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COPYRIGHT AND CREATIVE INCENTIVES: WHAT WE KNOW (AND DON'T)

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ABSTRACT

The dominant justification for copyright in the United States is consequentialist. Without copyright, it is claimed, copyists will compete away the profits from new artistic and literary creativity, thereby suppressing incentives to create new artistic and literary works in the first place.

This is a sensible theory. But is it true? On that question, we have little evidence. This Article examines some of the empirical work examining the link between copyright and the incentive to create new works. The Article introduces readers to a sampling of the existing empirical work, which includes event studies (aka, natural experiments), qualitative studies of creativity undertaken in so-called "low-IP" settings, and laboratory experiments. At this early point in the empirical study of copyright, the link between copyright and creative incentives appears to be considerably less robust than theory may have led us to expect.

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TABLE OF CONTENTS

I. INTRODUCTION

I want to start by taking us back more than two decades, to 1993. I'm going to tell a story that involves, among others, that era's most powerful company, Microsoft.

Back then, the company's Windows operating system was already the market leader,[1] and with the release of Windows 95, Microsoft was about to become an era-defining colossus. So what to do with all this money and power?

Well, Bill Gates believed deeply that computers were a tool for spreading knowledge and saving the world, and he wanted his company to be at the forefront.[2] So Microsoft set out to create the greatest reference tool the world had ever known: an electronic encyclopedia.

Microsoft spent freely. It bought the *Funk & Wagnall's Encyclopedia* and then the *Collier's Encyclopedia* and MacMillan's *New Merit Scholar's Encyclopedia.*[3] Over the next decade, Microsoft paid out millions to professional writers and editors to craft additional articles on thousands of topics. Microsoft sold its encyclopedia on CD-ROMs for $395, which soon enough dropped

1. *See* Michael J. Miller, *Windows 98 Put to the Test*, PC MAG (Aug. 1, 1998, 3:23 PM EST), http://www.pcmag.com/article2/ [https://perma.cc/9P2B-7JUD].

2. *See* Bill Gates, *Unleashing the Power of Creativity*, NPR (Sept. 19, 2005, 12:00 AM ET), http://www.npr.org/templates/story/story.php?storyId=4853839 [https://perma.cc/V93J-P38Y].

3. *See* Andrew Munchbach, *Throwback Thursday: Microsoft Encarta*, BGR (Nov. 11, 2010, 5:01 PM), http://bgr.com/2010/11/11/throwback-thursday-microsoft-encarta/ [https://perma.cc/PK42-2XVW]; Richard Pallardy, *Encarta*, ENCYCLOPEDIA BRITANNICA (Jan. 25, 2011), https://www.britannica.com/topic/Encarta [https://perma.cc/7F3N-G98J].

to $99, and then the content moved online as a subscription service.[4] Microsoft copyrighted its encyclopedia in 1993.[5]

This story also involves another group interested in producing an online encyclopedia. This second group, which started work at about the same time as Microsoft, wasn't a for-profit company. It was a nonprofit foundation made up of tens of thousands of people who shared the belief that writing and editing encyclopedia articles is a fun way to spend one's free time.[6] No one needed any special qualifications to participate, and participants contributed their labor for free. The encyclopedia itself, which was offered online from its inception, was also free—there was no charge for anyone who wanted to use it, and there were no ads. And although contributions to the encyclopedia were copyrighted, the nonprofit foundation licensed the content to anyone, anywhere, gratis—just so long as licensees agreed to share the content, and any modifications they make to it, on the same terms by which it was shared with them.[7]

So, we're back in 2017 now, and one of these two encyclopedias has grown into the biggest and most widely used reference tool that the world has ever known. The other one no longer exists. Which is which?

You already know the answer. Microsoft shuttered its proprietary encyclopedia, Encarta, in 2009.[8] The open-source Wikipedia, on the other hand, has grown like kudzu. At its peak, Encarta had entries on approximately 62,000 subjects.[9] Wikipedia currently has nearly 40 million entries containing approximately 27 billion words in 293 languages, all of them written and edited collaboratively by more than 30 million volunteer contributors around the world.[10] The English Wikipedia alone has over 2.9

4. *See* Randall Stross, *Encyclopedic Knowledge, Then vs. Now*, N.Y. TIMES (May 2, 2009), http://www.nytimes.com/2009/05/03/business/03digi.html?mcubz=0.

5. *See Microsoft Encarta: Multimedia Encyclopedia*, U.S. COPYRIGHT OFFICE (Mar. 17, 1993), http://cocatalog.loc.gov/cgi-bin/Pwebrecon.cgi?v1=4&ti=1,4&Search%5FArg=Encarta&Search%5FCode=TALL&CNT=25&PID=IMHbk61CUaOs-Xgk9-mC5Z26lr&SEQ=20170615104752&SID=1 [https://perma.cc/NNR7-J9P9].

6. *See* DANIEL H. PINK, DRIVE: THE SURPRISING TRUTH ABOUT WHAT MOTIVATES US 16 (2009).

7. *See* KAL RAUSTIALA & CHRISTOPHER SPRIGMAN, THE KNOCKOFF ECONOMY: HOW IMITATION SPARKS INNOVATION 186 (2012); *see also Terms of Use*, WIKIMEDIA FOUNDATION, https://wikimediafoundation.org/wiki/Terms_of_Use/en [https://perma.cc/W25T-TSSB].

8. *See* PINK, *supra* note 6, at 17.

9. *See* Munchbach, *supra* note 3.

10. *See Wikipedia: Size Comparisons*, WIKIPEDIA, https://en.wikipedia.org/wiki/Wikipedia:Size_comparisons [https://perma.cc/3DNT-QXN5]; *Wikipedia Community*, WIKIPEDIA, https://en.wikipedia.org/wiki/Wikiped ia_community [https://perma.cc/9JBN-27Q2].

billion words,[11] over 60 times as many as the next largest English-language encyclopedia, *Encyclopædia Britannica*—and that latter project had a bit of a head start, having been founded in Edinburgh in 1768.[12] It is estimated that Wikipedia receives almost 3 billion page views monthly from the United States alone.[13] It is not just the world's leading encyclopedia. It is, for anyone under 30, practically the only reference source they have ever used.[14]

I first used this example in *The Knockoff Economy*, a book I wrote with my friend and colleague Kal Raustiala.[15] I repeat it here in the hope that it will spur you to think a bit about the foundations of copyright law. In 1995 virtually no one would have predicted the stunning success of Wikipedia. Most people would have assumed that Microsoft's encyclopedia, backed by millions of dollars of investment from one of the world's largest companies and protected by copyright, would win out over a start-up enterprise that had no real money behind it and invited everyone to copy their work.

That last bit, about Microsoft's reliance on copyright versus Wikipedia's rejection of it, is at the center of what this Article will explore. The grounding justification for copyright is that granting exclusive rights in artistic and literary works will incentivize authors to invest in new creativity. Preventing copying channels rewards toward the creator, and motivates additional creative effort. So according to this justification, we would have expected Microsoft to win the online encyclopedia battle. Wikipedia should have expired from lack of incentives. But that did not happen.

There are other rights-based justifications for copyright, justifications founded on the labor that a creator invests in his work,[16] or on the way in which a work reflects the personality of its creator.[17] It is the consequentialist story about creative incentives, however, that is by far the most important in the United States. The Constitution specifies that "securing for limited Times to Authors the exclusive Right to their respective

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11. *See Wikipedia: Size Comparisons*, WIKIPEDIA, https://en.wikipedia.org/wiki/Wikipedia:Size_comparisons [https://perma.cc/3DNT-QXN5]

12. *See, e.g.*, John Markoff, *44 Million Words Strong, Britannica to Join Internet*, N.Y. TIMES (Feb. 8, 1994), http://www.nytimes.com/1994/02/08/business/44-million-words-strong-britannica-to-join-internet.html; *Encyclopædia Britannica: Print Encyclopaedia*, ENCYCLOPÆDIA BRITANNICA, https://www.britannica.com/topic/Encyclopaedia-Britannica-print-encyclopaedia [https://perma.cc/3DNT-QXN5].

13. *See* RAUSTIALA & SPRIGMAN, *supra* note 7, at 185.

14. *See id.*

15. *See id*. at 185–86.

