

COPYRIGHT'S L CURVE PROBLEM

*Glynn S. Lunney, Jr.**

No one ever argues for longer, broader, or more effective copyright on the grounds that superstar authors and artists need more money.¹ If only copyright's term were extended for another twenty years, Taylor Swift could own ten homes, instead of only eight.² If only copyright were more effective at limiting the use of file sharing, Ms. Swift could earn \$210 million a year, instead of only \$170 million.³ If only copyright could close the imaginary "value gap" and force YouTube to pay a higher per-stream royalty rate, Ms. Swift could have a net worth of \$400 million, instead of only \$320 million.⁴

No one argues for longer, broader, or more effective copyright on these grounds for a simple reason: These arguments are unpersuasive. From an efficiency or social welfare perspective, superstar artists, such as Ms. Swift, already earn more from a single

* Professor of Law, Texas A&M University School of Law. I would like to thank Wendy Gordon, Justin Hughes, Mark Lemley, Rob Merges, Pam Samuelson, Christopher Sprigman, Rebecca Tushnet, and participants at the 2019 Works-in-Progress Intellectual Property Colloquium for helpful comments and suggestions.

¹ Taylor Swift came close in an ill-conceived *Wall Street Journal* editorial in July 2014:

Music is art, and art is important and rare. Important, rare things are valuable. Valuable things should be paid for. It's my opinion that music should not be free

Taylor Swift, *For Taylor Swift, the Future of Music is a Love Story*, WALL ST. J., Jul. 7, 2014. When Apple announced a free three-month trial for consumers for its streaming service the following year – streams for which artists would not be paid – Ms. Swift changed her tune and emphasized the plight of the average artist:

This is not about me. Thankfully I am on my fifth album and can support myself, my band, crew, and entire management team by playing live shows. This is about the new artist or band that has just released their first single and will not be paid for its success. This is about the young songwriter who just got his or her first cut and thought that the royalties from that would get them out of debt. This is about the producer who works tirelessly to innovate and create

Kaitlyn Tiffany, *A history of Taylor Swift's odd, conflicting stances on streaming services*, THE VERGE, June 9, 2017 (available at <https://www.theverge.com/2017/6/9/15767986/taylor-swift-apple-music-spotify-statements-timeline>) (last visited Jan. 15, 2019).

² See, e.g., Hillary Hoffower & Shayanne Gal, *Taylor Swift owns at least \$84 million in real estate across four states — and she's not even 30*, BUSINESS INSIDER, June 30, 2018 (stating that Taylor Swift owns eight homes) (available at <https://www.businessinsider.com/taylor-swift-homes-new-york-los-angeles-nashville-map-2018-6>) (last visited Jan. 15, 2019).

³ See Zack O'Malley Greenburg, *Celeb 100: The World's Highest-Paid Celebrities of 2016*, FORBES, Jul. 11, 2016 (estimating Taylor Swift's earnings for 2016 at \$170 million) (available at <https://www.forbes.com/sites/zackomalleygreenburg/2016/07/11/celeb-100-the-worlds-highest-paid-celebrities-of-2016/#35f865c956dd>) (last visited Jan. 15, 2019).

⁴ See Zack O'Malley Greenburg, *Taylor Swift's Net Worth: \$320 Million in 2018*, FORBES, Jul. 11, 2018 (available at <https://www.forbes.com/sites/zackomalleygreenburg/2018/07/11/taylor-swifts-net-worth-320-million-in-2018/#10de186d233f>) (last visited Jan. 15, 2019).

hit than the average college-educated American will earn in a lifetime.⁵ Paying them ten percent more on any given hit is unlikely to increase their creative output. To the contrary, as I have shown in a landmark study of the music industry, paying our superstar artists more, as we did in the 1990s, reduced their creative output.⁶ From a just desert perspective, copyright is already awarding superstar artists a disproportionate share of society's wealth for their labor. I enjoy Ms. Swift's music, but even as a fan, I have to admit that the marginal private value copyright enables Ms. Swift to capture is likely already greater than the marginal social value she creates.⁷ From a distributive justice perspective, broadening copyright to ensure that superstars such as Ms. Swift earned more for her music would take from the poor to give to the rich. That is not distributive justice, but it's opposite.

To justify itself, copyright needs to help a group of middle class, or better yet starving, artists, not just the superstars. For this reason, proponents of longer, broader, and more effective copyright focus their story-telling efforts on the marginal and proverbially starving artist and the more ordinary folks whose work copyright supports.⁸ The problem is that these stories are either deceptively misleading or outright lies.

⁵ See GLYNN LUNNEY, COPYRIGHT'S EXCESS: MONEY AND MUSIC IN THE US RECORDING INDUSTRY 180-81 (2018) (noting that testimony in the *Blurred Lines* trial showed that the songwriters and artists involved earned more than \$28 million in profits on the song, for a song that required less than a day to record, and comparing that to median lifetime earnings for a college-educated worker of \$2.7 million).

⁶ See LUNNEY, *supra* note 5, at 157-92. Today, there are over forty million songs and podcasts available. Spotify, *Celebrating a Decade of Discovery on Spotify*, Oct. 10, 2018 (available at <https://newsroom.spotify.com/2018-10-10/celebrating-a-decade-of-discovery-on-spotify/>) (last visited Jan. 15, 2019).

⁷ This is the implication of Marshall's superstar model. See LUNNEY, *supra* note 5, at 34-37 (discussing Marshall's superstar model and applying it to music); see also ALFRED MARSHALL, PRINCIPLES OF MICROECONOMICS 728 (1890) (introducing the superstar model, but suggesting, given the technology of the day, that it did not apply to singers); Sherwin Rosen, *The Economics of Superstars*, 71 AM. ECON. REV. 845 (1981); Alan Krueger, *The Economics of Real Superstars: The Market for Rock Concerts in the Material World*, 23 J. LABOR ECON. 1 (2005). See also text accompanying notes 84-87 *infra*.

⁸ For example, Michael O'Leary, of the Motion Picture Association of America, testified in favor of the Stop Online Piracy Act by pointing to the ordinary workers whose jobs copyright supports:

Fundamentally, this is about jobs. The motion picture and television industry supports more than two million American jobs in all 50 states. The 20 states and Puerto Rico represented by this Committee are home to 1.7 million American jobs supported by the motion picture and television industry, including more than 525,000 direct motion picture and television industry jobs. About 12 percent of those are directly employed in motion picture and television production and distribution, jobs paying an average annual salary of nearly \$79,000. Those are not just the people whose names you see on the marquee in front of the theater they're the hardworking people behind the scenes, from the carpenter who built the set, to the costumer and make-up artist who helped bring each character to life, to the Foley artist who created the sound effects.

The "Stop Online Piracy Act": Hearing on H.R. 3261 Before the H. Comm. on the Judiciary, 112th Cong. 72 (2011) (statement of Michael P. O'Leary, Senior Exec. Vice President, Global Policy and External Affairs, on behalf of the Motion Picture Association of America, Inc.), available at http://judiciary.house.gov/_files/hearings/printers/112th/112-154_71240.PDF.

Consider Spotify as an example and the ongoing debate over whether streaming royalties are high enough. In 2015, there were twenty-five million songs in Spotify’s catalog.⁹ The most popular song on Spotify, to date, has been Ed Sheeran’s *Shape of You*.¹⁰ It has been streamed more than two billion times.¹¹ It is easy to see how longer, broader, or more effective copyright protection that increased the per-stream royalty rate would increase the earnings associated with that song. However, at least as of 2013, there were four million songs on Spotify that have never been streamed, not even once.¹² For the copyright owners of those four million songs, a longer, broader, or more effective copyright does nothing. Even if we could change copyright and thereby increase the per-stream royalty rate by ten percent, ten percent more of nothing is still nothing. Nothing copyright can do will increase the earnings associated with a song to which no one wants to listen.

Of course, between the most popular song on Spotify and the least popular songs on Spotify, there is a whole range of more-or-less popular songs. Even if it is true that copyright can do nothing for the songs to which no one wants to listen, surely it can help some of those whose works lie in the middle – works that are neither the work of superstars nor completely uninteresting. Critically, however, that requires that there be works in the middle. Whether there are works in the middle, and if so, how much copyright can do for them, depends on the distribution of demand between the most popular songs of the superstars and the unpopular songs to which no one wants to listen. On Spotify, for example, does the “average” song receive 50,000 streams a year or only 500? If only 500, then arguing that copyright should ensure an increased royalty rate on streaming in order to provide a livable wage for the average artist is both a fool’s game and misleading. It is a fool’s game because even doubling Spotify’s current maximum rate of \$0.0084 per stream would increase the royalties for such a song by only \$4.20 annually.¹³ It is misleading because it asks us to focus on that \$4.20 and ignore the tens

⁹ Stuart Dredge, *Spotify now processes nearly “1 BN streams every day,”* July 22, 2015 (available at <http://musically.com/2015/07/22/spotify-1bn-streams-every-day/>) (last visited Dec. 23, 2016).

¹⁰ Spotify, *Celebrating a Decade of Discovery on Spotify*, Oct. 10, 2018 (available at <https://newsroom.spotify.com/2018-10-10/celebrating-a-decade-of-discovery-on-spotify/>) (last visited Jan. 15, 2019).

¹¹ As of January 15, 2019, Spotify lists the song as being streamed 2.039 billion times. For instructions on how to see the stream count for any song on Spotify, see *On Spotify, can you check the total view count for a song?* QUORA, Aug. 15, 2017 (available at <https://www.quora.com/On-Spotify-can-you-check-the-total-view-count-for-a-song?m=1>) (last visited Jan. 15, 2019).

¹² See Mario Aguilar, *More Than 4 Million Spotify Songs Have Never Been Played*, Gizmodo, Oct. 14, 2013 (available at <http://gizmodo.com/more-than-4-million-spotify-songs-have-never-been-played-1444955615>) (last visited Aug. 31, 2017).

¹³ If the “average” work receives 50,000 streams a year, doubling the per-stream royalty rate would increase the associated royalties of the average work from Spotify by \$420 annually. That is not a livable wage on its own, but most artists have more than one song on Spotify, and Spotify is not the only streaming service or revenue source.

of millions of dollars such a doubling would take from consumers and gift to already vastly overpaid superstars.¹⁴

Because a desire to overpay superstars cannot justify copyright, any compelling justification requires an understanding of how the demand for various works of authorship is distributed between the most and least popular works. Unfortunately, on this key issue, there has been no solid evidence. This is not to say that the data does not exist. In the music space, for example, collectives, such as ASCAP, BMI, SESAC, and SoundExchange, as well as streaming services, such as Spotify, Apple Music, and YouTube, all know exactly how the demand, and consequently the rents or incentives copyright generates, are distributed among the various musical works or sound recordings in their respective catalogs or on their platforms. Similarly, in other copyright industries, publishers and distributors know the distribution of demand for books, computer programs, and audiovisual works. Although industry players have this data, they have not historically shared it with the rest of us. They have not shared it even when they come to Congress insisting that they need ever-longer, ever-broader, and ever-more-effective copyright. At best, they may release sales data for a select group of best-sellers in their industries and leave us to guess how less popular works fare in the marketplace.

As a practical matter, this has left us with effectively two data points: (i) at the high end of the demand distribution curve, we may know the sales for a relative handful of the most popular works; and (ii) at the low end, we may know or can reasonably assume that the last few works do not sell at all well. Lacking any hard data on how demand is distributed between these two end points, the almost inevitable practice has been to draw a more-or-less straight line connecting the two. Whether we draw that straight-line explicitly or simply assume it implicitly somewhere in the back of our heads, that straight-line distribution allows us to pretend that there is a significant middle class of authors that copyright benefits.

That more-or-less straight-line assumption, though rarely discussed, let alone critically examined, turns out to be crucial for any compelling justification for copyright. As the distribution of demand among works of authorship becomes more sharply skewed, copyright becomes more difficult to justify. As the distribution becomes more sharply skewed, more and more of the demand in the market is concentrated in fewer and fewer works. At the extreme, the distribution of demand comes to resemble an L. Graphically, if we plot the demand for a work on the y-axis against its popularity rank within the industry on the x-axis, we find two lines. First, there is a vertical line on and immediately adjacent to the y-axis. This is copyright's tall peak and represents the very high demand for a relative handful of extremely popular works. Second, there is a second, shorter

¹⁴ Doubling the rate would have paid an additional \$16.8 million to the copyright owners of *Shape of You* alone.

horizontal line lying flat against the x-axis. This is copyright's short tail¹⁵ and represents the very low demand for all of the rest. If we connect those two lines, the resulting distribution of demand resembles an L – tall peak, short tail.

Copyright owners want to focus our attention on how copyright helps those in its short tail, but it is copyright's tall peak which should command our attention. As the distribution of demand comes more closely to resemble an L, copyright's direct benefits flow increasingly to the superstar artists and authors in the tall peak. With a true L curve distribution, all of copyright's incentives flow to those superstars. None flows to the marginal or average author in copyright's short tail. In the face of an L curve, unless we can justify copyright on the basis of overpaying superstars, copyright becomes all cost and no benefit, almost regardless of how we define cost and benefit.

For the first time, in this article, I present empirical data from one copyright sector, the PC videogame industry, demonstrating that the distribution of demand for works of authorship in that industry resembles an L-curve. A relative handful of games are popular, and those that are popular are very popular indeed. All of the remaining games – the vast majority – are not popular at all. I then explore more thoroughly the implications of that empirical data for copyright. To set the stage for the data, part I of the article will begin with a brief review of the theoretical justifications for copyright and explore how the distribution of demand matters to each of them. Part II introduces the data. Part III examines its normative significance and doctrinal implications. Part IV concludes.

The key point, however, is simple: Data from the videogame industry establishes that the distribution of demand for games in that industry resembles an L. There is a tall peak and a short tail. In the face of that L curve, copyright is difficult to justify. It is unlikely to provide much in the way of incentives to the marginal videogame, and what marginal incentives it provides are vastly outweighed by the excess incentives it provides the most popular games. It is unlikely to ensure a livable wage for the copyright owners of the marginal videogame. And it mostly redistributes money from the relatively poor videogame consumers to the relatively rich owners of the copyrights in the relative handful of super-popular games. In the face of such an L curve, if copyright can be justified at all, it must be narrow, short, and relatively ineffective at preventing unauthorized copying.

¹⁵ By manipulating the scale, we can make the tail appear long, as others have done. See CHRIS ANDERSON, *THE LONG TAIL: WHY THE FUTURE OF BUSINESS IS SELLING LESS OF MORE* (2006). But if we use a similar scale for the axes, the tail is relatively short compared to the demand for the most popular works. Thus, on Spotify today, there are 40 million songs. That tail seems plausibly long. However, the most popular song has been streamed more than 2 billion times. The demand for the most popular work in copyright's tall peak is thus fifty times the number of songs in copyright's relatively short tail.

I. *Setting the Stage*

In the United States, the Constitution authorizes Congress to enact copyright for a single purpose: “the Progress of Science.”¹⁶ The Court, in turn, has defined “the Progress of Science” to include two legitimate ends: (i) encouraging the creation of new, original works; and (ii) ensuring that those works are widely available to the public.¹⁷ The Constitution’s language would seem to require a social welfare or efficiency-driven copyright – a copyright that seeks to encourage the creation of new, original works and to ensure that they are widely available to the public. But other normative justifications also seem to play a role in the American copyright system. These include: (i) a vague notion of just or labor desert; and (ii) a desire for distributive or social justice. In the next section, I will introduce each of these justifications briefly. In the following section, I will then consider the importance of the distribution of demand to each of them and explore, in preliminary fashion, whether we can justify copyright under an L-shaped distribution of demand.

