan and Yoon 2000). Furthermore, copyright causes entrepreneurs to channel a significant portion of business expenditures (potential consumer surplus), and occasionally personal expenditures, into litigation over copyright disputes. Between 2001 and 2009, the cost of the average copyright lawsuit rose 73 %, and is projected to rise 20 % per year (Warren 2009: 26). In many cases, these legal expenses are not just part

[19] *Viacom International, Inc. v. YouTube, Inc.*, No. 07 Civ. 2103

of the wholly superfluous distortions (where it is more profitable to sue than to produce), but are defensive in nature, and are necessary inputs to production: Producers and organizations of all kinds, commercial, academic, and nonprofit, require large legal departments and expenditures in order to fend off claims from existing copyright holders.

One might be tempted to respond to the magnitude of these economic distortions by citing "fair use," a feature of the 1976 Copyright Act that limits copyright's reach by permitting unauthorized works for the purposes of "criticism, comment, news reporting, teaching…scholarship, or research," (17 USC §107). It is true that this loophole protects a fair amount of works, but it can only limit distortions from copyright to a limited degree. Fair use is an affirmative defense – meaning it can only be activated in court by a defendant accused of infringement, and thus, still requires the costly action of going to court to settle these claims. Additionally, just like the questions about what is copyrightable and what is infringement, courts and litigants must expend vast resources to determine just what exactly "fair use" means.

Broadly stated, the traditional view of optimizing a tradeoff between innovation incentives and monopoly deadweight loss suffers largely from linear thinking, where, copying, and copyright are viewed solely as a technological problem to be optimized along a single margin. The assumption is that the only costs of applying a copyright are deadweight losses from monopoly power and that altering the degree of monopoly power will increase benefits to innovation at something akin to a 1:1 ratio without incurring other costs. This mode of technological thinking neglects the systemic effects of altering the preexisting institutional arrangement and does not address the economic problem of how to make the best use of distributed ideas through least cost entrepreneurship. Copyright regulation imposes new external costs on new entrepreneurship.

Individuals must search the existing stock of ideas and discover the proper ideas to use as inputs to their production. This search is costly, as the individual first needs to find out what ideas are currently in existence and where to find them, let alone bearing the burden of combining or recombining them with other factors of production. Thus, one major cost that needs to be overcome is searching for the ideas that have already been expressed and the works containing them (e.g. printed books, scholarly articles, films). Introducing a stronger copyright regime creates a shift in the relative costs of certain works. In general, those which are copyrighted become more expensive relative to those ideas which are not copyrighted and remain in the public domain. Tabarrok (2011) mentions the costs associated with inventors attempting to navigate "the patent thicket" of firms who own patents that act as necessary inputs into other firms' products, and their concomitant lawsuits which serve as deterrents to production. There is an analogous "copyright thicket" created by the 1976 Act. Table 2 displays the relative price changes between copyright regimes.

Copyright adds a premium to the price of acquiring ideas in one of two ways:

1. By legal means, it augments the initial search cost by adding a new search cost to find the owner of the copyrighted material. Under current law, this is especially hard as there is no longer a central database of copyright owners kept by the Copyright Office, and all fixing of works in a tangible medium constitutes copyrighting a work today. Further, an individual must negotiate with the copyright owner for the right to create a similar or derivative work.

Table 2 Relative prices of using creative works under weak and strong copyright

Less copyright	More copyright	
	Legally	Illegally
Base search cost	Base search cost + Search for owner cost Negotiation with owner (if found)	Base search cost + Apprehension risk premium

2. By illegal means, after discovering which ideas exist, the individual may try to illegally copy the idea or create a new derivative idea (which is also illegal under the 1976 Copyright Act). The individual thus acts as a potential rational offender, incorporating into their decision the risk of being apprehended and punished with severe fines and jailtime (Becker 1968).

Thus, introducing a new copyright regime can change relative prices of creative work use and selection by generally increasing the cost of accessing and using works and by changing the relative prices between accessing a copyrighted work through legal or though illegal means. The latter relative price change depends on factors such as the level of copying technology, cultural attitudes towards piracy, and piracy detection and apprehension technologies of copyright owners and authorities. When individuals are likely to copy something easily and get away with it, it will be cheaper for an individual to pirate relative to acquiring it by legal means, leading to a nation of lawbreakers if left unchecked. It furthermore can lead to an arms race of ever-greater levels of lobbying by copyright owners, draconian laws by the state, and ever-bolder pirate-facilitating organizations.