16. *See, e.g.*, Wendy J. Gordon, *A Property Right in Self-Expression: Equality and Individualism in the Natural Law of Intellectual Property*, 102 YALE L.J. 1533, 1540 (1993).

17. *See* ROBERT P. MERGES, JUSTIFYING INTELLECTUAL PROPERTY 68 (2011); Jeanne C. Fromer, *Expressive Incentives in Intellectual Property*, 98 Va. L. Rev. 1745, 1753 (2012).

Writings" will "promote the Progress of Science."[18] Fundamentally, we have copyright because we think it will push people to make new artistic and literary works.

Is that right, though? Is the fundamental justification for American copyright law an accurate account of creative incentives? More pointedly, is copyright *necessary* to maintain the incentive to create? The Wikipedia story suggests that the answer to that question is no—or, at least, not in all cases. So we arrive at a narrower inquiry: When, precisely, is copyright necessary? And, if there are instances in which some sort of copyright is necessary, must it be the sort we have? That is, must it be the sort of copyright that is as broad and lasts as long[19] as copyright in the United States does now?

Here's the short answer to these questions: We don't know. In large part we don't know because we've only been asking the question, rather than simply assuming the necessity of copyright, for about a quarter century. In the context of empirical social science, that's not a lot of time. Our copyright system is, for the moment, built mostly on speculation. And in the absence of evidence, we have a set of copyright rules driven mostly by interest group lobbying.[20]

You might be tempted to ask, "What's wrong with that? The companies that produce movies and software and books and recorded music should know what rules they need, right?" Unfortunately, it's not that simple.

Copyright is, as the British historian and Whig politician Thomas Macaulay said in 1841, "a tax on readers for the purpose of giving a bounty to writers."[21] And, Macaulay added, "the tax is an exceedingly bad one; it is a tax on one of the most innocent and most salutary of human pleasures."[22]

I would put it even more directly. Copyright is a tax on learning. It is a tax on culture. It is a tax on speech. And this tax is more than an inconvenience. It is a barrier to those who cannot, or will not, pay it. By pricing some people out of art and literature they would otherwise consume, copyright can impede the spread of learning and culture.

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18. U.S. CONST. Art. I, § 8, cl. 8.

19. For the works of natural authors, the life of the author plus 70 years, an effective term of over a century. *See* 17 U.S.C. § 302 (1976).

20. *See, e.g.*, *Annual Number of Clients Lobbying on Copyright, Patent & Trademark,* OPENSECRETS.ORG CTR. FOR RESPONSIVE POLITICS, https://www.opensecrets.org/lobby/issuesum.php?id=CPT [https://perma.cc/9B2D-79XH].

21. *See* Thomas Macaulay, Speech to the House of Commons (Feb. 5, 1841).

22. *Id.*

I do not wish to be misunderstood—I am not "anti-copyright". Like Macaulay, I will readily admit that copyright, and the tax it imposes, may be necessary. It is necessary if, without it, we will suffer for lack of new artistic and literary works. Those desirable things are worth paying a tax for. But the Wikipedia example, along with many other instances of substantial creativity without, or with little, copyright, suggests that the necessity of the tax cannot simply be assumed. It must be evidenced.

I am at least modestly hopeful that in the coming decades we will know significantly more about whether and when copyright, and the tax it imposes, is necessary. And that we will better understand what kind of copyright rules best promote progress for both creators and consumers. My hope is fed by the small but growing branch of scholarship that focuses on the empirical investigation of copyright incentives. The scholarship takes three principal forms.

A few scholars have focused on *event studies*, also called "natural experiments," that are designed to investigate copyright incentives.[23]

Other scholars have undertaken *qualitative studies* examining fields with and without intellectual property protection.[24]

And finally, there are a few *controlled experiments* looking at copyright incentives.[25]

I would emphasize that there is not yet a whole lot of work in any of the three categories I've described above. Most academic work in copyright is doctrinal. This sort of scholarship seeks to explain the meaning of some bit of legal language, or the relationship between different parts of the copyright law or between the copyright law and other branches of intellectual

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23. *See, e.g.*, Rahul Telang & Joel Waldfogel, *Piracy and New Product Creation: A Bollywood Story*, SSRN (Aug. 6, 2014), https://ssrn.com/abstract=2478755; Michela Giorcelli & Petra Moser, *Copyrights and Creativity—Evidence from Italian Operas*, SSRN (Dec. 28, 2015), https://ssrn.com/abstract=2505776; Joel Waldfogel, *Bye, Bye, Miss American Pie? The Supply of New Recorded Music Since Napster* (NBER Working Paper No. w16882, 2011), http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1789463.

24. *See, e.g.*, Kate Darling, *IP Without IP? A Study of the Online Adult Entertainment Industry*, 17 STAN. TECH. L. REV. 709 (2014); Dotan Oliar & Christopher Jon Sprigman, *There's No Free Laugh (Anymore): The Emergence of Intellectual Property Norms and the Transformation of Stand-Up Comedy*, 94 VA. L. REV. 1787 (2008); Kal Raustiala & Christopher Jon Sprigman, *The Piracy Paradox: Innovation and Intellectual Property in Fashion Design*, 92 VA. L. REV. 1687 (2006).

25. *See, e.g.*, Christopher Buccafusco et al., *Experimental Tests of Intellectual Property Laws' Creativity Thresholds*, 92 TEX. L. REV. 1921 (2014); Stefan Bechtold et al., *Innovation Heuristics: Experiments on Sequential Creativity in Intellectual Property*, 91 IND. L.J. 1251 (2016).

property law.[26] Other academic work in copyright is theoretical. This sort of scholarship seeks to understand the logic underlying copyright, or how particular copyright rules may be justified in the abstract.[27] Work in these categories is very valuable. But it is no replacement for empirical inquiry into how copyright actually works in the world, and whether and when it may be a necessary spur to new creativity. My goal in this short Article will be to introduce readers to a sampling of the existing empirical work on the link between copyright law and the incentive to create new artistic and literary works. I hope that readers will take away some appreciation of the difficult and valuable work that has been done, as well as some sense of how far we have to go to understand how copyright works in the world. From what we know so far, the way copyright works in the world or in the lab seems to be substantially more complicated and contingent than how it is supposed to work in theory. And, at least so far, the link between copyright and creative incentives is considerably less robust than theory may have led us to expect.

II. COPYRIGHT NATURAL EXPERIMENTS

Let's start with natural experiments. One of the ways in which scholars have attempted to gauge the effect of copyright incentives is by looking out in the world for a copyright policy change, or a policy difference between otherwise comparable jurisdictions, and by using regression analysis in an attempt to isolate the effect of the policy difference on copyright incentives.[28] There are very few of these studies in the copyright arena—in part because international agreements like the Berne Convention[29] have, for a long time now, created a relatively high degree of legal uniformity among major jurisdictions, which means fewer policy differences exist that could serve as the grist for this sort of mill.[30]

26. *See, e.g.*, Joseph Fishman, *Music as a Matter of Law*, 131 HARV. L. REV. (forthcoming 2018), https://papers.ssrn.com/sol3/papers.cfm?abstract_id= 2931091; Jeanne C. Fromer, *The Unregulated Certification Mark(et)*, 69 STAN. L. REV. 121 (2017); Christopher Buccafusco & Mark A. Lemley, *Functionality Screens* (Stanford Pub. Law Working Paper No. 2888094, 2016), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2888094.

27. For leading recent examples, *see* Christopher Buccafusco, *A Theory of Copyright Authorship*, 102 VA. L. REV. 1229 (2016); JULIE E. COHEN, CONFIGURING THE NETWORKED SELF: LAW, CODE, AND THE PLAY OF EVERYDAY PRACTICE (2012); ABRAHAM DRASSINOWER, WHAT'S WRONG WITH COPYING? (2015).

28. Giorcelli & Moser, *supra* note 23.

29. Berne Convention for the Protection of Literary and Artistic Works, *opened for signature* Sept. 9, 1886, 25 U.S.T. 1341, S. TREATY DOC. NO. 99–27 (as amended 1979).

30. *See, e.g.*, PAUL L.C. TORREMANS, LEGAL CONVERGENCE IN THE ENLARGED EUROPE OF THE NEW MILLENNIUM 2 (2000).