A. *Justifications for Copyright*

The welfare or efficiency argument for copyright is not new. The Stationers’ Guild asserted the basic argument more than four hundred years ago in a 1586 petition to the Star Chamber:

And further if privileges [that is, copyright] be revoked no books at all should be printed, within a short time, for commonly the first printer is at charge for the Author’s pains, and some other such like extraordinary cost, where an other that will print it after him, comes to the Copy gratis, and so may he sell better cheaper than the first printer, and then the first printer shall never utter [that is, sell] his books.¹⁸

Today, the basic efficiency argument for copyright remains the same.¹⁹ In this argument, without copyright, a copying competitor would copy each popular work as it came out and sell it for less. Desperate for a bargain, consumers would purchase the cheaper copies, and the original author would earn nothing or very little for her labor. Foreseeing that outcome, many authors would forego authorship altogether and invest

¹⁶ U.S. CONST. art. I, § 8, cl. 8.

¹⁷ *Eldred v. Ashcroft*, 537 U.S. 186, 206 (2003).

¹⁸ EDWARD ARBER, ED., 2 A TRANSCRIPT OF THE REGISTERS OF THE COMPANY OF STATIONERS OF LONDON: 1554-1640 A.D. at 805 (1875).

¹⁹ See William M. Landes & Richard A. Posner, *An Economic Analysis of Copyright Law*, 18 J. LEGAL STUD. 325, 326–27 (1989); Glynn S. Lunney, Jr., *Reexamining Copyright’s Incentives-Access Paradigm*, 49 VAND. L. REV. 483 (1996) (hereinafter *Copyright’s Incentives-Access Paradigm*); see also H.R. Rep. No. 60–2222, 60th Cong., 2d Sess. 7 (1909) (“In enacting a copyright law Congress must consider ..., two questions: First, how much will the legislation stimulate the producer and so benefit the public; and, second, how much will the monopoly granted be detrimental to the public?”).

their time and talents elsewhere. They would invest their talents elsewhere even when society would value their work as authors more highly.

At the outset, we should realize that this is just a story – a story that lawyers came up with in an attempt to win a case for their clients. It is a story that has been long told and often repeated, at least in copyright circles. Yet, that does not make it true. While we can devise a mathematical model that supports the argument,²⁰ that model requires certain assumptions, and those assumptions are verifiably and materially false.²¹ If we change those assumptions, we can devise different models that reach different conclusions. In other work, I and others have presented such alternative models demonstrating that: (i) the market will overproduce original works of authorship in the absence of copyright (Marshall’s “superstar” model)²²; (ii) the market can reach the optimal output of original works of authorship in the absence of copyright (the “discrete goods” model)²³; and (iii) the market may over-produce, under-produce, or produce the optimal output of original works in the absence of copyright, there’s no way to know which, and there’s also no way to know whether establishing copyright will make the situation better or worse (the theory of the second best).²⁴

The only way to know which of these models captures the truth, or at least an aspect of the truth, is to test them empirically – a task that is just beginning.²⁵ While that task continues, these models remain useful because they help identify the relevant empirical

²⁰ The original mathematical model that supports this view is Paul Samuelson’s. See Paul A. Samuelson, *The Pure Theory of Public Expenditures*, 36 REV. ECON. STATS. 387 (1954).

²¹ I am aware that all economic models simplify, and in that sense, are false. See, e.g., GEORGE E.P. BOX & NORMAN R. DRAPER, *EMPIRICAL MODEL-BUILDING AND RESPONSE SURFACES* 74 (1987) (“[A]ll models are wrong; the practical question is how wrong do they have to be to not be useful.”). That is not the point that I am making. I am suggesting that the traditional account used to justify copyright is sufficiently wrong not to be useful.

²² See LUNNEY, *supra* note 5, at 34-37; see also note 7 *supra*.

²³ See LUNNEY, *supra* note 5, at 32-34; Glynn S. Lunney, Jr., *Copyright, Private Copying, and Discrete Public Goods*, 12 TULANE J. TECH. & INT. PROP. 1 (2009); see also Charles Brain Cadsby & Elizabeth Maynes, *Voluntary Provision of Threshold Public Goods with Continuous Contributions: Experimental Evidence*, 71 J. PUB. ECON. 53, 68-69 (1999) (“[O]ur experiments provide many examples where groups move toward cooperation rather than free-riding over time. Indeed, our results indicate that a deterioration in the level of contributions is a special case, occurring only when the incentives to reach an efficient equilibrium are relatively low. The more general result is that contributions move toward a Nash equilibrium over repeated rounds of a public goods game.”); Daniel Rondeau *et al.*, *Voluntary Revelation of the Demand for Public Goods Using a Provision Point Mechanism*, 72 J. PUB. ECON. 455, 468 (1999) (“Using large groups in an induced value framework, we have shown that the provision point mechanism with money-back guarantee and proportional rebate of excess contributions can closely approximate demand revelation.”). For some of the literature exploring why individuals do not always free ride when they can, see DOUGLAS D. DAVIS & CHARLES A. HOLT, *EXPERIMENTAL ECONOMICS* 317-43 (1993); Thomas R. Palfrey & Jeffrey E. Prisbrey, *Anomalous Behavior in Public Goods Experiments: How Much and Why?*, 87 Am. Econ. Rev. 829 (1997).

²⁴ See Lunney, *supra* note 5, at 37-38; see also R.G. Lipsey & Kelvin Lancaster, *The General Theory of Second Best*, 24 REV. ECON. STUD. 11 (1956) (formally showing that in the presence of imperfections, such as market power or externalities in other markets, the normative conclusions of partial equilibrium analysis are unreliable).

²⁵ See LUNNEY, *supra* note 5.

questions we will need to answer. For example, if we accept the Stationers' Guild's argument, the associated economic model identifies both the relevant costs and the relevant benefits of enacting or expanding copyright. The benefit of copyright, in this model, is the additional works copyright encourages at the margins of profitability. When we initially enact copyright or subsequently expand its protection, whether by extending copyright's term, broadening copyright's scope, or making copyright more effective at preventing unauthorized copying, we increase the economic return for creating any given work of authorship. By doing so, we provide more incentives for, and thereby ensure the existence of, additional works at the margins. Again, in this model, the fear is that with no copyright or narrower copyright, some marginal authors will not be able to earn enough to cover their persuasion costs. If they do not expect to cover their costs, they will forego authorship and use their skills elsewhere in the economy, even when society would more highly value the use of their time for authorship. As we initially adopt or subsequently expand copyright, marginal authors will earn more for their work, and for some of them, their earnings will become large enough to cover their persuasion costs of authoring and distributing their work. With copyright, rather than without, or with broader, rather than narrower, copyright, some additional authors will expect to earn a profit, where they would otherwise expect a loss. As a result, with copyright, rather than without, or with broader, rather than narrower, copyright, society will receive additional works of authorship. In this framework, the net social value of these marginal works over and above the social value that would have been created had the author devoted her talents elsewhere in the economy²⁶ represents copyright's benefit.

Copyright's cost, in this framework, arises because copyright is uniform.²⁷ For any given length, breadth, or effectiveness of copyright protection, and even for no copyright at all, some works will be authored and distributed. Copyright did not exist in the Anglo-American legal world until the Statute of Anne in 1710.²⁸ Yet, books, such as *The Iliad*, *Beowulf*, and *Don Quixote*, were written and distributed before that time – written and distributed without any copyright at all. As copyright protection was repeatedly extended and expanded from the first American copyright act in 1790 until today, books, such as

²⁶ In a partial equilibrium model, we assume that this opportunity cost is fully internalized in the author's reservation price for authoring and distributing her work. There is no reason to believe that this assumption will generally be true in the real world. In the economy generally, positive and negative externalities abound, and imperfectly supplied public goods are commonplace. A more realistic model would recognize the possibility that an individual can earn more as an author or artist and thus cover her reservation cost, yet her contribution to society would be more valuable elsewhere in the economy, perhaps as a teacher or engineer.

²⁷ See Glynn S. Lunney, Jr., *Patents, the Federal Circuit, and the Supreme Court: A Quiet Revolution*, 11 SUP. CT. ECON. REV. 1, 40-56 (2004) (identifying and modeling the uniformity costs associated with intellectual property in the context of patent law) [hereinafter *A Quiet Revolution*]; Michael W. Carroll, *One For All and All for One: The Problem of Uniformity Costs in Intellectual Property Law*, 15 AM. U.L. REV. 845 (2006) (extending the uniformity costs analysis to copyright).

²⁸ 8 Ann., c. 19 (1710) (Eng.).

Pride and Prejudice, *A Tale of Two Cities*, and *Frankenstein*, were written and distributed under one of the historical copyright regimes that provided much shorter and narrower protection than we have today.²⁹ Had we never enacted copyright, or had we retained the much shorter and narrower versions of the 18th, 19th, or early 20th century, presumably some authors would have continued to write and distribute their works, just as they had before copyright was enacted and expanded.³⁰ Even if we focus on profit-motivated, rather than intrinsically-motivated, authorship, lead-time advantages,³¹ reputational rents,³² the willingness of consumers to pay more for access to an authorized or official copy,³³ the ability to collect revenue through complementary products,³⁴ and other market mechanisms would ensure that substantial authorial output would occur even in the absence of copyright.³⁵ If there were any doubt on this issue, we can look to high

²⁹ Jane Eyre and Charles Dickens, the authors of *Pride and Prejudice* and *A Tale of Two Cities*, respectively, were both British. At the time they were published, American copyright law did not protect the works of foreign authors. As a result, their works were not protected by copyright in the United States at all. The United States extended copyright to foreign authors for the first time in the Copyright Act of 1909. Compare Act of Mar. 4, 1909, 60th Cong., 2d Sess., § 9 (recognizing rights of foreign authors in certain cases), with Act of Jul. 8, 1870, § 86, 16 Stat. 198 (limiting copyrights to United States citizens).

³⁰ The most recent example of this is the outpouring of sound recordings in the United States by superstar recording artists, ranging from Elvis Presley to Jimi Hendrix, in the 1950s into the early 1970s. See Lunney, *supra* note 5, at 89 (showing that 1968-1972 were the best years in terms of top albums released according to *Rolling Stone's* ranking of the top albums of all time). Congress did not formally protect sound recordings under federal copyright law until 1971 for recordings fixed after February 15, 1972. Sound Recording Amendment, Pub. L. No. 92-140, § 3, 85 Stat. 391, 392 (1971). A similar outpouring occurred again following the rise of file sharing. See *id.* (using Soundscan data to show a sharp rise in the number of albums released annually after 2000). While the rise of file sharing did not kill the sound recording copyright entirely, it definitely reduced the effective level of copyright protection for such works. *Id.* at 74-80. While the traditional account suggests that reducing copyright protection would decrease creative output, that is not what happened in the recording industry. Less copyright was associated with more and better music, or at the very least, with no loss in music output. *Id.* at 3-4; see also Christian Handke, *Digital Copying and the Supply of Sound Recordings*, 24 INFORMATION ECON. & POL'Y 15 (2012) (examining the release of new albums in Germany from 1984 through 2006 and finding that neither the quantity nor quality of original sound recordings fell after the rise of file sharing); Joel Waldfogel, *Copyright Protection, Technological Change, and the Quality of New Products: Evidence from Recorded Music Since Napster*, 55 J.L. & ECON. 715 (2012) (examining the number of albums released and critics' evaluations of albums released in the United States from 1980 through 2010 and finding that neither the quantity nor quality of the releases changed after the rise of file sharing).

³¹ See Stephen Breyer, *The Uneasy Case for Copyright – A Study of Copyright in Books, Photocopies, and Computer Programs*, 84 HARV. L. REV. 281, 286 (1970).

³² See Lunney, *A Quiet Revolution*, *supra* note 27, at 59-63 (presenting a model showing how reputational rents can incentivize innovation).

³³ See Glynn S. Lunney, Jr., *The Death of Copyright: Digital Technology, Private Copying, and the Digital Millennium Copyright Act*, 87 VIRGINIA L. REV. 813 (2001) (discussing voluntary contribution models as a mechanism for funding the production of public goods, including original works of authorship) [hereinafter *The Death of Copyright*].

³⁴ See Glynn S. Lunney, Jr., *Copyright, Derivative Works, and the Economics of Complements*, 12 VAND. J. ENT. & TECH. L. 779 (2010); Jiariu Liu, *Copyright Complements and Piracy-Induced Deadweight Losses*, 90 IND. L.J. 1011 (2015).

³⁵ See Breyer, *supra* note 31, at 301-07 (“In sum, without copyright protection organizing buyers to channel needed funds to publishers may sometimes prove difficult but will often prove practical. The ability to organize buyers – along with the initial publisher’s “retaliatory” and “lead time” advantages – should

creative output in sectors such as fashion, new recipes, and open source software, with seemingly similar free rider problems, but without copyright, to put those doubts to rest.³⁶ I will call the works that would have been, or would be, authored and distributed, with less or no copyright “non-marginal” works.

When we initially adopt or later expand copyright, copyright extends its new or broader protection to both the marginal and the non-marginal work alike. This uniformity imposes a cost. Just as copyright, or broader copyright, provides incentives by increasing the revenue a copyright owner captures on the marginal work, it also increases the revenue copyright owners capture on non-marginal works. For the marginal work, this additional revenue is necessary to ensure the marginal work’s expected profitability and hence existence. But the additional revenue is not necessary to ensure a non-marginal work’s creation and distribution. By our definition of non-marginal, the non-marginal work would exist even with no or with narrower copyright. The additional revenue that copyright or broader copyright provides to these non-marginal works exceed the author’s persuasion cost for creating and distributing his or her work. They are unnecessary to ensure these works’ creation and distribution. In that sense, they are “excess” incentives.

On their own, these excess incentives are a mere wealth transfer, from consumers of that work to its copyright owner, and thus not a direct welfare loss. Nevertheless, their availability will impose three types of welfare losses. First, as has been well-recognized, to transfer these excess incentives from consumers to copyright owner through the market requires a higher price for access to the pre-existing work – a price higher than necessary to ensure the work’s creation and distribution.³⁷ These higher-than-necessary prices in turn will force some consumers who are unable to afford the excessively high price to do without and force some follow-on creators to forego their projects.³⁸ Like any other wealth transfer through the market, the availability of excess incentives will thus impose the familiar specter of deadweight welfare losses. Some consumers will unnecessarily be denied access. Some follow-on creativity will not occur. For this reason,

severely limit – even though it may not eliminate – the revenue loss which publishers fear that unrestricted competition threatens.”); Lunney, *A Quiet Revolution*, *supra* note 27, at 56-64.

³⁶ See Jessica Litman, *The Exclusive Right to Read*, 13 CARDOZO ARTS & ENT. L.J. 29, 44-46(1994); Kal Raustiala & Christopher Sprigman, *The Piracy Paradox: Innovation and Intellectual Property in Fashion Design*, 92 VA. L. REV. 1687, 1689 (2006); Yochai Benkler, *Coase’s Penguin, or, Linux and The Nature of the Firm*, 112 YALE L.J. 369 (2002); Josh Lerner & Jean Tirole, *Some Simple Economics of Open Source*, 50 J. INDUS. ECON. 197 (2002).

³⁷ Kenneth Arrow is generally credited with the modern formulation of the paradigm: “In a free enterprise economy, inventive activity is supported by using the invention to create property rights; precisely to the extent that it is successful, there is an underutilization of the information.” Kenneth J. Arrow, *Economic Welfare and the Allocation of Resources for Invention*, in THE RATE AND DIRECTION OF INVENTIVE ACTIVITY 609, 617 (1962).