These ramifications are neither theoretical nor insignificant, as the public consciousness is becoming more and more enveloped by stories and personal experiences of piracy. Over 70 million Americans illegally download, or "pirate" copyrighted material through filesharing software on the internet (Delgado 2004). One study estimates that over 25 % of all global internet use infringes copyright (Envisional 2011), and file sharing is significantly popular, even legitimized, by many young Americans (Cosgrove-Mather 2009).

With the emergence of the internet and more sophisticated computer software to weave its way around these laws, copyright owners have further acted to protect their copyright and enforce the law through the means of code, rather than traditional legal forces (Lessig 2006). With improvements in digital rights management (DRM) software–software which prevents users from accessing, copying, and sharing any copyrighted content within a program– industries can now use code to enforce copyright online, extending the reach of the law *without* further using the legal system. With recent developments in P2P networking, individuals now have substitutes to replace the more restricted content managed by DRM (Leibowitz 2006). Thus, piracy of online material has become an endemic since the rise of Napster in 1997, which has prompted industry groups to seek even stricter anti-piracy laws, as is currently under development today.

Finally, as a result of the Copyright Act of 1976 and the CTEA, copyright terms extend for several generations (the author's life plus 70 years). Since copyright terms are now so long, much of twentieth-century culture is not only copyrighted, but also genuinely unavailable. These books, films, songs, and other works, which may no longer hold commercial value, are no longer being printed, screened, or played. The authors or firms that have produced them may be deceased or gone out of business. More troubling, when combined with the fact that copyright owners no longer need to register a copy with the Copyright Office, since copyright is now automatic, this compounds to a whole new kind of issue: the owners of countless works *may not even be known*. Works that require a vast assembly of complement works compound this problem. For instance, a film, might have one copyright for the sound track, another for the movie footage, another for the script, and another for merchandising rights. Even if one wanted to legally access these works for personal consumption, or for derivative use in further creative production, there is no owner to be found and contracted with.[20] Of the music, movies, and books that were produced in 1923–1946 (the first 23 years affected by the recent Copyright Term Extension Act of 1998), less than 6 % are commercially available today (Lessig 2004: 228). These commercially unavailable works without an identifiable owner are known as "orphan works," and since the 1960s have become an entirely new problem, growing proportionately with the extension of copyright terms.

4 Conclusions

Creative goods that are protected under intellectual property rights have always drawn attention from economists due to their "messy" economic properties that deviate from strictly scarce private goods. In modern times with the omnipresence of information technology in both production and consumption, intellectual property has become one of the key problems for the 21st century. As copyright issues creep their way into public discourse more and more, understanding the consequences of our copyright legal regime is paramount before we can move forward. Much more attention is needed on this growing problem, and more research is needed to uncover the effects of alternative copyright rules, regulations, and the special problems of creative, reproducible goods as they relate to the market process and entrepreneurial discovery.

The framework of interventionism and Kirzner's (1985) perils of regulation serves as an improvement on the existing literature of understanding the dynamics of copyright. Interventionism combines the existing focus of the budding critical literature on public choice problems and perverse incentives with the insights of the genuinely frustrated intentions of policymakers due to knowledge limitations. The two problems combined better explain the development of copyright legislation since 1978, as well as an ideal schema for collecting, categorizing, and comprehending the unintended consequences of copyright regulations.

In addition, studying the effects of copyright regulations provides further insights and applications for the theory of interventionism. Copyright statute serves as a peculiar type of intervention – whereby the government changes property rights that are

[20] Thus begins one common argument for the benefits of illegal piracy.

enforced by private parties rather than by bureaucrats. In this way, the distortionary effects are created almost purely within the market as a result of an intervention redefining property rights, rather than through a cluster of errors in the political process. The resulting distortions, however, have an endogenous impact on the political process, creating incentives for interest groups to manipulate the political process to combat threatening developments in the market. In this fashion, ordinarily benign technological advancement is distorted into a process that creates discoordination in property rights far beyond disruptive innovation – which in turn prompts further interventions to address problems that emerge from the nature of the process.

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