That modern uniformity may be why one recent and very interesting example of the genre reaches far back to the Napoleonic Wars to find the required policy shift. I'm speaking of a paper by economists Michela Giorcelli and Petra Moser, *Copyrights and Creativity – Evidence from Italian Operas*.[31]

Giorcelli and Moser's paper is a natural experiment using historical data surrounding an "external shock"—viz., Napoleon's invasion and occupation of northern Italy between 1796 and 1802. The northern Italian states of Lombardy and Venetia adopted copyright laws in 1801, as a direct consequence of French rule.[32] Six other Italian states studied by Giorcelli and Moser only began adopting copyright laws during a period that began a quarter-century later.[33] Giorcelli and Moser collected historical data on 2,598 operas that premiered across the eight Italian states in question between 1770 and 1900, the most fertile years of Italian opera production, and a period that both preceded and followed the adoption of copyright by Lombardy and Venetia.[34]

Comparisons across the period reveal a statistically significant increase in new operas produced in the states that adopted copyright in 1801. Giorcelli and Moser estimate that Lombardy and Venetia produced an average of 2.12 operas per year after 1801.[35] This increase is relative to a baseline of 1.41 operas per state per year before 1801, thus yielding an apparent increase of approximately 150%, versus an increase in production during the same period of approximately 54% in the states that had not adopted copyright.[36]

The authors then inquire whether the increase in number was accompanied by an increase in overall quality of the operas produced.[37] Using other historical data sets, Giorcelli and Moser estimate a 4.6-fold increase in the production of historically popular operas in response to the adoption of copyright, and a 10-fold increase in the production of durably popular operas (i.e., those for which full-length recordings continue to be available on Amazon in 2014).[38]

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31. Giorcelli & Moser, *supra* note 23. This discussion is adapted from Christopher Jon Sprigman, *A Lesson From the History of Italian Opera: Some Copyright Good / More Copyright Useless*, JOTWELL (Jan. 15, 2016), http://ip.jotwell.com/2016/01/ [https://perma.cc/RU6L-TXWD].

32. Giorcelli & Moser, *supra* note 23, at 6.

33. *Id.* at 7–8.

34. *Id.* at 2.

35. *Id.*

36. *Id.*

37. *Id.* at 18.

38. Giorcelli & Moser, *supra* note 23, at 3, 17.

The data also shows that after Lombardy and Venetia adopted copyright, opera composers began to immigrate to those states. "Between 1801 and 1821, 43 composers who were born outside of Lombardy premiered an opera in that state. Another 13 composers born outside of Venetia premiered an opera in Venetia," the study explains.[39] "By comparison, all other Italian states together only saw premieres by 5 composers who were born outside the state."[40]

In sum, assuming that the production of operas is a reasonable proxy for artistic and literary production generally—and I'm not so sure it is, but more on that shortly—the Giorcelli and Moser study suggests that the adoption of a copyright term that is short by today's standards (average life expectancy in Italy in 1800 was about 30 years,[41] so a life-plus-10 copyright term is perhaps a third as long as today's life-plus-70) provides an incentive that produces more creative output versus an environment in which there is no copyright protection and creative output is consequently more vulnerable to appropriation.

However, the study also suggests that subsequent extension of the copyright term to life-plus-40 had no clear effect on either the number or quality of operas produced.[42] This second conclusion is particularly important because our contemporary debate is usually not whether to have copyright at all, but whether to extend already very long copyright terms. On that question, Giorcelli and Moser provide evidence that a bit of copyright may be helpful, but that more copyright doesn't necessarily lead to more creative production.

Of course, longer copyright terms do have a cost. Cheap books help spread literacy. Cheap operas help spread cultural literacy. Both forms of learning enrich society. If Giorcelli and Moser are correct, and if their data about operas are probative of good copyright policy in general (again, this is far from clear), then copyright terms like we have in the United States today may be too long. And if that's true, excess copyright would limit the spread of knowledge while producing little, if any, additional creative output.

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39. Ben Richmond, *What Italian Opera and Napoleon Tell Us about Copyrights and Creativity*, VICE: MOTHERBOARD (Oct. 31, 2014, 10:50 AM), https://motherboard.vice.com/en_us/article/what-italian-opera-and-napoleon-tell-us-about-copyrights-and-creativity [https://perma.cc/33GF-WMR2].

40. *Id.*

41. *See* Max Roser, *Life Expectancy*, OUR WORLD IN DATA, https://ourworldindata.org/life-expectancy/ [https://perma.cc/8XUF-TYRF].

42. Giorcelli & Moser, *supra* note 23, at 3.

Like any piece of empirical work, the Giorcelli/Moser paper raises methodological and data-quality questions. I won't focus on those here, but I do want to spend a moment thinking about the generalizability of the Giorcelli/Moser findings from opera to other, more modern and commercially important, forms of creativity. I suspect that the relevance of data about opera depends on how closely the economics of a particular form of creativity resembles the economics of opera production. Opera has very high fixed costs; authoring an opera represents a large and sustained creative effort, and the production of an opera is also costly (hiring singers, musicians, and opera halls is expensive, as are the often-lavish sets and costumes).[43] Opera is, in short, a paradigm of the sort of creativity that seems most unlikely to flourish without some way to restrain copying because the originator needs an extended period of exclusivity in order to earn back the high fixed costs associated with creating and then staging the work. Absent a rule restraining copyists, a second-comer would be able to avoid the first category of fixed costs in full and perhaps economize on the second by observing and imitating the staging decision of the originator. This cost saving might well allow the second-comer to outcompete the originator, or at least make it substantially more difficult for the originator to recover his investment.

Like opera, some modern forms of creativity feature very high fixed costs; for example, blockbuster movies. But other commercially important forms of creativity—pop music, or poetry, or much visual art—are produced with relatively low fixed costs. Just to focus for a moment on one economically and culturally significant form of creativity, it is cheap these days to write, record, and distribute pop music.[44] Is the sort of lengthy monopoly created by copyright law necessary to stimulate the production of this lower-cost creativity? On that question, the Giorcelli/Moser paper is silent.

There are, however, studies that have examined the effect of copyright, and of copyright's absence, on pop music.[45]

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43. *See, e.g.*, Ruth Towse, *Opera and Ballet*, *in* A HANDBOOK OF CULTURAL ECONOMICS 313–14 (Ruth Towse ed., 2d ed. 2011); MERVYN COOKE, *Opera in the Marketplace, in* THE CAMBRIDGE COMPANION TO TWENTIETH CENTURY OPERA 306–20 (2005); PHILIP KOTLER & JOANNE SCHEFF BERNSTEIN, STANDING ROOM ONLY: STRATEGIES FOR MARKETING THE PERFORMING ARTS 221 (1997).

44. Joel Waldfogel, *Copyright Protection, Technological Change, and the Quality of New Products: Evidence from Recorded Music since Napster*, 55 J.L. & ECON. 715, 735 (2012).

45. *See, id.*; Christian Handke, *Digital Copying and the Supply of Sound Recordings*, 24 INFO. ECON. & POLICY 15 (2012).

In the decade and a half since Napster, researchers have focused substantial attention on the question of whether file sharing undermines demand. Most observers now agree that the ability of consumers to obtain recorded music without paying makes it more difficult for sellers of recorded music to generate revenue.[46] That shouldn't be surprising—in the years since Napster, revenues of the record labels reporting to the RIAA (Recording Industry Association of America) have fallen off more than 60%, adjusted for inflation.[47] But the fortunes of individual companies rise and fall all the time. Policymakers would have a much greater cause for concern if piracy was suppressing the supply of new music. And on that point, the evidence so far shows no effect. Indeed, two studies have found that the supply of music has increased, not decreased, in the face of piracy.[48]

Why is that? In part because the music industry adapted to piracy by re-emphasizing the live concert experience, which, unlike recordings, cannot effectively be pirated. Total revenues from live performances have approximately quadrupled since 1999 even while sales of recorded music have declined.[49] Also, doubtless contributing to music's continued vitality are the very same technologies that enable piracy. Broadband internet access enables quick piracy. But it also allows musicians to distribute their music less expensively. Social media allows people to share links to cyberlockers. But it also allows musicians to connect with their fans. The net effect seems to be an environment in which we have a lot of piracy, and also a lot of new music.[50]

Is the same dynamic true in the market for movies—a form of creativity with generally high fixed costs (and therefore more similar to opera)? The evidence is scant, and what evidence there is gives us a mixed picture. We do find some guidance in a terrific recent paper by Rahul Telang and Joel Waldfogel titled *Piracy and New Product Creation: A Bollywood Story.*[51] In the paper, Telang and Waldfogel examine movie production in India during a period of technological change—in particular, the diffusion of the VCR

46. Joel Waldfogel, *Music Piracy and Its Effects on Demand, Supply, and Welfare*, 12 INNOVATION POL'Y & ECON. 91, 100 (2012).