³⁸ See William W. Fisher III, *Reconstructing the Fair Use Doctrine*, 101 HARV. L. REV. 1659, 1702 (1988); Lunney, *Copyright’s Incentives-Access Paradigm*, *supra* note 19, at 497-98.

courts and commentators often suggest that balancing incentives and access represents the key criteria for optimal copyright.³⁹ In this framing, “incentives” serves as the proxy for the marginal social value of the additional works copyright may encourage. And “access” refers to the deadweight welfare losses associated with the excess incentives copyright provides.

But lost access is not the only welfare loss that excess incentives impose. The availability of these excess incentives will also lead to a second type of welfare loss. Authors and publishers will spend resources competing with each other to capture them.⁴⁰ While some of these expenditures may themselves generate social value, some will not. Some may actually reduce social welfare. For example, advertising and promotion represents on average roughly one-third of the cost of a major motion picture.⁴¹ These advertising expenditures are rent-seeking in the sense that they seek to

³⁹ See *Feist Pubs. Inc. v. Rural Tele. Serv. Co.*, 499 U.S. 340, 349-50 (1991) (“The primary objective of copyright is not to reward the labors of authors, but ‘[t]o promote the Progress of Science and useful Arts.’” Art. I, § 8, cl. 8 . . . To this end, copyright assures authors the right to their original expression, but encourages others to build freely upon the ideas and information conveyed by a work”); *Sony Corp. v. Universal City Studios, Inc.*, 464 U.S. 417, 429 (1984) (“This limited grant [that is, copyright] is a means by which an important public purpose may be achieved. It is intended to motivate the creative activity of authors and inventors by the provision of a special reward, and to allow the public access to the products of their genius after the limited period of exclusive control has expired.”); *Computer Assocs. Int’l, Inc. v. Altai, Inc.*, 982 F.2d 693, 696 (2d Cir. 1992) (“Copyright law seeks to establish a delicate equilibrium. On the one hand, it affords protection to authors as an incentive to create, and, on the other, it must appropriately limit the extent of that protection so as to avoid the effects of monopolistic stagnation.”); Niva Elkin-Koren, *Copyright Policy and the Limits of Freedom of Contract*, 12 Berkeley Tech. L.J. 93, 100 (1997) (“Copyright law seeks to balance the level of incentives to create and the interest in maximizing access to information once created. Finding the correct balance between access and incentives is the central task of copyright policy.”); Robert A. Kreiss, *Accessibility and Commercialization in Copyright Theory*, 43 UCLA L. Rev. 1, 4 (1995) (“To function properly, copyright law must strike a balance between the rights given to copyright authors and the access given to copyright users.”). Perhaps the most famous expressions of this balance belong to two English Lords. In 1785, Lord Mansfield wrote:

[W]e must take care to guard against two extremes equally prejudicial; the one, that men of ability, who have employed their time for the service of the community, may not be deprived of their just merits, and the reward of their ingenuity and labour; the other, that the world may not be deprived of improvements, nor the progress of the arts be retarded.

Cary v. Longmen, 1 East 361 n.b, 102 Eng. Rep. 139 n.b (K.B. 1801) (quoting Lord Mansfield, C.J., in *Sayre v. Moore* (1785)). Nearly sixty years later, Lord Macaulay would repeat these sentiments in a legislative context:

It is good that authors should be remunerated; and the least exceptionable way of remunerating them is by a monopoly. Yet monopoly is evil. For the sake of the good we must submit to the evil; but the evil ought not last a day longer than is necessary for the purpose of securing the good.

Thomas Babington Macaulay, *Copyright*, in 1 THE SPEECHES OF MACAULAY 235, 240-41 (1900) (speech given Feb. 5, 1841).

⁴⁰ See LUNNEY, *supra* note 5, at 24-29; Glynn S. Lunney, Jr., *Empirical Copyright: A Case Study of File Sharing, Sales Revenue, and Music Output*, 24 SUPREME COURT ECON. REV. 261 (2016).

⁴¹ See Dave Roos, *Why Do Movies Cost so Much to Make?*, HOW STUFF WORKS (available at <https://entertainment.howstuffworks.com/movie-cost1.htm>) (last visited Jan. 19, 2019).

increase demand for, and thus revenue from, the advertised film. They may be either socially-productive rent-seeking or socially-wasteful rent-seeking. If the expenditures draw additional patrons to the movie, and those patrons derive more satisfaction from watching the advertised movie than they would have derived from whatever they would have done but-for the advertisements, then the advertising expenditures are socially productive. If, on the other hand, the expenditures draw additional patrons to the movie, but those patrons would have derived more satisfaction from whatever they would have done but for the advertisement – whether watch some other movie or take a hike in the hills, then the advertising expenditures are socially wasteful.⁴² In the real world, determining whether expenditures of this sort are productive or wasteful can be difficult. Nonetheless, when copyright generates excess incentives, it gives copyright owners an incentive to make rent-seeking expenditures to capture these excess incentives whether the expenditures are wasteful or productive. For the copyright owners, rents are rents. So long as the copyright owner expects a positive rate of return on the advertising expenditure, the expenditure is rational for the copyright owner whether the expenditure increases or reduces social welfare.⁴³ Excess incentives thus make engaging in socially-wasteful rent-seeking rational for copyright owners. By doing so, the availability of excess incentives will convert into cost, and thus welfare loss, some of what would otherwise be a mere wealth transfer.⁴⁴

⁴² Some advertising expenditures neither increase demand for the product at issue, nor shift demand from other activities. They are mere vanity. If such vanity expenditures seem unlikely to occur in the real world, consider the millions spent on Superbowl ads by dot-com start-ups that did not last the year. See, e.g., Dashiell Bennett, *8 Dot-Coms that Spent Millions on Superbowl Ads and No Longer Exist*, BUSINESS INSIDER, Feb. 2, 2011 (available at <https://www.businessinsider.com/8-dot-com-super-bowl-advertisers-that-no-longer-exist-2011-2>) (last visited Jan. 19, 2019).

⁴³ See Gordon Tullock, *The Welfare Costs of Tariffs, Monopolies, and Rents*, 5 WESTERN ECON. J. 224 (1967) (showing that the availability of rents will lead to the expenditure of resources to capture them); see also RICHARD A. POSNER, *ANTITRUST LAW: AN ECONOMIC PERSPECTIVE* 11 (1976) (“[A]n opportunity to obtain a lucrative transfer payment in the form of monopoly profits will attract real resources into efforts by sellers to monopolize, and by consumers to prevent being charged monopoly prices.”); Richard A. Posner, *The Social Costs of Monopoly and Regulation*, 83 J. POL. ECON. 807, 817-20 (1975) (same).

⁴⁴ See LUNNEY, *supra* note 5, at 26-29. We cannot rely on copyright owners to spend on advertising only when, and so much as, will prove welfare-enhancing, because the choice of advertising expenditures can present the Prisoner’s Dilemma. Consider a simplified model. Two films are coming out in theaters this week. There are ten dollars in rents available that will be split between them. If neither copyright owner spends money on advertising, the rents will be divided evenly. But if one film spends money on advertising and the other does not, or if one film spends more heavily on advertising than the other, more consumers and hence more rents will go to the more heavily advertised film. To simplify the model, we can assume that each copyright owner can spend zero or three dollars on advertising. If one advertises and the other does not, the copyright owner that advertises will capture the full rents available. The net pay-off for that copyright owner will be seven dollars – the rents available of ten dollars less the three dollars spent on advertising. If both advertise, the rents will be split evenly. However, the rents available will be reduced by the total advertising expenditures, from ten dollars to four, and thus each copyright owner will capture only two dollars in rent. With this, entirely plausible, set-up, the decision represents the familiar Prisoner’s Dilemma. If neither advertises, each copyright owner captures five dollars in rents. If one advertises and the other does not, the advertising copyright owner captures seven dollars in rent and the non-advertising

In addition, excess incentives can impose a third type of welfare loss. In some cases, the excess incentives copyright makes available will become so high that they will push our superstar artists and authors onto the backward-bending portion of the labor supply curve.⁴⁵ When that happens, these artists and authors will work less, and their creative output will fall. As I have shown happened in the recording industry when sales of recorded music peaked in the 1990s, more money meant fewer and lower quality hit songs from our top artists and from the recording industry as a whole.⁴⁶

Given this framework of costs and benefits, defining optimal copyright, from an efficiency or welfare perspective, requires balancing: (i) the marginal social value from the additional work(s) that any given increase in copyright protection will ensure at the margins against (ii) the welfare losses that will result from the excess incentives that additional copyright protection will bestow on non-marginal works.⁴⁷ In short, additional incentives that ensure the expected profitability of works at the margins of profitability lead to more and better works for society and thus likely promote social welfare. But

copyright owner captures none. If both advertise, each copyright owner captures only two dollars in rents. In this game, it is entirely plausible that both will advertise and thereby convert sixty percent of the available rents into costs, without any welfare benefit to society. Allowing for the possibility that advertising will increase the rents available to the two movies does not affect the conclusion. We would simply need to expand our game to a higher level. For example, film advertising might increase demand for films but take it from restaurants, television, or Broadway shows. Thus, rather than model the game as a choice of advertising expenditures between two films, we could model the game as a choice of advertising expenditures between films and restaurants.

⁴⁵ I first posited this possibility in 2001. See Lunney, *The Death of Copyright*, *supra* note 33, at 890. Mike Scherer provided some evidence for it in connection with the provision of copyright protection for operas in the 19th century in Europe, focusing on one composer, Giuseppe Verdi. See F.M. SCHERER, *QUARTER NOTES AND BANK NOTES: THE ECONOMICS OF MUSIC COMPOSITION IN THE 18TH AND 19TH CENTURIES* (2004); F.M. Scherer, *The Emergence of Musical Copyright in Europe from 1709 to 1850*, 5 *REV. ECON. RESEARCH ON COPYRIGHT ISSUES* 3, 11 (2008). I presented the first systematic study of it in a study of the United States recording industry from 1962 through 2015. With the rise of the sound recording right in the United States in 1971, record sales rose sharply through the 1990s, but this sharply reduced superstar productivity for the recording industry as a whole in the 1990s. With the rise of file sharing and the fall of the sound recording copyright beginning in 1999, record sales fell sharply through the 2000s, but superstar productivity increased. See LUNNEY, *supra* note 5, at 3-5, 168-69.

⁴⁶ LUNNEY, *supra* note 5, at 157-71.

⁴⁷ In its report accompanying the comprehensive revision of the Copyright Act in 1909, the Judiciary Committee of the House of Representatives explained this balance:

The enactment of copyright legislation by Congress under the terms of the Constitution is not based upon any natural right that the author has in his writings, ... but upon the ground that the welfare of the public will be served and progress of science and useful arts will be promoted by securing to authors for limited periods the exclusive rights to their writings. In enacting a copyright law Congress must consider ... two questions: First, how much will the legislation stimulate the producer and so benefit the public, and, second, how much will the monopoly granted be detrimental to the public? The granting of such exclusive rights, under the proper terms and conditions, confers a benefit upon the public that outweighs the evils of the temporary monopoly.

H.R. Rep. No. 2222, 60th Cong., 2d Sess. 7 (1909).

excess incentives impose only costs.⁴⁸ Our model thus suggests that the relevant empirical questions we need to answer are: (i) how much in additional incentives would enacting or expanding copyright provide for works at the margins of profitability (“marginal” incentives); and (ii) how much in additional incentives would that same enactment or expansion provide to works that are already profitable (“excess” incentives). The key balance then is not incentives versus access, as traditionally understood, but marginal versus excess incentives.

As a potential alternative to this welfare or efficiency justification, we might also justify copyright on a natural rights or labor desert basis. In the debates over copyright’s proper scope, proponents of broader, longer, and more effective copyright routinely argue: “Our American society is founded on the principle that the one who creates something of value is entitled to enjoy the fruits of his labor.”⁴⁹ But this notion is often intertwined with the efficiency or welfare balancing. As a result, whether it represents a true alternative to, or a mere rephrasing of, the efficiency justification remains unclear.

The Court, for example, has, on occasion, articulated a labor-desert justification for copyright in its opinions. Yet, when it has done so, it has invariably offered the efficiency justification as well. For example, in *Mazer v. Stein*, the Court wrote:

The economic philosophy behind the clause empowering Congress to grant patents and copyrights is the conviction that encouragement of individual effort by personal gain is the best way to advance public welfare through the talents of authors and inventors in “Science and useful Arts.” Sacrificial days devoted to such creative activities deserve rewards commensurate with the services rendered.⁵⁰

The second sentence, with its “[s]acrificial days” and “rewards commensurate” language, reflects the labor-desert justification. The first, with its emphasis on the public welfare, recognizes the welfare or efficiency justification. By juxtaposing the two, the Court arguably links the labor-desert justification to the efficiency justification: Authors deserve a reward commensurate to the services rendered, and a reward is commensurate to the extent it advances the public welfare.

⁴⁸ I have previously called this balance, the “incentives-access” balance. See Lunney, *Copyright’s Incentives-Access Paradigm*, *supra* note 19. That framing is, however, incomplete. It focuses solely on the lost access, or the deadweight welfare losses, from excess incentives for non-marginal works. As I have recognized in my more recent work, excess incentives impose welfare losses from socially wasteful rent-seeking and reduced superstar productivity as well. Thus, as we shall discuss, a better name might be the “excess-to-marginal incentives” paradigm.

⁴⁹ Testimony of Elizabeth Janeway, Copyright Law Revision: Hearings on H.R. 4347, 5680, 6831, 6835 Before Subcomm. No. 3 of the House Comm. on the Judiciary, 89th Cong., 1st Sess. (1965).

⁵⁰ *Mazer v. Stein*, 347 U.S. 201, 219 (1954).

In *Twentieth Century Music Corp. v. Fox*, the Court used the same approach:

The immediate effect of our copyright law is to secure a fair return for an “author’s” creative labor. But the ultimate aim is, by this incentive, to stimulate artistic creativity for the general public good.⁵¹

Compared to its opinion in *Mazer v. Stein*, the Court in its *Twentieth Century Music Corp.* opinion reverses the order of the two justifications. The Court offers the labor-desert justification, with its focus on a fair return, first, and the welfare or efficiency justification, with its focus on the public good, second. Again, the two are proffered together, as if they are complements to each other, not substitutes: A fair return is one that stimulates artistic creativity for the general public good.⁵²

In its *Sony Corp. v. Universal City Studios, Inc.* decision, the Court made the tie between the two rationales explicit:

The limited scope of the copyright holder's statutory monopoly, like the limited copyright duration required by the Constitution, reflects a balance of competing claims upon the public interest: Creative work is to be encouraged and rewarded, but private motivation must ultimately serve the cause of promoting broad availability of literature, music, and the other arts. The immediate effect of our copyright law is to secure a fair return for an “author’s” creative labor. But the ultimate aim is, by this incentive, to stimulate artistic creativity for the general public good.⁵³

Here, the Court makes the link between the two explicit. The “ultimate aim” of a “fair return” is “to stimulate artistic creativity for the general public good.” By tying the two together, the Court’s decisions leave unclear whether the labor-desert justification is truly independent of the efficiency approach.

As the *Sony* Court did, academic commentary also ties the labor-desert justification to the efficiency balance explicitly.⁵⁴ Generally, in attempting to extend

⁵¹ *Twentieth Century Music Corp. v. Aiken*, 422 U.S. 151, 156 (1975).

⁵² The Court itself has tied the two together. See *Fox Film Corp. v. Doyal*, 286 U.S. 123, 127 (1932) (“The sole interest of the United States and the primary object in conferring the monopoly lie in the general benefits derived by the public from the labors of authors.”); *Feist Pubs. Inc. v. Rural Tele. Serv. Co.*, 499 U.S. 340, 349-50 (1991) (“The primary objective of copyright is not to reward the labors of authors, but ‘[t]o promote the Progress of Science and useful Arts.’ Art. I, § 8, cl. 8.”).

⁵³ *Sony Corp. v. Universal City Studios, Inc.*, 464 U.S. 417, 431-32 (1984) (quoting *Twentieth Century Music Corp. v. Aiken*, 422 U.S. 151, 156 (1975) (Stewart, J.)).

⁵⁴ ROBERT NOZICK, ANARCHY, STATE, AND UTOPIA 178-82 (1974); Edwin C. Hettinger, *Justifying Intellectual Property*, 18 PHIL. & PUB. AFFAIRS 31 (1989); Wendy J. Gordon, *A Property Right in Self-Expression: Equality and Individualism in the Natural Law of Intellectual Property*, 102 YALE L.J. 1533

Locke's labor-desert approach to intellectual property, academic commentators use Locke's "enough and as good" proviso to incorporate an efficiency or welfare balancing into the natural rights approach and thereby turn Locke into a closet utilitarian.⁵⁵ With respect to patent law, for example, Robert Nozick interpreted the proviso to limit the acquisition of patent rights through labor to situations where other persons do not suffer thereby any net harm.⁵⁶ If we interpret Locke's "enough and as good" proviso to require "no net harm," enacting patent or copyright regimes to increase the earnings of inventors or authors is not justified unless the public receives something of at least equal value in return. Such an interpretation effectively incorporates the efficiency balance into the natural rights argument.

The need for incorporating the efficiency or welfare justification into the natural rights or labor-desert justification for copyright is easy to understand. When the enactment or expansion of copyright satisfies the efficiency balancing, such enactment or expansion expands the size of the economic pie. With a larger pie, we can give more to at least one copyright owner without giving less to anyone else. In such a situation, enacting or expanding copyright can represent a straightforward Pareto improvement. However, when the enactment or expansion of copyright does not satisfy the efficiency balancing, the economic pie is not larger. With the same size pie, any increase in income for copyright owners must come directly from the pockets of everyone else.⁵⁷ To give even one copyright owner a larger share, others must receive less. A labor-desert theory cannot justify such a transfer unless it can preference one form of labor, authorship, over all

(1993); Herman T. Tavani, *Locke, Intellectual Property Rights, and the Information Commons*, 7 ETHICS & INFO. TECH. 87 (2005).

⁵⁵ See NOZICK, *supra* note 54, at 178-82; Hettinger, *supra* note 54, at 43-35; Gordon, *supra* note 54, at 1560-78; Tavani, *supra* note 54, at 91-96.

⁵⁶ NOZICK, *supra* note 54, at 178-82. Arguably, a "no net loss" condition for everybody imposes a much more difficult to satisfy Pareto optimality requirement. For example, assume that without copyright, only one work will be created and distributed, and that by enacting a very short and very narrow copyright, ten additional works will be created and distributed. Under these assumptions, it is quite plausible that the welfare balancing is satisfied. The price may rise on the one non-marginal work, but the welfare gains from the ten additional works at the margins could exceed the welfare losses associated with that price increase. Satisfying the welfare balance does not however satisfy a "no net loss" condition. There may be an individual who only wants the one, non-marginal work and who derives no pleasure or satisfaction from the additional ten. In this scenario, the price increase on the one, non-marginal work is, for that individual, a net loss. Thus, even though enacting copyright would satisfy the efficiency balance, it would not satisfy the "no net loss" condition.

⁵⁷ See LUNNEY, COPYRIGHT'S EXCESS, *supra* note 5, at 44-49. As I and others have recognized, there can be no natural rights claim to the value a person creates through her work because value in a market economy is invariably jointly created. See Hettinger, *supra* note 54, at 38 ("Market value is a socially created phenomenon . . ."); Lunney, *Copyright's Incentives-Access Paradigm*, *supra* note 19, at 574-76 ("Whoever is responsible, factually, for creating the physical product itself, the *value* of the product in our market economy will always be joint because it depends entirely on whether consumers have any 'surplus' resources with which to purchase the product.").

others.⁵⁸ Yet, Locke’s theory does not.⁵⁹ As a result, the labor-desert approach does not reflect a true alternative to the efficiency or welfare balancing, but merely rephrases it.

The distributive justice justification for copyright suffers from a similar inability to stand on its own. Even if I might prefer to live in a society where the overall economic pie is slightly smaller, but more evenly distributed, we do not need an independent theory of distributive justice to reach that conclusion. Utilitarian analysis, of which efficiency and welfare economics are mere branches, can readily incorporate that preference, by assuming that marginal utility decreases with income – an approach commentators have used to justify, from a utilitarian perspective, progressive taxation.⁶⁰

Nevertheless, Justin Hughes and Rob Merges have, at least, posited that distributive justice might deserve independent weight in defining optimal copyright.⁶¹ In offering distributive justice as an alternative justification for copyright, Hughes and Merges begin with what they see as the three key questions from a distributive justice perspective:

Is our copyright system basically fair? Does it exacerbate or ameliorate the skewed distribution of wealth in our society?

⁵⁸ Perhaps, we should, to paraphrase Shakespeare, take it all from the lawyers. But that is not the way that markets work. That additional income for copyright owners would come from the pockets of those least able to protect themselves in the market.

⁵⁹ If anything, Locke would seem to preference physical labor over intellectual labor. See Tavani, *supra* note 54, at 89.

⁶⁰ All we need assume is a diminishing marginal utility of income, here, as we have done in debates over income tax. See, e.g., Reuven S. Avi-Yonah, *Globalization, Tax Competition, and the Fiscal Crisis of the Welfare State*, 113 HARV. L. REV. 1573, 1649 (2000) (“It is widely accepted that redistributive income taxation can be justified by considerations of vertical equity and the declining marginal utility of income.”); Joseph Bankman & Thomas Griffith, *Social Welfare and the Rate Structure: A New Look at Progressive Taxation*, 75 CALIF. L. REV. 1905, 1947 (1987) (introducing optimal tax models into the legal literature and noting that such models “assume that consumption and leisure have declining marginal utility,” and that “[t]he assumption that the value of an additional dollar to an individual declines as the number of dollars he owns increases (‘declining marginal utility’) is common in economic analysis”); James R. Repetti, *Democracy and Opportunity: A New Paradigm in Tax Equity*, 61 VAND. L. REV. 1129, 1137-38 (2008) (stating that “[one] justification for progressive rates under the benefits theory might be based on the declining marginal utility of money” and noting the conclusions that flow “if we assume declining marginal utility”). While originally just an assumption, recent work with happiness surveys tends to support the assumption empirically. See Thomas D. Griffith, *Progressive Taxation and Happiness*, 45 B.C.L. REV. 1363, 1374, 1397 (2004) (noting some problems with happiness surveys, but concluding that happiness surveys show that “[a]dditional income increases the utility of the citizens of all nations but has the greatest effect where those citizens are poor,” and that “[t]he classic notion of declining marginal utility throughout the income distribution remains sound”); Andrew J. Oswald, *On the Curvature of the Reporting Function from Objective Reality to Subjective Feelings*, 100 ECON. LETTERS 369, 369 (2008) (“Large numbers of investigators ... who have estimated subjective well-being regression equations on individual [happiness] data ... have discovered that allowing for a concave form ... in income fits reported well-being data better than a linear income term.”).

⁶¹ Justin Hughes & Robert P. Merges, *Copyright and Distributive Justice*, 92 NOTRE DAME L. REV. 513 (2017).

Does it do anything at all for disempowered people, people at the bottom of the socio-economic hierarchy?⁶²

These questions are both interesting and important. The second, in particular, ties in closely with popular conceptions of distributive justice, which events such as the *Occupy Wall Street* movement reflect.⁶³ Unfortunately, rather than attempt to answer these three questions,⁶⁴ Hughes and Merges are side-tracked by an observation that among African-Americans in the United States, the richest are disproportionately associated with industries that copyright protects.⁶⁵ In particular, they single out the large number of rich African Americans associated with the music industry to argue that copyright is providing one of the few avenues to material success open to African-Americans. It is not clear what they intend this observation to establish, beyond some general suggestion that copyright may not be so bad after all.⁶⁶ While they spend considerable ink explaining obvious and uncontroversial points, they spend almost none thinking through the logical implications of shaping law generally in ways that would advance an anti-discrimination agenda, rather than rely on more targeted anti-discrimination laws. In order to overcome the horrors of slavery and its terrible and lingering aftermath, should we make an exception to tort law so that punitive damages are not available in intentional tort cases if the defendant is African-American? Should the improper acquisition of monopoly power be unlawful unless it is an African-American doing it? Or most obviously, given a goal of wealth redistribution, should criminal law prohibitions on theft not apply to African-Americans? These questions are the logical end of the line of argument Hughes and Merges implicitly advance.⁶⁷ Yet, they do not address them. It is not even clear that they recognize that these questions are the logical end of their observation taken as argument.

Even as applied to copyright, their analysis is unpersuasive. They tout superstars in the music industry, in particular, as evidence of how copyright can help and has helped African-Americans. Yet, the music industry is one of the smallest of the industries

⁶² Hughes & Merges, *supra* note 61, at 514.

⁶³ For an articulation of these distributive justice concerns generally, see THOMAS PIKETTY, *CAPITAL IN THE TWENTY-FIRST CENTURY* (2013).

⁶⁴ Hughes and Merges expressly disclaim any attempt to answer the second question, whether generally or for African Americans as a group specifically: “We should also repeat that we are not proposing that copyright has wealth redistributive impact for African Americans as a whole” Hughes & Merges, *supra* note 61, at 555.

⁶⁵ Hughes & Merges, *supra* note 61, at 552-54.

⁶⁶ They expressly state that their observation is shared to push back against what they perceive as a rising tide among their academic colleagues to narrow, perhaps radically, copyright protection. Hughes & Merges, *supra* note 61, at 514-15 (“A hefty chunk of this literature has sought to cast doubt on the need for copyright – or at least copyright in its present form and strength – to generate all the original expression we have (or want).”).

⁶⁷ At its simplest, the logical principle for which they are arguing seems to be that we should adapt or enact law generally to improve the situation of African-Americans.

copyright protects.⁶⁸ Should we should keep copyright for musical works and sound recordings, but abolish it for software, because of differences in the racial make-up of copyright owners in those industries? If K pop comes to displace hip hop and rap in terms of popularity, does copyright for musical works and sound recordings become unjustifiable as well? Moreover, it is far from clear that copyright plays a material causal role in the wealth of musical superstars. As Hughes and Merges themselves recognize,⁶⁹ much of the wealth of superstar recording artists comes from touring and from the exploitation of their fame through licensing of their publicity rights.⁷⁰ Over the last twenty years in particular, the rise of file sharing, while formally illegally, has sharply reduced the effective level of copyright protection in the music sector and has sharply reduced copyright-driven artist income.⁷¹ Because of file sharing, the music industry has had to accept the sale of singles on iTunes and offer their works to streaming services at low per-stream royalty rates.⁷² Curious, then, that Hughes and Merges should pick one of the industries where copyright protection has become least effective to make their case for copyright.

Even when we limit our focus to copyright's direct beneficiaries, Hughes and Merges' analysis remains critically incomplete. They focus only on those who have become superstars. They do not examine how many African-Americans sought to become a superstar recording artist, but failed. To make a serious claim that copyright helps African-Americans, we would need to look at both the winners and losers of the copyright

⁶⁸ In the most recent economic census for the year 2009, computer software was the largest copyright-protected industry by revenue, at \$138.7 billion, followed closely by traditional publishing at \$125.0 billion, and the movie picture and video industry at \$76.1 billion. See UNITED STATES CENSUS BUREAU, STATISTICAL ABSTRACT OF THE UNITED STATES 710 (2012). According to the same census, the sound recording industry generated a relatively measly \$14.8 billion in revenue. *Id.*

⁶⁹ Hughes and Merges cite Pete DiCola's *Money from Music* survey for the proposition that musicians obtain between 12 and 22 percent of their income from copyright-based royalties. Hughes & Merges, *supra* note 61, at 534 (citing Peter DiCola, *Money from Music: Survey Evidence on Musicians' Revenue and Lessons About Copyright Incentives*, 55 ARIZ. L. REV. 301, 304-05 (2013) ("According to my classification of the eight revenue categories, the survey data shows that, in aggregate, the musicians in our sample earned 12% of revenue from sources directly related to copyright, 10% from sources with a mixed relationship to copyright, 78% from sources indirectly related or unrelated to copyright.")).

⁷⁰ For example, Beyoncé's *Lemonade* sold only 2.5 million copies in 2016. By way of contrast, Adele's 25 sold 17.4 million copies in 2015. Yet, *Forbes* estimated Beyoncé's net worth in 2018 as \$355 million. Zack O'Malley Greenburg, *Beyoncé's Net Worth: \$355 Million in 2018*, FORBES, June 11, 2018 (available at <https://www.forbes.com/sites/zackomalleygreenburg/2018/07/11/beyonces-net-worth-355-million-in-2018/#190559004f7d>) (last visited Jan. 19, 2019). In contrast, Adele's net worth is estimated to be only \$180 million in 2018. *The Sunday Times Rich List 2018: Adele net worth*, THE SUNDAY TIMES, May 13, 2018 (estimating Adele's net worth at £140 million and converting that to dollars at \$1.29 per pound) (available at <https://www.thetimes.co.uk/article/sunday-times-rich-list-2018-adele-net-worth-r93xscsx7>) (last visited Jan. 19, 2019). Beyoncé is richer than Adele, not because she sells more records, but because she tours more and is more willing to license her publicity rights.

⁷¹ See LUNNEY, *supra* note 5, at 74-80.

⁷² See LUNNEY, *supra* note 5, at 75-77.

lottery.⁷³ Otherwise, using lotteries to raise public funds would not be a form of regressive taxation because poor people occasionally win. Yet, Hughes and Merges expressly disclaim any attempt to do so.⁷⁴ They do not even address whether African-Americans receive a larger share of copyright-related income than they do of national income generally.⁷⁵

In the end, however, Hughes and Merges' attempt to establish distributive justice as an independent justification for copyright fails because they interpret distributive justice to incorporate and ultimately depend upon the efficiency balance. They recognize that distributive justice itself encompasses the risk that overbroad copyright will force consumers to pay too much for original works of authorship. They effectively concede that if copyright leads to excessively high prices and those prices impose undue deadweight welfare losses – losses not offset by larger welfare benefits from additional works at the margins – distributive justice cannot justify copyright.⁷⁶ Yet, rather than offer evidence on the relative magnitude of each of these, they simply assume that “the incentive structure made possible (or made more easily possible) by copyright induces the creation and distribution of works that improve the position of all levels of the society.”⁷⁷ Similarly, they acknowledge that distributive justice itself encompasses the risk that copyright may over-reward our superstar artists and authors. Again, rather than offer any evidence on the distribution of copyright-related revenues as between the superstars and the marginal artists, they again simply assume that most of the incentives copyright provides flow to the average artists and authors at the margins of profitability rather than the superstars.⁷⁸ Whether they are right or wrong on these issues, the key

⁷³ Under Hughes & Merges' approach, a public lottery is not a regressive form of taxation because, if we focus solely on the winners of the lottery, poor people sometimes win. For a discussion of the “copyright as lottery” argument, see text accompanying notes 90-102 *infra*.

⁷⁴ Hughes & Merges, *supra* note 61, at 555 (“We should also repeat that we are not proposing that copyright has wealth redistributive impact for African Americans as a whole . . .”).