47. *See* Michael DeGusta, *The REAL Death of the Music Industry*, BUS. INSIDER (Feb. 18, 2011, 12:13 PM), http://www.businessinsider.com/these-charts-explain-the-real-death-of-the-music-industry-2011-2 [https://perma.cc/ML2Y-64KC].

48. *See* Handke, *supra* note 45, at 20; Waldfogel, *supra* note 44, at 735.

49. *Concert ticket sales revenue in N. America from 1990 to 2015 (in billion U.S. dollars)*, STATISTA, http://www.statista.com/statistics/ 306065/concert-ticket-sales-revenue-in-north-america/ [https://perma.cc/5ACC-WBNN].

50. *See* Waldfogel, *supra* note 44, at 735–36.

51. Telang & Waldfogel, *supra* note 23, at 6.

and cable television in India between 1985 and 2000—that created substantial opportunities for movie piracy.[52]

I know, given our experience in the United States, that the story so far may sound strange: for Americans, neither the VCR nor cable TV ever emerged as significant platforms for piracy. But in India, Telang and Waldfogel argue, matters were different. Independent cable TV systems in India aired a lot of Bollywood films without authorization. And people taped them.[53]

Telang and Waldfogel use this episode to study possible impacts of piracy on the rate at which new Bollywood movies are produced. The researchers found that the number of new movies released, which had grown steadily from 1960 to 1985, fell between 1985 and 2000, suggesting that the upswing in piracy caused by the VCR contributed to a decline in creative incentives.[54] But the story has a happier ending. Telang and Waldfogel chart a rebound in film production after 2000, which they assign in large part to the growth of shopping-mall based multiplex theatres, which drew people in large numbers back to paid consumption.[55]

When you look at the relevant data, this isn't too surprising. Before the growth of modern shopping mall multiplexes in India, there were only about 12,000 movie screens for a country of about a billion people.[56] Based on 1999 population figures, that's approximately one screen for every 86,000 people.[57] In comparison, in the same year the U.S. had more than 39,000 movie screens—a screen for every approximately 7,500 people—that's more than 11 times the number of screens per capita versus in India.[58] Now, India produces more films than the U.S., and has for a while, and Indians are notorious movie buffs.[59] The upshot is that India had a serious undersupply of screens during Telang and Waldfogel's study period.

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52. *Id.* at 6.

53. *Id.* at 6–9.

54. *Id.* at 14.

55. *Id.* at 10–11.

56. Vanita Kohli-Khandekar, *India's Box Office Growth Runs into a Screen Problem*, BUS. STANDARD (Jan. 18, 2016, 21:09 IST), http://www.business-standard.com/article/companies/india-s-box-office-growth-runs-into-a-screen-problem-116011801209_1.html [https://perma.cc/BFF3-UENK].

57. India's population in 1999 was approximately 1.035 billion. *Population, total: India*, WORLD BANK, https://data.worldbank.org/indicator/ SP.POP.TOTL?end=1999 &start=1999 [https://perma.cc/92VU-9GNM].

58. The United States had over 36,000 screens in 1999 (and has over 40,000 in 2016). *See Number of U.S. Movie Screens*, NAT'L ASSOC. OF THEATRE OWNERS, https://www.natoonline.org/data/us-movie-screens/ [https://perma.cc/EBX2-FYBN].

59. *See How Many Films Are Made Around the World?*, STEPHEN FOLLOWS: FILM DATA & EDU. (Oct. 5, 2015), https://stephenfollows.com/how-many-films-are-made-around-the-world/ [https://perma.cc/XLB5-YUVF].

So what's the story here? When people are shut out of movie consumption, there's a lot of frustrated demand. If a technology comes along that facilitates piracy, then when there's a lot of otherwise unfulfilled demand we'll get piracy, and creative incentives might decline. But it also seems that once the underinvestment problem is fixed, or at least addressed in part (by some accounts India still has a shortage of screens), the piracy problem, and the associated decline in creative incentives, eases.

Does this suggest that piracy in a very different environment—one in which legal alternatives are readily available—will have the same effect on creative incentives? That's unclear. It might be that in 1980s India, people who would otherwise be willing to pay but were shut out of legitimate consumption by the shortage of theatres were turning to piracy. If that were the case, then we'd get revenue loss, and the expectation of that loss continuing might feed through to depress creative incentives. But it might also be the case that in a market like we have in the U.S., where there is wide availability of most works via legitimate outlets, that most who engage in piracy are people who would not otherwise be willing to pay, or may be willing to pay some amount substantially less than the price on offer. And that would mean that piracy in this context would produce little revenue loss, with little consequent effect on creative incentives, as many of these people would not be paying customers in any event, even absent piracy.

A pair of studies on the American popular music industry by Joel Waldfogel together paint a picture very much like what I've just described. The first of those studies, *Bye Bye Miss American Pie? The Supply of New Recorded Music Since Napster*, focuses on the quantity of recorded music produced since the 1999 debut of the Napster filesharing program.[60] To measure the quantity of music that possesses at least some degree of commercial appeal across the time period, Waldfogel must find a way to determine the number of songs and albums whose appeal surpasses some time-constant threshold.[61] The index of appeal should be related to demand, but the index must be unaffected by file sharing so that it can be used to track accurately the supply of new creative goods over time, including during the period of unpaid consumption.[62] Put into context, if file sharing is reducing sales, then Waldfogel cannot employ a measure that relies on a simple sales

60. *See generally* Waldfogel, *supra* note 23.

61. *Id.* at 5.

62. *Id.* at 4.

threshold—say, 5000 copies—as a criterion for inclusion in the index. In a world where filesharing is suppressing paid demand, then an album needs to be better to sell 5000 copies versus a world without file sharing, and an index based on sales would not be comparing products of like quality over time.[63] Waldfogel's proposed solution is a time-constant quality threshold based on critics' retrospective lists of the best works of multi-year time periods.[64] Employing this threshold, Waldfogel assembled a dataset of high-quality songs released annually since 1960. The dataset allows a comparison of the quantity of new albums since Napster to 1) its pre-Napster level, 2) pre-Napster trends, and 3) a possible control, the volume of new songs since the iTunes Music Store's revitalization of the single.[65] Waldfogel found no evidence that technological changes since Napster have affected the quantity of new recorded music or the number of new artists coming to market.[66]

Waldfogel's second study, *Copyright Protection, Technological Change, and the Quality of New Products: Evidence From Recorded Music Since Napster,* inquires more deeply into the quality of new recorded music since Napster's 1999 debut.[67] To accomplish this, Waldfogel again relies on his index of high-quality music culled from critics' retrospective lists.[68] Next, he assembled data on music sales and airplay to construct a measure that allows him to compare changes in average quality of the music produced in different periods.[69] He does so by correlating quality ratings with sales and airplay over a long data period, observing that if one era's music is better than another's, its superior quality should generate higher sales or greater airplay through time, after accounting for depreciation.[70] Waldfogel found no evidence of a reduction in the quality of music released since Napster's advent in 1999.[71]

In sum, Waldfogel's work suggests that the music industry, which has suffered a piracy shock that has unquestionably driven down paid consumption of music, nonetheless continues to produce about as much music, and at about the same level of quality, that it did before Napster.

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63. *Id.*
64. *Id.*
65. *Id.* at 4–5.
66. *Id.* at 23.
67. *See generally* Waldfogel, *supra* note 44, at 719.
68. *Id.*
69. *Id.*
70. *Id.* at 718.
71. *Id.* at 731–35.

Waldfogel speculates, as have others, that the continued high levels of output might stem from the dual nature of the technological changes affecting the music industry since Napster: The same technologies that facilitate piracy also make music cheaper to produce and distribute.[72] The net effect might be about a wash.