⁷⁵ In this regard, I would note that if we treat all of the wealth for the individuals on the Hughes & Merges' list as copyright related, the collective estimated wealth of the twenty-five richest African-Americans totals \$14.250 billion. That is a small fraction of the copyright-related wealth of a single white American in the software industry, Bill Gates. Forbes estimates his net worth at \$95.9 billion. See #2: Bill Gates, FORBES, Jan. 22, 2019 (available at <https://www.forbes.com/profile/bill-gates/#127cb3c5689f>) (last visited Jan. 22, 2019).

⁷⁶ Hughes & Merges, *supra* note 61, at 540-44. On this point, they assert *inter alia* that the availability of substitutes will limit deadweight losses. *Id.* at 542. Yet, a few pages later, they argue that copyright has helped some African-Americans become vastly wealthy. *Id.* at 552-53. That they are unable to see the tension between these two is startling.

⁷⁷ *Id.* at 541.

⁷⁸ Hughes & Merges, *supra* note 61, at 542 (“In those situations, we ask whether the money transferred was more than needed for creation and distribution of the work. We recognize that there may well be some ‘superstars’ of the entertainment business who are earning far more than is needed to induce their maximum productivity . . . On the other hand, there is no evidence that the large cohorts of creative professionals in middle-income groups are earning more from copyright than is needed for creation and distribution of original expression.”). I thought that how much of copyright's benefit went to superstars versus average artists was one of the questions they promised to answer. Instead, they simply assume the

point is that their principles of distributive justice require them to address the same concerns the efficiency balance identifies. Thus, to justify copyright under principles of distributive justice, they must first show, or at least assert, that given the additional works it encourages, copyright does not provide undue excess incentives or impose undue deadweight welfare losses.⁷⁹ Yet, if this is true, today's copyright is welfare enhancing, and there is no need for distributive justice or any other alternative or additional justification. If Hughes and Merges truly believed that distributive justice offered a viable alternative justification for copyright, they should have made their case on the assumption that copyright today is welfare-diminishing. If distributive justice is a true alternative, then it should be able to justify copyright even if copyright fails the efficiency balance. At the very least, if it is a true alternative, distributive justice should be able to justify copyright when the efficiency balance is neutral or unclear. Yet, Hughes and Merges fail to make either of these cases. Their unwillingness or inability to do so reveals their own belief that distributive justice does not represent a true alternative to welfare or efficiency analysis.

For these reasons, I do not believe that either labor desert or distributive justice offers a true alternative to the welfare balancing justification for copyright. Nevertheless, I am prepared to accept that how copyright distributes the rents it generates is a relevant concern, particularly where the welfare balancing is indeterminate or unclear. As a result, to the extent that copyright distributes its benefits, whether we call them rents or incentives, in a way that increases substantially the wages of the average artist, I am prepared to accept that as a consideration in copyright's favor.

B. *The Distribution of Demand and Hidden Assumptions*

Although these three theories emphasize different considerations, they have one thing in common: Whether copyright can be justified under any of these theories depends upon the distribution of demand between the most popular works and the least popular works in a given copyright industry. If we want to know if copyright encourages additional works at the margins or whether copyright helps the middle class artist, we need to know how much demand there is for the works in the middle of the distribution. Unfortunately, we have not historically had information on how demand is distributed across the full range of works in most copyright industries. Usually, we have sales or

answer they want. Moreover, they are using the same trick other copyright maximalist have recently used on this issue. Instead of focusing on how much of copyright-related revenue flows to the superstars versus the average author or artist, they use a count of how many people fall in each class. From both a welfare and distributive justice perspective, if 90 percent of copyright-related revenues flow to the top 10 percent of authors and artists, that is a problem. That that leaves the remaining 90 percent of authors and artists - a much larger group numerically - to share the remaining 10 percent of copyright-related revenues does not materially help the case for copyright from either a welfare or a distributive justice perspective. Hughes and Merges further suggest that excess incentives for superstar artists and authors are no different from excessive salaries for "CEOs, physicians, and lawyers." *Id.* This is a false analogy, as I have explained elsewhere. See LUNNEY, *supra* note 5, at 34-35, 198 n.6; see also note 211 *infra*.

⁷⁹ Hughes & Merges, *supra* note 61, at 540-44.

demand figures for a handful of the most popular works, perhaps the top ten or the top hundred. We may also know the total number of works produced in a given industry and may know, or can reasonably assume, that the least popular works did not sell at all. With these two end points in the distribution, the question becomes how demand is distributed across the vast majority of works in the middle.

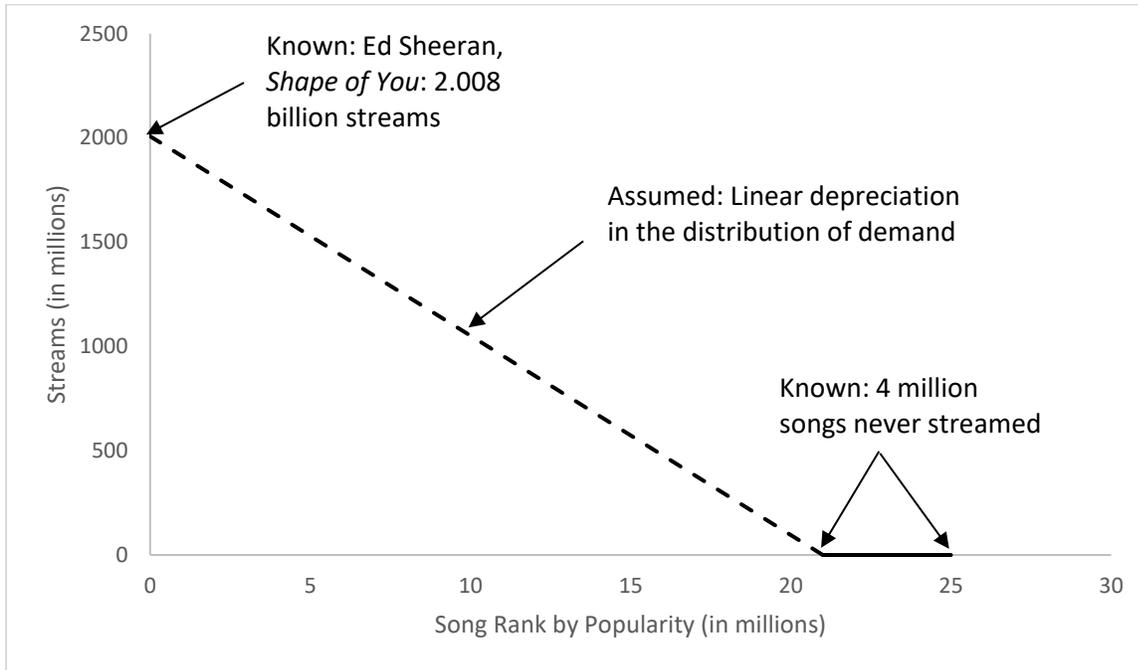
Lacking data on the distribution of demand for the works in the middle, we have been left with little choice but to make assumptions. For example, in the music industry on Spotify, we know that Ed Sheeran's song *Shape of You* is the most popular, and has been streamed 2.008 billion times. We also know that, as of 2015 there were twenty-five million songs on Spotify, and that as of 2013, four million of those songs had never been streamed at all. With this limited data as a starting point, if we want to know how the remaining twenty-one million songs in the middle fared, our only option is to make an assumption about how the demand is distributed. We can connect these two known points with a straight-line, a convex curve, or a concave curve, and if convex or concave, the curve can be more or less convex or concave.

No one has critically examined which assumption we should adopt in this context. In that sense, the assumption we have made on this issue has been hidden. Yet, this hidden assumption is critical to justifying copyright.

To illustrate why, consider the simplest assumption. Let's draw a straight-line connecting the two known Spotify data points.

Figure 1 illustrates.

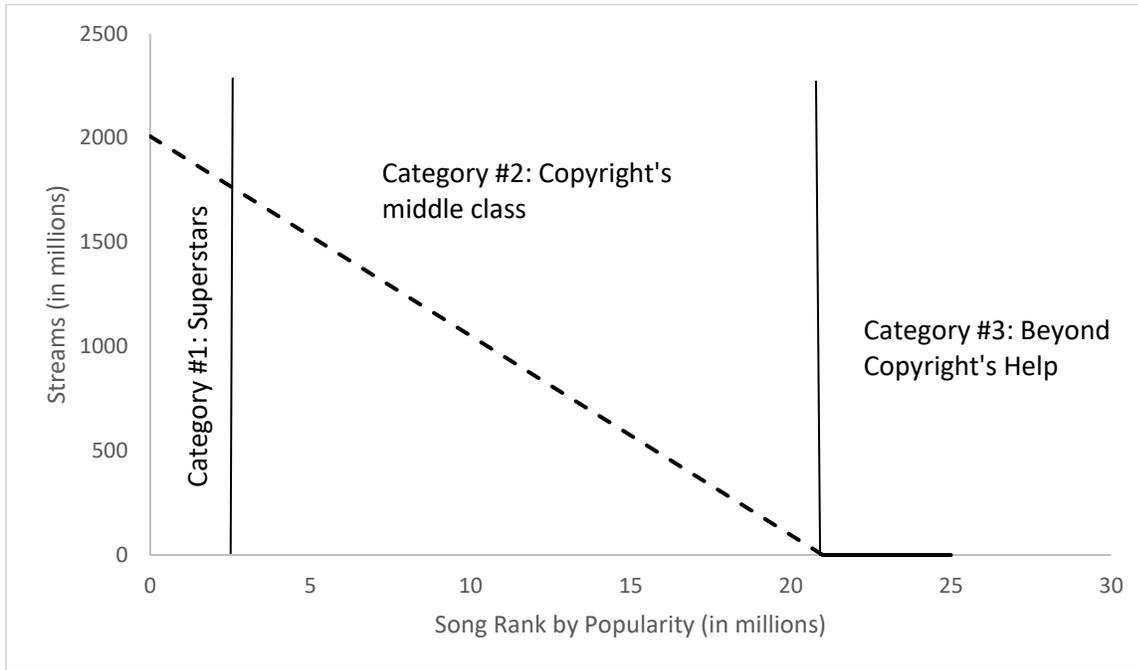
Figure 1. Possible distribution of streams on Spotify: Assume linear depreciation of demand between most popular song and least popular songs.



Although we may not realize it, this assumption about how the demand for the various works of authorship available is distributed plays a critical role in all of our theoretical justifications for copyright. To illustrate, we begin by dividing Figure 1 into three categories. First, there are the most popular superstars, and I will define that category, in an admittedly somewhat arbitrary fashion, as artists whose songs fall within the top ten percent of the songs on Spotify by total stream count. Second, there are those songs to which no one wants to listen. I will define this category as the beyond copyright's help category for the simple reason that copyright, no matter how long, broad, and effective, can do nothing for the earnings associated with these works. Third, in between these two categories lies copyright's proverbial middle class.

Figure 2 adds these three categories to Figure 1 expressly.

Figure 2. Superstars, Middle Class, and Beyond Help Categories: Assuming linear depreciation of demand between most popular song and least popular songs.



Although Figure 2 rests on an unproven assumption,⁸⁰ it illustrates immediately the most sympathetic vision of copyright – the one many of us have implicitly adopted. In this vision, copyright may provide large rents for the most popular superstars, but it also supports a vibrant middle class of authors and artists. If we take the number of streams a song receives as a proxy for the incentives that copyright provides for that work, the total Spotify streams under the assumed distribution in Figure 2 is on the order of $2.11\text{E}+16$ streams.⁸¹ Under the assumed distribution of demand in Figure 2, the incentives that copyright provides are equitably distributed. The superstars do command a somewhat disproportionate share of the streams, and hence, incentives copyright provides. Although representing only 10 percent of the total song count, they command 22.4 percent of the total streams, and thus likely revenue. Nevertheless, copyright also provides substantial incentives to the middle class of non-superstar artists. Representing 74.0 percent of the total song count, these “middle class” artists capture 77.6 of the total

⁸⁰ Moreover, even from the Spotify data for the top 100 songs which is readily available, we know that straight-line depreciation is not true. The assumption of straight-line depreciation predicts that the median work would receive exactly half the streams of the most popular work. In other words, more than ten million songs on Spotify would have received a billion streams. Yet, the top 100 list reveals that fewer than twenty have. See *List of Most Streamed Songs on Spotify*, WIKIPEDIA, Jan. 23, 2019 (available at https://en.wikipedia.org/wiki/List_of_most-streamed_songs_on_Spotify) (last visited Jan. 24, 2019).

⁸¹ This is the area under the triangle formed by the dashed line. It equals one-half of the product of the number of streams for the most popular song, at 2.008 billion, and the total number of songs with more than zero streams, at 21 million.

streams. As for the remaining category, under our assumptions,⁸² copyright provides no incentives to the remaining 16 percent of the songs that have never been streamed. As discussed, no one wants to listen to the songs in this category, and without some demand, copyright cannot increase the associated earnings.

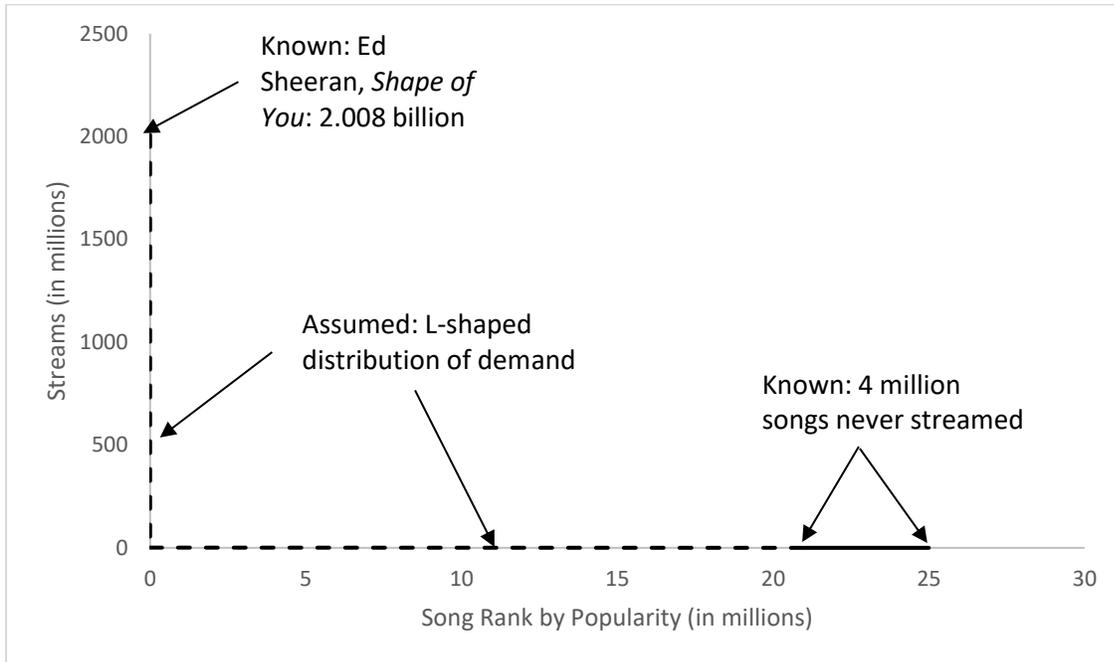
Although Figure 2 rests on an unproven assumption, it provides one of the best case scenarios⁸³ for justifying copyright. Most directly, with straight-line depreciation, the median song on Spotify receives a billion streams. Under this assumed distribution, fighting over whether copyright should force Spotify to pay a higher per-stream royalty matters, not just for the superstars, but for the average artist as well. It also provides a strong case for copyright under each of our three justifications. Under the efficiency balancing, we can likely justify at least some level of copyright protection. While, even with a straight-line depreciation in demand, copyright undoubtedly generates excess incentives for the superstars, a substantial part of copyright's incentives flow to middle-class authors and artists, and in that sense, to works that are likely close to the margins of profitability. Moreover, the rents for the superstars, while high, are not outrageous. Given this balance of marginal and excess incentives, there may be some minimal level of copyright protection for which the welfare gains from the additional works at the margins exceed the welfare losses associated with the excess incentives. Similarly, that assumed distribution also provides a basis for arguing for copyright from a labor-desert perspective or from a distributive justice perspective. Under this assumed distribution, it is not just the superstars that copyright benefits but regular Joes and Janes as well.