At the moment, this is where the natural experiments attempting to link copyright to creative incentives run out. They are suggestive of a link in some contexts (movies, operas) that feature high fixed costs, but not in others (music) in which fixed costs are low and arguably falling. In sum, the natural experiments that we have produce evidence of a link between effective copyright law and creative incentives that is far from definitive. The sorts of creativity that feature high fixed costs comprise a relatively small share of the world's creative output. And even for these sorts of creativity, the story is not a simple one of more copyright equaling more incentive. In the opera study, some copyright appears to move the needle in a positive direction. But more copyright appears to do nothing. And in the Bollywood study, the effect of piracy is deeply contextual. If the undersupply of movie screens and the consequent pent-up consumer demand that makes piracy attractive in the first-place is addressed, then the depressing effect of piracy on creative incentives appears to ease.

III. COPYRIGHT "NEGATIVE SPACE" SCHOLARSHIP

Let me move on to a different branch of the empirical scholarship examining the relationship between copyright and creative incentives.[73] Studies belonging to the first branch, natural experiments, have examined types of creativity for which we have copyright protection, and rely on some sort of policy change, or technological change, or other external shock, to try to sort out the effect of copyright on production. But usually we don't have that sort of comparison available to us. And usually, when we look at creative industries that rely on copyright, we see innovation, and we see copyright. But it's difficult just from observing a copyright-reliant industry to know whether copyright is *causally related* to creativity in that setting, or merely *coincidental*.

72. *Id.* at 735; *see* Waldfogel, *supra* note 23, at 23–24.

73. Portions of this discussion are adapted from Kal Raustiala & Christopher Jon Sprigman, *When are IP Rights Necessary? Evidence from Innovation in IP's Negative Space*, *in* RESEARCH HANDBOOK ON THE ECONOMICS OF INTELLECTUAL PROPERTY LAW (VOL. I—THEORY) (Peter Menell & Ben Depoorter, eds., forthcoming 2017).

Maybe the best place to start is in creative fields that have limited or even nonexistent intellectual property protection. Here are some: fashion design, creative cuisine, financial instruments, sports plays, pornography, stand-up comedy, tattoos, fan fiction, and professional magic. Some of these are pretty niche-y—for example, fan fiction, or magic. But some of them, like fashion, cuisine, and (like it or not) porn, are enormous. If we see vibrant innovation in those fields, that should lead us to ask what, other than copyright, is encouraging investment in new creativity.

Scholars began serious examination of these "negative spaces" only about a decade ago,[74] and again, we're just at the beginning of the inquiry. But already the scholarship has generated a clutch of fascinating case studies. At a minimum, these studies substantially enhance our understanding of the empirics of innovation across a strikingly-wide range of human endeavor. Studies of the fashion industry,[75] cuisine,[76] fan fiction,[77] pornography,[78] 19th century U.S. commercial publishing,[79] video games featuring significant user-generated content,[80] stand-up

74. *See, e.g.*, Jonathan M. Barnett, *Shopping for Gucci on Canal Street: Reflections on Status Consumption, Intellectual Property, and the Incentive Thesis*, 91 VA. L. REV. 1381, (2005); Christopher Buccafusco, *On the Legal Consequences of Sauces: Should Thomas Keller's Recipes Be* Per Se *Copyrightable?*, 24 CARDOZO ARTS & ENTM'T. L.J. 1121 (2007); Raustiala & Sprigman, *supra* note 26.

75. Jonathan Barnett, *supra* note 74; Raustiala and Sprigman, *supra* note 24; C. Scott Hemphill & Jeannie Suk, *The Law, Culture, and Economics of Fashion*, 61 STAN. L. REV. 1147 (2009); Kal Raustiala & Christopher Jon Sprigman, *The Piracy Paradox Revisited*, 61 STANFORD L. REV. 1201 (2009); Jonathan M. Barnett et al., *The Fashion Lottery: Cooperative Innovation in Stochastic Markets*, 39 J. LEGAL STUD. 159 (2010); Hemphill, C. Scott & Jeannie C. Suk. *The Fashion Originators' Guild of America: Self-Help at the Edge of IP and Antitrust*, *in* INTELLECTUAL PROPERTY AT THE EDGE: THE CONTESTED CONTOURS OF IP 160 (Rochelle Dreyfuss & Jane Ginsburg eds., 2014).

76. Buccafusco, *supra* note 74; Emmanuelle Fauchart & Eric von Hippel, *Norms-Based Intellectual Property Systems: The Case of French Chefs*, 19 ORG. SCI. 187 (2008).

77. Rebecca Tushnet, *Economics of Desire: Fair Use and Marketplace Assumptions*, 51 WM. & MARY L. REV. 513 (2009).

78. Kate Darling, *IP Without IP? A Study of the Online Adult Entertainment Industry*, 17 STAN. TECH. L. REV. 709 (2014).

79. ROBERT SPOO, WITHOUT COPYRIGHTS: PIRACY, PUBLISHING, AND THE PUBLIC DOMAIN 13–65 (2013).

80. Greg Lastowka, *Minecraft as Web 2.0: Amateur Creativity & Digital Games,* SSRN (2012), http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1939241.

comedy,[81] roller derby,[82] software,[83] jam bands,[84] tattoos,[85] magic,[86] and the flu vaccine[87] detail an extraordinary variety of creative and innovative work, and show the ways in which creative production can flourish with relatively little or no IP protection.[88] Related studies of scientific innovation document communal practices that emphasize sharing, and resist the full potential for propertization of research.[89] And as Eric von Hippel and others have shown, a lot of innovation is generated by users, in contexts as varied as extreme sports, surgery, library science, and commercial high-tech manufacturing, who work mostly in the absence of IP incentives, and who often share the fruits of their creativity with others.[90]

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81. Dotan Oliar & Christopher Jon Sprigman, *There's No Free Laugh (Anymore): The Emergence of Intellectual Property Norms and the Transformation of Stand-Up Comedy*, 94 VA. L. REV. 1787 (2008).

82. David Fagundes, *Talk Derby to Me: Intellectual Property Norms Governing Roller Derby Pseudonyms*, 90 TEX. L. REV. 1093 (2012); *see also* Gerard N. Magliocca, *Patenting the Curve Ball: Business Methods and Industry Norms*, 2009 BYU L. REV. 875 (2009) (discussing industry norms against patenting and arguing that business method patents should not be expanded to cover industries where such norms exist).

83. YOCHAI BENKLER, THE WEALTH OF NETWORKS: HOW SOCIAL PRODUCTION TRANSFORMS MARKETS AND FREEDOM (2006); Jon M. Garon, *Wiki Authorship, Social Media, and the Curatorial Audience*, 1 HARV. J. SPORTS & ENTM'T L. 95 (2010); Catherine L. Fisk, *Credit Where It's Due: The Law and Norms of Attribution*, 95 GEO. L.J. 49, 88–92 (2006); Josh Lerner & Jean Tirole, *The Economics of Technology Sharing: Open Source and Beyond*, 19 J. ECON. PERSP., Spring 2005 at 99 (2005).

84. Mark F. Schultz, *Fear and Norms and Rock & Roll: What Jambands Can Teach About Persuading People to Comply with Copyright Law*, 21 BERKELEY TECH. L.J. 651 (2006).

85. Aaron Perzanowski, *Tattoos and IP Norms*, 98 MINN. L. REV. 511 (2013).

86. Jacob Loshin, *Secrets Revealed: Protecting Magicians' Intellectual Property Without Law*, *in* LAW AND MAGIC: A COLLECTION OF ESSAYS 123 (Christine Corcos ed., 2010).

87. Amy Kapczynski, *Order Without Intellectual Property Law: The Flu Network as a Case Study in Open Science*, 102 CORNELL L. REV. 1539 (2017).

88. *See* MAKING AND UNMAKING INTELLECTUAL PROPERTY (Mario Biagioli et al., eds., 2011); CREATIVITY WITHOUT LAW: CHALLENGING THE ASSUMPTIONS OF INTELLECTUAL PROPERTY (Kate Darling & Aaron Perzanowski, eds., 2017)

89. Katherine J. Strandburg, *Curiosity-Driven Research and University Technology Transfer*, *in* 16 UNIVERSITY ENTREPRENEURSHIP AND TECHNOLOGY TRANSFER: PROCESS, DESIGN, AND INTELLECTUAL PROPERTY: ADVANCES IN THE STUDY OF ENTREPRENEURSHIP, INNOVATION AND ECONOMIC GROWTH 93 (Gary D. Libecap ed., 2005); Fiona Murray et al., *Of Mice and Academics: Examining the Effect of Openness on Innovation* 9–10 (Nat'l Bureau of Econ. Research, Working Paper No. 14819, 2009), http://www.nber.org/papers/w14819 [https://perma.cc/SU46-ELQ9].

90. Eric Von Hippel, DEMOCRATIZING INNOVATION 51–52 (2005); Jeroen P.J. de Jong & Eric von Hippel, *Transfers of User Process Innovations to Process Equipment Producers: A Study of Dutch High-Tech Firms* 38 RES. POL'Y 1181 (2009); Fred Gault & Eric von Hippel, *The Prevalence of User Innovation and Free Innovation Transfers: Implications for Statistical Indicators and Innovation Policy* 17 (MIT Sloan Sch. of Mgmt. Research Paper No. 4722-09, 2009), http://papers.ssrn.com/sol3/papers.cfm? abstract_id=1337232.

Looking in those negative spaces, we can see other factors beyond formal IP that support creativity: market incentives, cognitive psychology, social norms, first-mover advantages, path-dependency, or even plain happenstance. The challenge ahead is to map out these factors across fields that vary enormously in terms of markets, participants, practices, and norms. Here, we can focus on three industries that illustrate some of those other creativity engines beyond copyright.

A. Fashion and Trends

Let's start with the biggest: fashion designs are, for now, only very thinly protected by copyright. Time will tell whether the Supreme Court's decision in *Varsity Brands*[91] has altered that fact at all, but for now it suffices to say that the law has always viewed fashion design as fundamentally functional, and largely beyond the scope of federal copyright law.[92]

And of course, we have a lot of copying in the fashion industry. Companies like Forever 21 and H&M make billions every year from fast fashion, which appropriates innovative designs from expensive designers for cheap, mass-market consumption.[93] If IP rules were the sole driver of creativity (or even the predominant one), we would anticipate that innovative fashion designers, chilled by the threat of rampant knockoffs, would lose their motivation to invest in new designs.

But that doesn't happen—in fact, the opposite happens. To understand why, we need to look at the role fashion copying plays in the life cycle of a design.

Kal Raustiala and I co-authored an article back in 2006, *The Piracy Paradox*, that looked closely at the fashion industry's innovation environment.[94] Here's what we learned. When a new

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91. *See* Star Athletica, L.L.C. v. Varsity Brands, Inc., 580 U.S. 1, 17 (2017) (holding that a feature incorporated into the design of a useful article is eligible for copyright protection only if the feature (1) can be perceived as a two- or three-dimensional work of art separate from the useful article, and (2) would qualify as a protectable pictorial, graphic, or sculptural work if it were imagined separately from the useful article into which it is incorporated).

92. *See id.* at 8 (Breyer, J., dissenting) (noting that Congress has not given copyright protection to the fashion design industry).

93. *See*, *e.g.*, Scott Christian, *Can H&M Really Make Fast Fashion Sustainable?*, ESQUIRE (Dec. 20, 2016), http://www.esquire.com/style/news/a51712/hm-fast-fashion-sustainability-recycling/ [https://perma.cc/QMT7-Z54D]; *Forever 21—Fast Fashion Retail Brand with an Edge*, MARTIN ROLL, https://martinroll.com/resources/articles/branding/forever21-fast-fashion-with-an-edge/ [https://perma.cc/VAE2-9V7P]; Mallory Schlossberg, *Forever 21 Is Losing Its Grip on Fast Fashion*, BUS. INSIDER (Oct. 10, 2015, 5:27 PM), http://www.businessinsider.com/forever-21-facing-challenges-to-business-2015-10 [https://perma.cc/5AYW-BUTQ].

94. Raustiala & Sprigman, *supra* note 24.

fashion design is appealing, it is copied.[95] And as others appropriate the design, it increases in market prominence until it becomes a trend. Copies help create trends, and trends sell fashion.[96] But the process is two-sided. As copies of the design spread, the trend eventually becomes overdone, and early adopters jump off. To what? To the new design that copying is helping cement into a trend.[97] What we see here is fashion's familiar trend cycle. Copying is an important part of that cycle. It is fuel that drives the cycle faster.

So despite the lack of IP protection, the fashion industry is not a soulless wasteland—or, if it is in fact a soulless wasteland, it's not for lack of creative incentives. The fashion industry shows us that sometimes copying accelerates creativity, driving consumer demand, which in turn drives more production. This is a very different story than the orthodox account of the relationship between copying and creativity that is taken to justify copyright law.

What else can we learn? Let's take a brief look into the world of stand-up comedians—another place we find a lot of creativity without much copyright.

B. Comedy and Social Norms

Copyright technically protects comedy, but is of little practical use to comedians, not least because it extends only to a specific formulation of a joke, and not to a joke's general premise, or generally, to its structure.[98] Given the thinness of protection and the high cost of litigation, comedians just don't sue each other very often for copyright infringement.[99]

Under the conventional incentives story, an absence of IP rules would permit rampant joke theft and depress the production of new jokes.

That hasn't happened, for reasons my colleague Dotan Oliar and I describe in an article, *There's No Free Laugh (Anymore)*, published in 2010.[100] We spent a couple of years talking to

95. *Id.* at 1695–717.

96. *Id.* at 1718–34.

97. *Id.*

98. Oliar & Sprigman, *supra* note 24, at 1801–03.

99. However, for a recent (and very unusual) example of a comedian filing a lawsuit alleging joke theft, *see* Kaseberg v. Conaco, L.L.C., No. 15cv1637 JLS (DHB), 2017 WL 1969300, at *11 (S.D. Cal. May 9, 2017) (holding that plaintiff's two-sentence jokes were only entitled to "thin" copyright protection and that in order for there to be actionable infringement defendants' jokes must be "virtually identical" to those of plaintiff).

100. Oliar & Sprigman, *supra* note 24.

comedians, and their agents and lawyers. It appears that comedians incentivize innovation through strong social norms against joke copying, backed by the threat of community sanctions.[101]

In short, comedy has a private, non-legal IP system. Comics engage in a group project of detecting joke theft, and when they do, and if the accused fails to explain him or herself or fall into line, they impose group punishments.[102]

The penalties for violating those norms are harsh and reputational. Suspected joke thieves find themselves publicly shamed, boycotted by their colleagues, blacklisted from clubs, and subject to all sorts of emotional violence, including threats of physical violence.[103] There are stories of actual physical violence as well.[104] Comedians are just brutal to copyists.

These social norms are not part of any formal IP system, but they appear to work in deterring copying and incentivizing innovation. Comedy remains highly creative and productive, with hardly any resort to formal copyright law.[105] Of course, professional comedy is a relatively small creative niche, and norms-based regulation depends on close-knit communities for their effectiveness.[106] As a consequence, comedy's antipiracy norms very likely do not scale up to larger creative industries like motion pictures or software or recorded music—at least not without major changes to the structure of those industries. It's important to remember, however, that a lot of creativity takes place within relatively small and well-connected groups of creators.[107] Much academic and scientific creativity fits this mold. So does creativity in fan fiction communities, or within many open-source software projects.

C. Pornography and Performance Economies

I want to give one more example of a way in which industries may preserve creative incentives without relying heavily on copyright. Sometimes industries shift away from forms of creativity that are easily copied, refocusing on forms of creativity that are more resistant to appropriation. The online pornography industry is instructive of this dynamic. Adult entertainment is

101. *Id.* at 1812–13.
102. *Id.* at 1813–15.
103. *Id.* at 1815–19.
104. *Id.* at 1819–21.
105. *Id.* at 1789–90.
106. *Id.* at 1794.
107. *Id.*

currently protected by copyright, though (under American law at least) prior to the Fifth Circuit's decision in *Mitchell Bros Film Group v. Cinema Adult Theater*, its IP status was unclear.[108] Nonetheless, perhaps because pornography for so long resided in the negative space of IP, the industry is a comparatively light user of IP litigation and lives with very high rates of free and pirated content.