However, while presenting a sympathetic case for copyright, Figure 2 rests on mere assumption. A different assumption changes the picture dramatically. As a thought experiment, let us assume that the distribution of demand is L-shaped. A single superstar captures all the demand; no other work receives any streams. Figure 3 illustrates such an assumption.

⁸² Recall that in addition to the straight-line depreciation of demand, I also assumed that incentives are proportional to stream count for each work.

⁸³ A stronger case for justifying copyright arises if we connect the stream counts for the most and least popular songs using a convex curve, bowing strongly outward. The strongest case for copyright would be a step-function distribution of demand, where the second most popular song receives infinitesimally less demand than the most popular, and the third most popular receives infinitesimally less than the second, and so on, until we reach the twenty-one millionth most popular song, at which point we step down from the same 2.008 billion streams to zero. (In a finite world, infinitesimally less means no change. Thus, in this scenario, every song would receive either no streams or the same number of streams as the most popular song.)

Figure 3. Alternative distribution of streams on Spotify: Assume L-shaped distribution of demand between most popular song and least popular songs.



Just as we did for Figure 1, we can divide Figure 3 into three categories: (i) superstars; (ii) middle class artists; and (iii) artists beyond copyright's help. For the assumption of an L-shaped distribution of demand, Figure 4 presents the result.

Figure 4. Superstars, Middle Class, and Beyond Help Categories: Assuming L-shaped distribution of demand between most popular song and least popular songs.

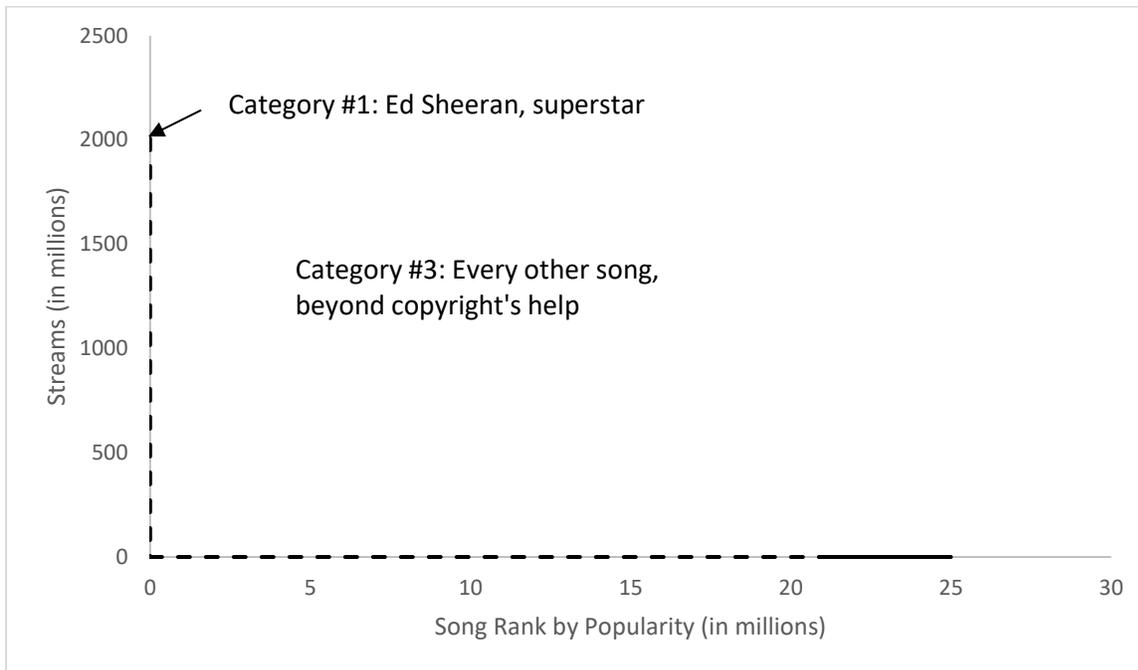


Figure 4 presents a far less flattering portrait of copyright than Figure 2. While in Figure 2 the superstars command a somewhat disproportionate share of copyright’s incentives, in Figure 4, a single superstar, Ed Sheeran, commands all of copyright’s incentives. With an L-shaped distribution of demand, copyright’s supposed middle class disappears entirely. In Figure 4, the market is divided entirely between the first and third categories. Artists are either superstars, and so do not need copyright. Or they are flops to whom no one wants to listen, and so are beyond copyright’s help.

While the hypothetical extreme of an L curve is merely assumed at this point,⁸⁴ the implications for copyright if it is accurate are staggering. Most directly, it suggests that fighting over Spotify per-stream royalties in an attempt to help the average artist is a complete waste of time. With an L curve, the average song on Spotify receives no streams. Ten percent more of nothing remains nothing. More generally, if the distribution of demand for copyrighted works of authorship resembles an L, then copyright becomes impossible to justify under any of our theoretical perspectives. Under an efficiency or

⁸⁴ Just as we know from the top 100 list that the straight-line depreciation model is not accurate, so too we also know that the hypothetical extreme of a true L curve, where one superstar commands all of the streams, is not accurate. See *List of Most Streamed Songs on Spotify*, WIKIPEDIA, Jan. 23, 2019 (noting that the 100th most popular song on Spotify, as of January 23, 2019 was Zayn’s *Pillowtalk* and listing its total stream count as 686 million) (available at https://en.wikipedia.org/wiki/List_of_most-streamed_songs_on_Spotify) (last visited Jan. 24, 2019). Nevertheless, like perfect competition, the L curve remains a useful, if theoretical, basis for comparison. Moreover, even if we know that one superstar does not command all the demand, it may be the case that a handful of superstars do.

welfare approach, copyright's incentives are entirely misdirected. They flow entirely to a single, or more realistically, a relative handful of, superstars. None flow to a marginal work. Given an L-shaped distribution of demand, copyright is unlikely to encourage the production of even a single additional work for two reasons. First, even in the absence of copyright, a superstar will likely earn a sufficient return to cover his or her costs. Market mechanisms, such as lead-time advantage and reputational rents, will likely ensure the profitability of the most popular works even in the absence of copyright. This is particularly true in the music industry where a complementary and rivalrous⁸⁵ product – live concerts – provides a substantial revenue stream. Second, with an L-shaped distribution, Marshall's superstar model likely applies and suggests that the market will oversupply superstars even in the absence of copyright. In the superstar model, when a new and slightly better superstar comes along, he or she displaces the demand for the old superstar and captures the entire market. Because the new superstar is slightly better than the old, he or she may expand overall demand in the market slightly. Primarily, however, the new superstar captures demand by displacing the old, preexisting superstar. Given a choice between listening to their favorite artist or song, or to their second favorite, consumers listen to their favorite, even if their preference is only slight. In such a case, the superstar's private return is a function of the size of the market as a whole, both the expansion in demand and the displacement of the preexisting demand. Yet, the marginal social value the superstar creates is a function only of the slight expansion in the overall market demand. In such a case, the private return for the new superstar typically exceeds, often by several orders of magnitude, the marginal social value the new superstar creates.⁸⁶

Consider a simple example. A consumer has a favorite holiday song. He values and is willing to pay one dollar to listen to that song. Then, Mariah Carey comes along and releases her recording of *All I Want for Christmas is You*.⁸⁷ The consumer likes Ms. Carey's song better, but only slightly better. He values listening to it at \$1.01. In this situation, for this consumer, the marginal social value created by Ms. Carey's song is one cent. That is the increase in value or satisfaction, and hence increased willingness to pay, the consumer has for the new song. This is the value, satisfaction, or willingness to pay

⁸⁵ As is well-known in the literature, consumption of works of authorship is non-rival. My decision to listen to a recording of a song does not limit your ability to listen to it as well. Most real and personal property, on the other hand, concern rival goods. If I occupy a seat at a concert, you physically cannot occupy the same seat. Markets, with well-defined property rights, work well, and in theory can achieve Pareto optimal outcomes, for rival goods. Markets, even with well-defined property rights, work poorly and fail to achieve a Pareto optimal outcome for most non-rival goods.

⁸⁶ LUNNEY, *supra* note 5, at 36 (“The superstar model thus predicts a gap between the social and private value of becoming a superstar. A superstar will earn more than the value they create.”).

⁸⁷ On December 24, 2018, Ms. Carey's song broke the record on Spotify for the most streams in a single day. See Amy X. Wang, *Mariah Carey Song From 1994 Breaks Music Streaming Record*, ROLLING STONE, Dec. 26, 2018 (available at <https://www.rollingstone.com/music/music-news/mariah-carey-song-from-1994-breaks-music-streaming-record-772688/>) (last visited Jan. 26, 2018).

that would be lost for this consumer had the new song never been authored or released. For Ms. Carey's reward to match the marginal value created, she should receive one cent from this consumer. But, often, in markets, she will receive something closer to the consumer's full, rather than marginal, value. Given a choice between paying one dollar and continuing to listen to the old song, or paying that same dollar and listening to Ms. Carey, the consumer will choose to pay a dollar in order to listen to Ms. Carey. In receiving a dollar from that consumer, the private value Ms. Carey captures far exceeds the marginal social value she played a role in creating.⁸⁸ She captures something close to the consumer's full, rather than marginal, value for the song.

The market thus likely overpays superstars relative to the marginal value they create. In such a superstar market, there is no need for copyright. Because the private return for such a superstar exceeds the marginal social value she creates, the market will, even in the absence of copyright, overinvest in and overproduce such artists. For this reason, and also because superstars can likely recoup their costs even without copyright, the additional incentives copyright provides such a superstar are entirely unnecessary to efficient creative output and are unlikely to encourage the creation of even a single additional work. Because it provides no encouragement to marginal works, copyright provides no benefit to society. Yet, increasing the rents our superstar captures likely entails substantial welfare losses. These losses would include: (i) deadweight losses; (ii) rent-to-cost conversion losses; and (iii) potentially reduced output by our superstar. Thus, under an L-shaped distribution of demand, copyright is all cost and no benefit. From a welfare or efficiency perspective, copyright cannot be justified.

Similarly, in the face of an L-shaped distribution of demand, copyright also cannot be justified under a labor-desert theory. As mentioned at the outset, superstar artists already earn more from a single hit than the average college educated American earns in a lifetime of forty-hour weeks.⁸⁹ Moreover, as the Mariah Carey example suggests, under the superstar model, superstars also earn more, usually far more, than the marginal social value they play a role in creating. In other words, they are already capturing a disproportionate share of society's wealth. If the goal is to ensure authors a "fair return" or a "reward commensurate" with the marginal social value they create, superstar authors can capture far more than that even without copyright. Even assuming *arguendo* that middle class authors and artists need copyright to earn such a fair return, for that to justify copyright, there must be a meaningful middle class of authors and artists that copyright

⁸⁸ Ms. Carey did not create the market value of her song on her own. As I and others have recognized, value in a market economy is invariably jointly created. See Hettinger, *supra* note 54, at 38 ("Market value is a socially created phenomenon . . ."); Lunney, *Copyright's Incentives-Access Paradigm*, *supra* note 19, at 574-76 ("Whoever is responsible, factually, for creating the physical product itself, the *value* of the product in our market economy will always be joint because it depends entirely on whether consumers have any 'surplus' resources with which to purchase the product.")

⁸⁹ See note 5 *supra*.

benefits. In the face of an L-shaped distribution of demand, however, there are no middle class authors.

In the face of an L-shaped distribution of demand, copyright also cannot be justified from a distributive justice perspective. With an L-shaped distribution of demand, copyright takes from the relatively less well-off, copyright consumers, to give to the relatively better off, superstar artists and authors. Such a redistribution would be exactly the opposite of what distributive justice demands. Even if the superstar comes from a historically oppressed group, that happenstance at a particular time and particular place in a particular copyright industry cannot provide a firm foundation for an enduring world-wide copyright regime.

In the face of an L curve, there is in truth only one possible argument for copyright: copyright as lottery. In the lottery story, offering very high returns for the most popular works, coupled with uncertainty over which works will prove the most popular, creates a type of lottery effect that attracts the best and most talented would-be authors into the market and thereby increases creative output.⁹⁰ Initially articulated by the Stationers' Guild, and later picked up by Paul Goldstein, both offered the lottery story not as a normative proposition, but as a descriptive observation.⁹¹ They argued that publishers needed to capture rents on the most popular works to cover their losses on works that proved unexpectedly less popular.⁹² By tying the excess profits to the risk of losses, both tried to turn a flaw into a feature. Even as a descriptive observation, the lottery story is not entirely accurate. The extreme wealth that copyright helps superstars capture, and that Hughes and Merges perversely tout as evidence of distributive justice,⁹³ establishes that not all of copyright's excess incentives are being used to cover the costs of less popular works. As a normative proposition, it is even more problematic. First, even if maximizing the reward for the winners in such a winner-takes-all market led to better "winners," it is not clear that society would be better off as a result. It would depend on how much additional investment a larger prize attracted and how much marginal social value that

⁹⁰ See Lunney, *The Death of Copyright*, *supra* note 33, at 879.

⁹¹ Paul Goldstein, *Copyright*, 55 *Law & Contemp.* 79, 83 (1992) ("A robust copyright, by contrast, will mix the hope of high return on some works with risk of loss on others, giving publishers, if not quite a lottery, then at least a portfolio that will promote investment and sustain a wider variety of authorship than could command support under any other legal system."). I would note that this argument is also not new. The Stationers' Guild offered the argument in its 1586 petition to the Star Chamber:

Also priviledges, are occasion, that many bookes are nowe prynted, which are more beneficial to the common welth, then proffitable to the prynter, for the Patentee beinge benefeted otherwise by Bookes of profitable sale is content to bestowe parte of his gayne in other bokes, which are within the compas of his patent, verie beneficiall for the common welth, and yet suche whereby the printer shall scarce reape the Tenth parte of his charge: which Bookes wolde never be prynted if privileges were revoked.

ARBBER, *supra* note 18, at 805.

⁹² *Id.*

⁹³ See Hughes & Merges, *supra* note 61, at 552-59.

additional investment created. Marshall's superstar model offers a cautionary tale regarding such markets. Because the marginal private value of winning in a superstar market will often far exceed the marginal social value a superstar creates, scarce resources will be devoted to the effort of becoming a superstar, even when those resources would generate greater societal satisfaction if devoted elsewhere in the economy. Using a government intervention such as copyright to maximize the reward in such a market would merely exacerbate this inefficiency. Second, it is a just-so story, requiring precisely the right amount of uncertainty over which works will prove popular. Too much uncertainty, and it becomes self-defeating.⁹⁴ Too little, and works of authorship are no different from any other risky investment.⁹⁵ History and empirics both suggest that the risk and uncertainty associated with authorship are not just-so.⁹⁶ At this point, it is unclear whether *Avengers: Endgame*, *Star Wars: Episode IX*, or *The Lion King* will capture the title for top domestic box office in 2019. However, it has always been clear that *Happy Death Day 2U* was never going to be the top film. For the lottery story to hold true, every work must have some chance at the top rewards. But that is simply not true. Most would-be recording artists have no chance at becoming the next Taylor Swift. Lavishing rewards on creators when a work becomes surprisingly popular years after its initial release may feel good, but is unlikely to play any role in the initial authorship and publication decisions. When Stan Lee, Larry Leiber, Don Heck, and Jack Kirby came together to create the Ironman character in the 1960s, they could never have foreseen that

⁹⁴ See LUNNEY, *supra* note 5, at 66-67 (pointing out that that if outcomes are completely uncertain, production decisions would be based on whether the average work out of all potential works was expected to be profitable; as a result, if one work were produced in such a world without copyright, all would be produced).