As MIT's Kate Darling has described, ready access to free online content, most notably through the ubiquitous "porntube" sites,[109] has affected the industry's output of new content.[110] Darling argues that production in the industry has shifted away from pornographic feature films and toward cheaper scenes (i.e., shorter bits of recorded pornography, usually not embedded in any larger story).[111] These are designed to be viewed, for free, on the porntube sites, which have entered into deals with many producers to split ad revenue.[112]

Darling also documents the rise of "cam girls"—women (and men) who perform live over the Internet using webcams.[113] Clients pay to watch these performances, and sometimes pay more to essentially direct them. The revenue from erotic performance is resistant to piracy for much the same reason that live music performances are—what is valuable is immediacy. This is true even when the performance is made over an Internet connection, because a feature of these performances is interactivity.[114]

This emphasis on performance over product attacks the problem of piracy in a different way: in essence, it reduces the consumer's ability to find a true copy.

The product-performance continuum has been highlighted by work focused on the negative space of IP, but the insights that result are not limited to it. As I noted earlier, the music industry is re-configuring to emphasize performance and experience over product. Indeed, recorded music is increasingly seen as advertising for live performance, rather than the other way

108. Mitchell Bros. Film Group v. Cinema Adult Theatre, 604 F.2d 852, 854–55, 858 (5th Cir. 1979) (holding that the Copyright Act neither explicitly nor implicitly prohibits protection of "obscene materials," such as the films at issue there, and rejecting the defendant's affirmative defense of "unclean hands").

109. Websites, such as pornhub.com, redtube.com, and xvideos.com, that offer clips of pornographic content in a format similar to the way non-pornographic content is offered by YouTube.

110. Darling, *supra* note 24, at 738–41.

111. *Id.* at 762.

112. *Id.* at 754.

113. *Id.* at 751.

114. *Id.* at 746–53.

around. This inversion of the traditional relationship renders copying far less harmful, and, arguably, at least in some instances, even positive.

The centrality of performance and experience helps explain the co-existence of some otherwise-contradictory trends in a number of industries. Consider the willingness of customers to pay high prices for movie tickets, even as streaming video in the comfort of one's home grows ever more common.[115] Why pay to go out to a movie theater when you can watch the exact same film on your widescreen high-definition television, thanks to one of the many torrent Websites that feature illegal content? One answer is that the experience is quite different, and many smart theater owners have been rapidly moving to accentuate that difference as dramatically as they can.

There's a lot more that can be said about the negative space literature, but I want to move to the third and final branch of the current scholarship investigating the link between copyright and creative incentives. These are formal laboratory experiments. Again, this is a relatively new form of scholarship—or, more accurately, new to the IP field. And there aren't a lot of examples yet. But the early work is intriguing.[116]

IV. CAN WE MODEL COPYRIGHT IN THE LAB?

If researchers could summon a genie who would grant their wishes, they would probably ask for unfettered access to data about the behavior of actual creators and consumers in real-world settings. But there are substantial hurdles that stand in the way. Data that could be helpful in assessing the relationship of creative behavior to IP incentives is generally proprietary and inaccessible to researchers. And even if that data did exist, interpreting it in an uncontrolled and complicated environment might not yield meaningful causal inferences.

This is why controlled experiments can be useful. There are limitations to experimental research—and I will address those shortly—but in the last few years lab studies have offered some very interesting glimpses into how IP influences creative behavior.

In a general sense, this sort of research is nothing new. Social science researchers have investigated the relationship between

115. Julia Greenberg, *Hollywood is Not Ok with You Watching New Movies at Home*, WIRED (Mar. 18, 2016), https://www.wired.com/2016/03/hollywood-not-ok-watching-new-movies-home/ [https://perma.cc/L3EA-E2VU].

116. Portions of the following section are adapted from Christopher Buccafusco & Christopher Jon Sprigman, *Experiments in Intellectual Property*, *in* RESEARCH HANDBOOK ON THE ECONOMICS OF INTELLECTUAL PROPERTY LAW (VOL. II—ANALYTICAL METHODS), (Peter Menell & David Schwartz, eds.) (forthcoming 2017).

creativity and motivation since at least the 1970s.[117] Some studies in the literature show that participants who expect to receive a reward produce less creative work than participants who expect nothing, though who wanted to do the work anyway.[118] But other studies show that providing incentives can increase performance in contexts in which the criteria upon which the work is judged is well specified.[119] The scholarship broadly suggests carefully-designed rewards can enhance creativity—with the caveat that when a person is already motivated to create, more rewards may not induce better performance.[120] But, importantly, these older studies are not attempting to model the effect of copyright on creative output, and so they are only broadly suggestive and do not themselves provide direct evidence regarding the strength of the link.

Chris Buccafusco, Zachary Burns, Jeanne Fromer and I attempted to adapt the basic premises underlying the older research to model how the incentives offered by copyright and patent affect creativity.[121] The rights granted by copyright and patent are different in a number of ways—but most crucially, they impose different creativity thresholds. An invention must be novel and nonobvious to qualify for a patent.[122] That is a high bar, especially given the infrastructural costs of obtaining a patent. Conversely, copyright only requires that a work be original—that

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117. *See*, *e.g.*, Edward L. Deci, *Intrinsic Motivation, Extrinsic Reinforcement, and Inequity*, 22 J. PERSONALITY & SOC. PSYCHOL. 113 (1972); Teresa M. Amabile, *Effects of External Evaluation on Artistic Creativity*, 37 J. PERSONALITY & SOC. PSYCHOL. 221 (1979); Dan Ariely et al., *Large Stakes and Big Mistakes*, 76 REV. ECON. STUD. 451 (2009).

118. *E.g.*, Amabile, *supra* note 117, at 222 (discussing experimental results showing that rewarded subjects produced less creative responses than those not rewarded for participation); Regina Conti et al., *The Positive Impact of Creative Activity: Effects of Creative Task Engagement and Motivational Focus on College Students' Learning*, 21 PERSONALITY & SOC. PSYCHOL. BULL. 1107, 1109 (1995) (noting that "salient extrinsic motives, such as focusing on external evaluation, have been found to undermine . . . creativity"); Beth A. Hennessey, *The Effect of Extrinsic Constraints on Children's Creativity While Using a Computer*, 2 CREATIVITY RES. J. 151, 152 (1989); *cf.* Ariely et al., *supra* note 129 , at 454–67 (showing that "relatively high monetary incentives can have perverse effects on performance" for cognitively intense tasks, like creative ones).

119. *See* John Glover & A.L. Gary, *Procedures to Increase Some Aspects of Creativity*, 9 J. APPLIED BEHAVIOR ANALYSIS 79 (1976) (finding this to be the case for a verbal creativity task in which points were awarded for fluency (number of different responses), flexibility (number of verb forms), elaboration (number of words per response), and originality (statistical infrequency of verb forms)).

120. Chanpreet Khurana, *Michael Gibbs: Create a Culture of Innovation*, LIVEMINT (Oct. 19, 2014, 1:46 PM IST), http://www.livemint.com/Leisure/9vBCS7rIBYIfWKKhN8vCjO/Michael-Gibbs-Create-a-culture-of-innovation.html [https://perma.cc/Z93D-VZ9B].

121. Buccafusco et al., *supra* note 25.

122. *See* 35 U.S.C. § 102 (the novelty condition for patentability); 35 U.S.C. § 103 (the *nonobviousness* condition for patentability).

is, only that the author didn't copy the entire thing from someone else. Unlike the novelty requirement in patent, copyright requires only a spark of creativity, however slight.[123]

We wanted to test if the reward threshold made a difference. We employed a set of creativity games, which I'll discuss in a moment. For each game, subjects were assigned to one of three conditions: a control, a copyright condition, and a group of patent conditions.[124] The control awarded a bonus randomly. The copyright condition increased the chances of winning the bonus incrementally with performance: more creative results had a better shot, but even a minimal amount of creativity increased a participant's chances at winning. The patent conditions would only unlock past a certain performance threshold: we tried the top 50%, 25% and 5% of results. Only the most creative results would have a chance at winning.

These conditions applied across three games. The first was a variation on the Oregon Trail knapsack problem: given a set of items, subjects had 180 seconds to fill a wagon with a combination of items that would fit, and that had the highest value.[125] We designed the underlying math to be so difficult that there's no way for a human, other than a true computational genius, to calculate the best solution in 180 seconds. Real effort is expended in assembling a creative heuristic to attack the problem. Most creative behavior involves these types of heuristics, filtering and organizing information to act upon, and approximate the best answer. The second task was a wordplay game designed to measure linguistic creativity.[126] Subjects were prompted for a list of "keys," and reviewers assessed the quality of each answer—so, points for "keynote speech" and "Keyshawn Johnson," but no points for "house key."[127] The last task was designed to model visual creativity. Subjects were given a series of abstract drawings, and prompted to give their interpretations—more creative, more points (assessments in the wordplay and visual tasks were done online, with multiple reviewers rating the answers for creativity, and a measure of concordance employed to ensure the ratings' reliability).[128]

We tested whether copyright or patent incentives made a difference across performance. In all three tasks, there was no

123. Feist Publ'ns, Inc. v. Rural Tel. Serv. Co., 499 U.S. 340, 345 (1991) (defining a minimal degree of creativity required for copyright).

124. Buccafusco et al., *supra* note 25, at 1946–47.

125. *Id.* at 1949–50.

126. *Id.* at 1956.

127. *Id.*

128, *Id.* at 1962.

meaningful difference between participants subject to the copyright condition and the control condition.[129] Our incentive structure rewarding a minimal "spark" did not produce any gains.[130] Meanwhile, in two of the three games, our subjects in the patent conditions showed a statistically significant increase in performance.[131]

As a preliminary, please note that the takeaway from this experiment is *not* that copyright is useless and only patent-based incentive structures do any work.[132] However, the experiment's results suggest that the structure of creativity incentives matters.[133] We detected a positive relationship between high-threshold reward and performance.[134] That relationship was absent between the low-threshold reward and performance.[135] So there is a structural component to the way people respond to rewards.

All good, but can we go deeper? Can we use lab experiments to look at the decision whether to create at all? All potential creators are faced with a foundational "make or borrow" choice: whether to adopt a prior solution owned by someone else, or whether to expend the cost of developing a different solution. It is crucial to understand how IP influences how people make this choice.

Stefan Bechtold, Chris Buccafusco, and I hypothesized two elements behind the decision: First, the stated cost of borrowing, and, second, the perceived ease of creating around the original work.[136] We designed two creative tasks: a knapsack problem similar to the last study I mentioned, and a Scrabble-type game where subjects had only 5 tiles and were asked to make the best scoring five words they could come up with in 90 seconds.[137] In both tasks, participants were told another participant had already come up with a solution, and they could receive a bonus if they didn't borrow it, but instead chose to innovate their solution from scratch.[138] Remember that creating from scratch isn't always better. In our game, the choice could be good or bad—subjects who

129. *Id.* at 1953–54.
130. *Id.* at 1972.
131. *Id.* at 1951–54
132. *Id.* at 1976.
133. *Id.*
134. *Id.*
135. *Id.* at 1972.
136. Bechtold et al., *supra* note 25, at 16.
137. *Id.* at 19–22, 32–33.
138. *Id.* at 21, 32.

performed better were paid more, and it was easier to perform better if you borrowed. Whether innovating made sense depended on how big the bonus was for innovating.

We first tested whether the size of the bonus offered for innovating would affect subjects' choice whether to innovate or borrow. We randomly varied the size of the innovation bonus.[139] Some values were too low, and others were way too high. Remember, again, that real money is at stake here - subjects could meaningfully increase their compensation by responding to the incentives we were presenting to them and making rational choices between innovating and borrowing.

And the results were . . . surprising. In the knapsack experiment, for example, we found that regardless of the value of the bonus offered, participants innovated at an equal rate: about 70%.[140] Remember, in a lot of cases, this is inefficient behavior: an objectively higher bonus should mean less borrowing. But it didn't. In our experimental setting, incentives designed to provoke innovation from scratch rather than re-use of someone else's work don't seem to be working as Econ 101 would predict.

We then ran a second experiment testing whether perceived ease of innovation makes a difference.[141] Here, we kept the innovation bonus constant, but altered the quality of given solutions.[142] Some participants were given a solution that was 60% as good as the best solution, others 80%, others 100%.[143] A better solution should be more borrowed—and mostly that occurred: as solutions to the knapsack problem got better, participants were more likely to borrow rather than innovate.[144] So, in general, our participants' *subjective* beliefs about the ease of innovating seemed to have a more substantial effect on their decisions than *objective* incentives designed to encourage them to innovate.

There was one exception, which I find fascinating. In our Scrabble task, subjects did something weird: their borrowing rates increased between the good and better solution, but absolutely cratered against the best solution.[145] Against a 100% optimal solution—that is, a solution that literally could not be improved upon—subjects chose to innovate at a substantially higher rate, even though innovation from scratch was an overwhelmingly bad

139. *Id.* at 21, 33.
140. *Id.* at 24.
141. *Id.* at 39.
142. *Id.* at 39–40, 43–44.
143. *Id.* at 39, 44.
144. *Id.* at 40, 44.
145. *Id.* at 45.

idea in this setting. The most rational behavior was to rip off the best solution, but almost nobody did that.

So what happened? The choice to innovate or borrow is a game of estimation and intuition. In the case of our Scrabble game, the best solution was also the hardest solution: a list of long, challenging words. Thus, in a sense, it was also the easiest solution to avoid. The subjects decided that it was easiest to innovate new, short words—ignoring that their words would yield a lower score.[146] Subjects in our experiment tended to rely more on their intuition than on the incentives that we offered them.[147] Sometimes to their grief. We need to know a lot more about the effect of incentives on shaping creators' decisions, but if this experiment suggests anything, what we're going to find in future work isn't people coolly calculating the odds and reckoning whether innovation makes sense. Instead, I predict we're going to see a lot of people doing what their gut tells them is right. IP incentives won't work smoothly or as expected in a world like that.

V. CONCLUSION

In sum, the results from the lab experiments further complicate the simple theoretical story of creative incentives. The bigger picture suggests that copyright may contribute to creative incentives in some contexts and under some conditions, but not in others—and usually not in the manner or to the extent that orthodox economics would predict.

More broadly, I perceive two takeaways from the three categories of empirical work I've discussed here.

First, so far we have achieved only a glimpse into copyright's reality. For the empirical study of copyright incentives to provide a clear picture of how, and when, copyright motivates creativity, we need more—a lot more, and more varied—studies. We need better access to data, which is usually proprietary. And those of us who do empirical research on the link between copyright and creativity need to do more to attract talent into the field. The question of what spurs creativity is of surpassing importance to human life. It's a scandal we know as little about it as we do.

Second is a cautionary note about the translation from scholarship to policy. Right now, the picture is still hazy, but the scholarship to date suggests that if policymakers are looking for simplicity or consistency, they are likely to be disappointed. From

146. *Id.*

147. *Id.* at 45–46.

a distance, the link between copyright and creative incentives looks clear and straightforward. But once we get close up, the picture is blurrier, more contingent, and more contextualized. Frankly, I don't know what else we should have expected. The world is usually simple only in theory.

The most interesting question will be answered in the coming decades, when the empirical scholarship on copyright and creative incentives matures. I wonder if it will tell the same story as it does now: that copyright incentives are sometimes relevant, sometimes not. If it does—if it turns out that in the real world, copyright takes on a dynamic and context-dependent relationship with creative incentives—we should ask ourselves if policy can re-align to tailor copyright toward areas where it does good.

For now, I'm still skeptical. The political economy of copyright is tilted heavily toward that interests of content producers.[148] The interests of consumers, and indeed even of later creators, often are downplayed in copyright policy debates. Nor is the policy making process especially open to evidence from academics. However, though these barriers are very real, if we want empirical copyright scholarship to achieve its potential, two conditions are necessary. First, empirical scholars need to expand and refine our understanding of the relationship between copyright and creativity. Second, we need to become more active, in a responsible, balanced way, in the policy debate. Without input from scholars who are interested in the deep empirics of copyright, we can expect lawmaking in this area to bend toward private interests that are clearly presented and well-understood, with the overall effect of copyright rules on social welfare often being relegated to an afterthought. That outcome isn't inevitable. But there's a lot of work to be done to make copyright policymaking more rational, scientific, and evidence-based.

148. *See* David McGowan, *Some Copyright Consumer Conundrums*, *in* CONSUMER PROTECTION IN THE AGE OF THE 'INFORMATION ECONOMY' 155 (Jane K. Winn ed., 2006).