⁹⁵ See Breyer, *supra* note 31, at 297 n.68; Lunney, *Copyright's Incentives-Access Paradigm*, *supra* note 19, at 582 n.358 (1996); see also Mitzi M. Montoya-Weiss and Roger Calantone, *Determinants of New Product Performance: A Review and Meta-Analysis*, 11 J. PROD. INNOVATION MGMT. 397, 401-02 (1994) (summarizing studies of new product introductions that report success rates from thirty-eight to sixty-eight percent); Robert Prentice, *Vaporware: Imaginary High-Tech Products and Real Antitrust Liability in a Post-Chicago World*, 57 OHIO ST. L.J. 1163, 1171 (1996) (noting that eighty percent of new products in the high-tech field fail).

⁹⁶ Historically, the success rate on books fell as copyright expanded. See Lunney, *Copyright's Incentives-Access Paradigm*, *supra* note 19, at 613 n.425 (noting that the success rates on books dropped from one in three in 1643 to one in five by 1878). That book publishers could exist and earn a profit under these various legal regimes establishes that they could separate projects by expected return and thus had a pretty good sense for which books were most likely to do well. In the recording industry, the sequential release of singles from an album and the fact that only some tracks are released as singles suggest the industry has a pretty good sense for which singles consumers are likely to prefer. I have confirmed empirically that Taylor Swift, for example, did a near-perfect job of predicting and releasing singles in the order of their popularity from her seven studio albums. See LUNNEY, *supra* note 5, at 51-53. I have also shown empirically that the fraction of new artists who proved to be one-hit wonders on the Billboard Hot 100 chart remained roughly constant for more than fifty years, with very little variation, and that in the 1990s, the top ten best-selling albums averaged 2.7 Hot 100 hits on them, again with very little variation. *Id.* at 107, 189-91. Again, the consistent average and the low variance in both cases tends to confirm that the recording industry has a pretty good sense of what will prove popular on average. Of course, surprises will occur, but that is also true for products not protected by copyright. Consider the pet rock and Beanie Babies fads.

the character would become the basis for Marvel’s tremendously successful Phase 1 and Phase 2 forty years later. When the chance of such breakout success becomes so small and uncertain and so long delayed that it can play no role in the initial authorship and publication decision, awarding the copyright owners a huge return years later becomes an unearned and undeserved windfall.⁹⁷ Third, even if the lottery story held true, it conflicts directly with the labor-desert and distributive justifications for copyright. For the story to hold true, there must be tens, if not hundreds or thousands, of losers for every winner of the copyright lottery.⁹⁸ In the lottery story, starving artists are not a problem copyright seeks to solve. They are a problem that copyright intentionally creates. Fourth and finally, the lottery story is just a story. Before we place any weight on it, we must test it empirically. Fortunately, the rise of file sharing in the early 2000s in the recording industry offers a natural experiment that allows us to do so. From the 1960s to the 1990s, revenues from the sales of recorded music in the United States rose steadily, from under \$5 billion in constant 2013 dollars (or \$2013) in the early 1960s to over \$20 billion (\$2013) in 1999. With the rise of file sharing, revenues began to fall and fall sharply. By 2013, they were under \$7 billion. With this rise and fall in revenue, we can test whether offering larger prizes for becoming the next superstar led to more and better music. Yet, as I have comprehensively shown, the lottery story proved false for the recording industry over the last fifty years.⁹⁹ Revenues peaked for the recording industry in the late 1990s.¹⁰⁰ According to the lottery story, those very high revenues should have attracted the absolute best new artists and ensured society the best new music, but they did not.¹⁰¹ In fact, the exact opposite occurred. As revenues rose, and the prize for a hit soared, both the productivity of our top artists and the overall output of high quality new music fell.¹⁰²

In short, there is simply no coherent theory that would support copyright in the face of an L-shaped distribution of demand. Copyright thus becomes impossible to justify if the distribution of demand for works of authorship resembles an L. So far, though, I have merely postulated the L curve as a hypothetical possibility. To determine whether that possibility is real, we turn now to the newly available data on the actual distribution of demand in the videogame industry.

II. *Proving the L Curve: The Videogame Industry*

Although a relatively new form of authorship and a late-comer to copyright, the videogame industry has become an important copyright sector. According to industry

⁹⁷ See Shyamkrishna Balganesh, *Foreseeability and Copyright Incentives*, 122 HARV. L. REV. 1569 (2009).

⁹⁸ See LUNNEY, *supra* note 5, at 54-56.

⁹⁹ *Id.*

¹⁰⁰ *Id.* at 81-82.

¹⁰¹ *Id.* at 116-18 (showing that after adjusting for the age of the music, consumers streamed music from the 1990s the least on Spotify in 2014).

¹⁰² *Id.*

reports, the estimated revenue from videogame software sales in 2017 for United States videogame companies was \$29.1 billion. That is more than (i) the box office revenues for the motion picture industry, at roughly \$11 billion in the United States in 2017,¹⁰³ and (ii) the sales of recorded music, at roughly \$8.7 billion in the United States in 2017,¹⁰⁴ combined. In the videogame industry, Steam offers the leading platform for the digital distribution for PC videogames. In 2013, Steam was estimated to hold 75 percent of the market for such digital distribution.¹⁰⁵ By 2017, users purchasing games through Steam totaled roughly \$4.3 billion and represented at least 18% of global PC game sales.¹⁰⁶ By 2018, the service had over 150 million registered accounts with a peak of 17.4 million concurrent users online.¹⁰⁷

Although Steam undoubtedly has detailed information on the precise distribution of demand among the roughly twenty-three thousand games it offers through its platform, it has not shared that data. While Steam Gauge and Steam Spy, independent third-party services, have offered estimates of the number of players for these games, their approaches relied on random sampling of a small portion of the Steam player base.¹⁰⁸ We could not be entirely sure that their estimates were reliable and accurate.

Last summer, however, data regarding the distribution of demand for the videogames on Steam was available through a backdoor. Until Steam changed its API in early July 2018, Steam's API made available to sixteen decimal places the percentage of game players who had accomplished developer-defined achievements in those games which featured developer-defined achievements. (Not all games include such achievements.) With such a precise percentage, often for multiple achievements within a single game, it became possible to calculate, with precision and accuracy, the total number of Steam users who have played each game, at least for those games that included

¹⁰³ Motion Picture Association of America, THEME Report 5 (2017) ("In 2017, US/Canada box office was \$11.1 billion, down two percent from the record high of \$11.4 billion in 2016 . . .").

¹⁰⁴ Recording Industry Association of America, News and Notes on 2017 RIAA Revenue Statistics 1 (2018) ("In 2017 revenues from recorded music in the United States increased 16.5% at estimated retail value to \$8.7 billion, continuing the growth from the previous year.").

¹⁰⁵ Cliff Edwards, *Valve Lines Up Console Partners in Challenge to Microsoft, Sony*, Bloomberg (Nov. 4, 2013) (available at <https://www.bloomberg.com/news/articles/2013-11-04/valve-lines-up-console-partners-in-challenge-to-microsoft-sony>) (last visited Dec. 19, 2018).

¹⁰⁶ Dustin Bailey, With \$4.3 billion in sales, 2017 was Steam's biggest year yet, PCGamesN (Mar. 22, 2018) (available at <https://www.pcgamesn.com/steam-revenue-2017>) (last visited Dec. 19, 2018).

¹⁰⁷ Steam itself presents data on a running forty-eight hour count of peak and current concurrent Steam users. For January 21-22, 2019, the peak concurrent usage was 17.4 million users. Steam, *Steam & Game Stats*, Jan. 22, 2019 (available at <https://store.steampowered.com/stats/Steam-Game-and-Player-Statistics?l=english>) (last visited Jan. 22, 2019).

¹⁰⁸ See Kylie Orland, *Valve Leaks Steam game player counts; we have the numbers: Valve Plugged the Whole, but important data has already escaped*, Ars Technica (July 6, 2018) (available at <https://arstechnica.com/gaming/2018/07/steam-data-leak-reveals-precise-player-count-for-thousands-of-games/>) (last visited Dec. 19, 2018).

developer-defined achievements.¹⁰⁹ While Steam's own website displayed and continues to display the percentage of players who have reached the various achievements, it reports that percentage to only two decimal places. That is not helpful for estimating accurately overall player counts. With only two decimals, we can usually find a fairly low common denominator for the achievement percentages. From that lowest common denominator, all we can say is that the total number of players are at least as high as that lowest common denominator. But they could be much higher. They could be any multiple of that lowest common denominator.¹¹⁰

With sixteen decimals, however, we can be much more precise. If the percentage of players who reach a certain achievement is 0.01278220716762267%, and the number of players who have reached that achievement and who have played the game both have to be whole numbers, one possible solution that would yield that percentage is that eight players out of 62,587 reached the achievement.¹¹¹ If there are twelve other developer-defined achievements for the same game, that enables us to calculate a very precise estimate of the number of players for each game. As mentioned, Steam changed its API in July 2018 to make the sixteen-decimal-place percentage data unavailable. Fortunately, before it did, Tyler Glaiel wrote and posted a script to convert the achievement percentages for each game into a player count for that game.¹¹² He also notified Steam Spy of the approach, and Sergey Galyonkin plugged the script and the available data into Steam Spy's machine learning algorithm to calculate player counts for each of the games with developer-defined achievements.¹¹³ After Galyonkin did so, and with his consent, *Ars Technica* posted the resulting estimates of game players for the 13,281 games on Steam that included developer-defined achievements.¹¹⁴

This provides our first publicly available data revealing the shape of the distribution of demand for the full range of copyrighted works in a given copyright sector. Figure 5 presents the resulting estimates of game players for these 13,281 videogames.

¹⁰⁹ See Tyler Glaiel, *Using achievement stats to estimate sales on steam* (available at <https://medium.com/@tglaiel/using-achievement-stats-to-estimate-sales-on-steam-d18b4b635d23>) (last visited Dec. 19, 2018).

¹¹⁰ For example, when we round to two decimals, if a game has three developer-defined achievements, and the percentage of players who achieved the three achievements are 50.00%, 33.33%, and 25.00%, then we know at least twelve people have played the game. That is the lowest common denominator into which two, three, and four all divide. Unfortunately, that is not much help because the overall player count for that game could be twelve, twenty-four, thirty-six, or any other multiple of twelve. With only two decimal places, there is simply no way to know for sure.

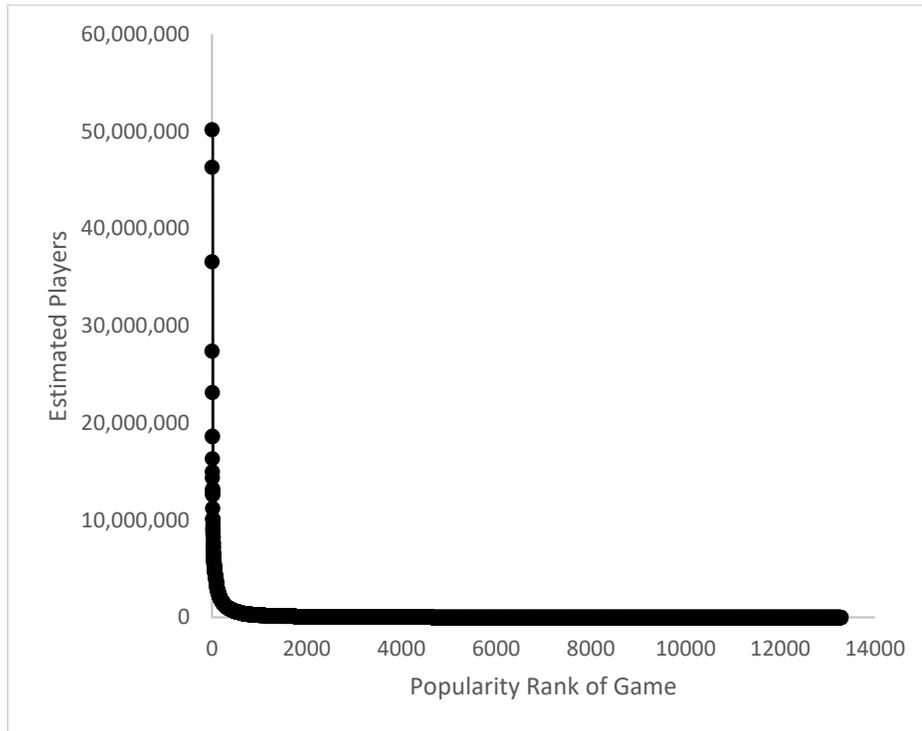
¹¹¹ *Id.*

¹¹² *Id.*

¹¹³ See Orland, *supra* note 108.

¹¹⁴ *Id.*

Figure 5. Estimated Player Count for 13,281 Steam-Distributed Videogames with Developer-Defined Achievements.



As Figure 5 illustrates, for these videogames, we have data not merely for the top game, Team Fortress 2, with over 50 million players, and the least popular game, actually a tie between four games with three players each, but also for every game in between. As a result, we do not need to make assumptions about how the players are distributed among these games. We have precise estimates of the number of players for each game. Figure 5 shows that, while the distribution of players among these games shown in Figure 5 is not precisely L-shaped, it comes very close. Certainly, it is far closer to L-shaped, than it is to the straight-line depreciation approach we have commonly and subconsciously assumed. In Figure 5, a relative handful of super-popular games in copyright's tall peak command virtually all the demand. The vast majority of games in copyright's short tail have, relatively speaking, no players at all.

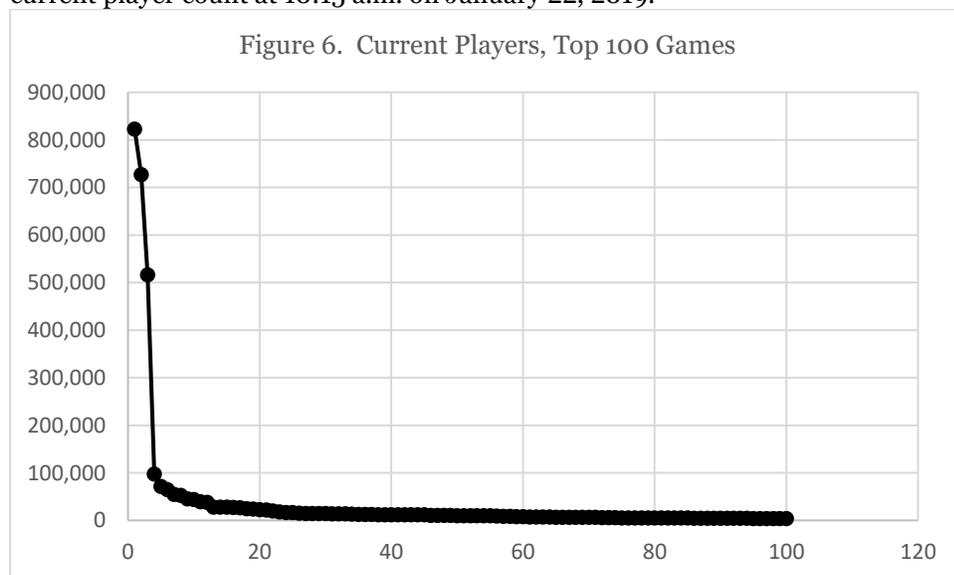
This has enormously important implications for copyright, but before exploring the data and those implications further, a few caveats are in order. The data has limitations. It is a snapshot in time of players for one sector, PC videogames, of one copyright industry. It includes only those games available on Steam, and so excludes some of the most popular games, such as Fortnite.¹¹⁵ Even for the games available on

¹¹⁵ This likely reduces the skew in the distribution of demand in the Steam data. Only the most popular games can afford to host their game on their own services. Less popular games do not have the same economies of scale and so are more likely to use a service such as Steam.

Steam, the method for estimating the number of players works only for those games that include developer-defined achievements. As a result, we have player estimates for “only” 13,281 games out of Steam’s roughly twenty-three thousand game catalog.¹¹⁶ In addition, the denominator for players does not seem to correspond exactly to the “players” statistic provided to individual developers.¹¹⁷ The denominator also does not count individuals who have purchased the game, but not played it.¹¹⁸ And “in very rare cases, this method could come up with a denominator that’s off by a factor of two, thanks to common factors (though this chance becomes vanishingly small in games with more than a few Achievements).”¹¹⁹

In the end, though, whatever its weaknesses, the data in Figure 5 represents the first and only real-world data we have concerning the distribution of demand across the full range of works for any copyright industry. Certainly, it is far better than mere assumption. While it concerns only one particular type of work of authorship, PC videogames, the available data suggests that the highly skewed distribution of demand for PC videogames in Figure 5 is also present for other works of authorship. For example, if we model the distribution of demand for current videogame players on the top 100 games

¹¹⁶ Steam also releases a live, and peak 48-hour, player count for its top 100 games. While the top 100 is not quite as L-shaped as Figure 5, it too comes close to L-shaped. Figure 6 presents this data for the current player count at 10:15 a.m. on January 22, 2019.



Steam, *Top games by current player count, Jan. 22, 2019* (available at <https://store.steampowered.com/stats/Steam-Game-and-Player-Statistics?l=english>) (last visited Jan. 22, 2019). The player count on Figure 5 is much higher than that in Figure 6. This is because the achievement percentages in Figure 5 are based all players that have ever played the game. Figure 6 in contrast is a current player count at a moment in time.

¹¹⁷ *Id.*

¹¹⁸ *Id.*

¹¹⁹ *Id.*

on Steam¹²⁰ using exponential decay,¹²¹ and use regression analysis to estimate the decay coefficient,¹²² the model fits well, with an adjusted R^2 of 0.879, and we find a statistically significant decay coefficient of -1,657.56 ($p < 0.0001$). If we use the same approach for the top 100 most popular songs of all time on Spotify, the exponential decay function continues to fit well, with an adjusted R^2 of 0.884, and we find again a statistically significant, but much higher, decay coefficient of -575,857 ($p < 0.0001$). At least, for the top 100 Spotify songs of all time, the distribution of demand for the Spotify songs shares the exponential decay we see in Figure 5 for PC videogames. The only difference is that streaming on Spotify as we move from most popular to least popular, by percentile popularity, decays much more rapidly, at least among the top 100 songs, than the player count on Steam.¹²³ While we do not have the data on the distribution of demand across Spotify's full catalog and this analysis therefore covers only the top 100 songs on Spotify, it suggests that the distribution of demand for music resembles Figure 5. Indeed, the exponential decay we find in demand for the top 100 songs suggests that, at least on Spotify, the demand for music comes even closer to L-shaped than the demand for PC videogames in Figure 5.

I recognize, of course, that this does not prove that the distribution of demand in Figure 5 is representative for Spotify's full catalog, let alone for copyrighted works generally. The distribution of demand for PC videogames we see in Figure 5 may be idiosyncratic. Popularity and other network effects may be stronger for PC videogames than for other copyrighted works. The minimum cost to enter the market may also be lower, allowing a PC game to be profitable with a player count much lower than could, for example, a feature film. Nevertheless, it is the only data we have that illustrates the complete distribution of demand across any copyrighted industry. Rather than hope that the distribution proves idiosyncratic, we should consider the implications for copyright

¹²⁰ See note 113 *supra*.

¹²¹ In an exponential decay model, demand decreases exponentially. We can model the decay as: $\ln\left(\frac{D_t}{D_1}\right) = -\lambda t$, where D_t is the demand for the t -th percentile most popular work, D_1 is the demand for the most popular work, λ is the decay factor. Ordinarily, in exponential decay, t represents time, but here I will use it for percentile popularity of the work at issue. Thus rather than decrease with time exponentially, as in a natural exponential decay, here I will model demand, whether number of players or streams, as decreasing exponentially as the popularity of a work moves from most popular to least.

¹²² The regression model is: $y = \lambda x$, where $y = \ln\left(\frac{D_t}{D_1}\right)$, x is the game or song's popularity rank minus one, divided by the total number of games or songs in the catalog, and λ is the estimated decay coefficient.

¹²³ Thus, in the Spotify top 100, the second most popular song of all times has 79.4 percent of the streams of the most popular song and the third most popular has 71.2 percent. In contrast, in the Steam data in Figure 5, the second most popular game has 92.3 percent of the players that the most popular game has, and the third most popular has 72.9 percent. Moreover, comparing second- and third-most popular games between the two is not precisely apples-to-apples. Steam only has twenty-three thousand games on its platform. Spotify has forty million songs. Thus, if we rank works by percentile popularity rather than numerical rank, the second- and third-most popular games on Steam are four orders of magnitude further along the percentile rank popularity curve than the second- and third-most popular songs on Spotify.

in the event that Figure 5 provides an accurate representation of the distribution of demand not just for PC videogames, but for works of authorship generally. In doing so, the first issue is to define more precisely where the actual distribution we see in Figure 5 falls between our two assumed distributions: (i) straight-line depreciation; and (ii) L-shaped. While there are a number of statistical measures we could use, I will explore three.

First, we can calculate the Gini coefficients for the three distributions. Italian sociologist Corrado Gini first proposed the coefficient in 1912 as a statistical measure of equal distribution.¹²⁴ Today, it is commonly used as a measure of income inequality. As a general rule, the Gini coefficient runs from zero to one (or to one hundred percent). With perfect equality in income distribution, each citizen in a society earns exactly the same amount. With such perfect equality, the Gini coefficient is zero. There is no inequality. In contrast, with perfect inequality, one citizen earns everything, and everyone else earns nothing. In such a society, the Gini coefficient would be one or one hundred percent.¹²⁵ Today, the most common use of the Gini coefficient is as a measure of the extent to which income in a society is evenly distributed. The Central Intelligence Agency, for example, has estimated that world-wide, Gini coefficients on family income range from over 60 percent, in countries such as Lesotho, South Africa, and Haiti, where income distribution is highly unequal, to under 30 percent for countries such as Germany, Norway, and Sweden, where income is more equally distributed.¹²⁶ In case you are curious, the CIA estimates the Gini coefficient for the United States as 45 percent, just between Iran at 44.5 percent and Saudi Arabia at 45.9 percent.¹²⁷ For our purposes, we can use the Gini coefficient as a measure of the extent to which demand and hence copyright's incentives are evenly distributed among available works of authorship.

As it turns out, the Gini coefficient for the distribution of videogame players in Figure 5 is nearly identical to the Gini coefficient for our hypothetical L-shaped distribution of demand. An L-shaped distribution would generate a Gini coefficient of 1. The alternative assumption of a linear depreciation in demand from most popular to least popular game would generate a Gini coefficient of 0.5. The Gini coefficient for the actual distribution in Figure 5 is 0.9925.

¹²⁴ His original paper was published in Italian. Corrado Gini, *Variabilità e mutabilità* (1912). For an English-language version, see Corrado Gini, *Measurement of Inequality of Incomes*, 31 *ECON. J.* 124 (1921).

¹²⁵ One of the flaws of the Gini coefficients is that different distributions can have the same Gini coefficient. For example, if, rather than one individual earning everything, the top fifty percent of earners in an economy earned one hundred percent of the income, the Gini coefficient would still be one. It would remain one even if the top earners divided the society's income evenly amongst themselves.

¹²⁶ Central Intelligence Agency, *The World Factbook*, available at <https://www.cia.gov/library/publications/the-world-factbook/rankorder/2172rank.html> (last visited Jan. 5, 2019).

¹²⁷ *Id.*

A second basis of comparison is to determine the fraction of copyright's incentives, proxied by demand or player count, that flow to the top one or ten percent of the works. Calculating this for an assumed L-shaped distribution is easy. 100 percent of the demand and hence all of copyright's incentives flow to the top one or the top ten percent of the works. Indeed, in the hypothetical extreme of a true L curve, they flow entirely to one work. In contrast, if we assume a straight-line depreciation in demand from most popular to least popular, copyright's incentives are much more evenly distributed. With such a distribution in demand, the top one percent of the works garner 2.1 percent, and the top ten percent of the works garner 19 percent of the demand.¹²⁸

Once again, for this second measure, the percentage of total player count for the superstars in the top ten percent of the Steam videogames in Figure 5 comes much closer to the L-shaped distribution percentage than it does to the straight-line depreciation percentage. For the games in Figure 5, the top one percent of the games capture 49.7 percent of the players. The top ten percent of the games capture 89.28 percent of the players. Even for the top ten percent of the games, that's not one hundred percent as it would be for an L-shaped distribution. But it is close. The top ten percent of the copyrighted videogames capture nearly 90 percent of the players. If incentives are a consistent function of the number of players who have played a game, then nearly 90 percent of copyright's incentives flow to the top ten percent of the works.

A third basis for comparison, and the one most directly relevant for evaluating the normative merits of copyright, looks at the demand for the most popular work divided by the demand for the median work. As discussed, from an efficiency perspective, the key trade-off in optimizing copyright is between the welfare losses from excess incentives and the welfare gains from marginal incentives. On their own, both excess and marginal incentives are simply wealth transfers, with no welfare significance. Yet, both can serve as rough proxies for the associated welfare consequences.¹²⁹ If one dollar in additional incentives for a work at the margins attracts one dollar in additional investment to create that work, and that one dollar in additional investment yields a social rate of return of 100 percent, then the one dollar in marginal incentives would generate a social welfare gain of one dollar. Thus, one dollar in additional marginal incentives would equal a one dollar gain in social welfare.¹³⁰ Similarly, if one dollar in additional excess incentives leads to

¹²⁸ This is somewhat different from the number we calculated in Figure 2, but recall that the data in Figure 2 included four million songs in the distribution that had never been played. In contrast, now we are assuming that the game count ends with the last work with at least one player.

¹²⁹ Ideally, we could determine those welfare losses and gains directly for every possible copyright regime. We could then adopt the copyright regime that generates the maximum net welfare gain. Unfortunately, we are not yet able to implement such an approach.

¹³⁰ Not all incentives generate the same social rate of return. In the absence of unrealistic assumptions, only those incentives that go directly to works at the margins yield a positive social rate of return. Non-marginal or excess incentives likely yield nothing or have a negative social rate of return. In the recording industry, for example, overcompensating superstar authors and artists did not create a lottery effect that

fifty cents in deadweight welfare losses, converts forty cents of rents into costs through socially wasteful rent-seeking, and reduces the output of our top superstar artists and authors by ten cents, then one dollar in additional excess incentives would generate exactly one dollar in welfare losses.¹³¹ As a result, if expanding copyright to generate one dollar in marginal incentives would also generate one dollar in excess incentives, under these assumptions, such an expansion would neither increase nor decrease social welfare. The welfare gains from the one dollar in additional marginal incentives would exactly equal the welfare losses from the one dollar in additional excess incentives. If these assumptions are right, then an excess-to-marginal incentive (or EMI) ratio of one would suggest that we are close to optimal in the amount of copyright protection we provide.

Of course, the EMI ratio that precisely defines whether we have too little, too much, or just the right amount of copyright will depend upon how effective a proxy the incentives, whether marginal or excess, are for the respective social welfare gains or losses. Existing studies of social rates of return in different technological fields have found average social rates of return on patentable innovations from 13 to 134 percent.¹³² If the findings of these studies can be applied to works of authorship, then using the additional incentives copyright provides directly to marginal works as a one-for-one proxy for welfare gains is generous, but not entirely implausible. Similarly, existing studies of deadweight and rent-seeking welfare losses associated with monopoly rents in other industries have found that these welfare losses may equal all or a substantial fraction of the rents potentially available.¹³³ In addition, in my study of the music industry from 1962 to 2015, I showed that as revenue rose sharply into the 1990s, creative output fell sharply from our most talented superstar artists. I further showed that this loss in superstar output outweighed any increase in output at the margins, whether from a lottery effect or from direct additional incentives provided to works at the margins.¹³⁴ As a result, as revenue rose, the number of hit songs good enough to make the Billboard Hot 100 fell. Similarly, data released for 2014 world-wide streams on Spotify show that the music from

encouraged additional works at the margins. Rather, it reduced both the superstars' creative output and the output of hit songs by the recording industry as a whole.

¹³¹ It may seem implausible for a backward-bending labor supply curve to arise with a corporate-authored work such as a videogame. But the *Duke Nukem* saga provides at least one real world example. See, e.g., Clive Thompson, *Learn to Let Go: How Success Killed Duke Nukem*, WIRED, Dec. 21, 2009 (available at <https://www.wired.com/2009/12/fail-duke-nukem/>) (last visited Jan. 19, 2019).

¹³² See, e.g., Jeffrey I. Bernstein & M. Ishaq Nadiri, *Interindustry R&D Spillovers, Rates of Return, and Production in High-Tech Industries*, 78 AM. ECON. REV. 429 (1988) (estimating average social rates of return for innovations in five industries for three years, 1961, 1971, and 1981, and finding social rates of return for: (i) chemical products 26%; (ii) nonelectrical machinery 54%; (iii) electrical products 24%; (iv) transportation equipment 13%; and (v) scientific instruments 134%).

¹³³ See Gordon Tullock, *The Welfare Costs of Tariffs, Monopolies, and Rents*, 5 WESTERN ECON. J. 224 (1967) (showing that the deadweight welfare losses alone substantially understate the welfare losses associated with rents); Richard A. Posner, *The Social Costs of Monopoly and Regulation*, 83 J. POL. ECON. 807, 817-20 (1975) (showing for regulated industries that the welfare losses due to regulation that controls prices or limits entry may be as high as 92 percent of industry revenue).

¹³⁴ See LUNNEY, COPYRIGHT'S EXCESS, *supra* note 5, at 3-4, 154-56.

the 1990s remains disproportionately unpopular on the streaming service. Given these studies, using excess incentives as a direct one-for-one proxy for welfare losses likely underestimates the associated welfare losses, but is again plausible, just as it was for marginal incentives.

Although not a perfect measure, if we allow for some error on either side, this suggests a rough relationship between the EMI ratio and the socially optimal level of copyright protection from a welfare perspective. Table 1 illustrates.

Table 1. Using EMI ratios to Define Optimal Copyright

<u>EMI Ratio</u>	<u>Level of Copyright</u>
<0.5	Too little
0.5 to 2	Near optimal
>2	Too much

Unfortunately, we do not have the information we need to calculate the EMI ratio itself. For every possible copyright regime, we would need to know which works were just expected to cover their costs and were thus marginal works, and which works were earning a profit and were thus non-marginal. In other words, we would need profit per unit cost for every work under every possible copyright regime. Even for the actual copyright regime we currently have, this data is not available and may not exist. In the real world, profits or rents may be hidden to avoid taxation, to avoid profit sharing with a contractual partner, or accounted for as costs when transferred to a contractual partner.¹³⁵ Costs may also be inflated by socially wasteful rent seeking.¹³⁶ Calculating the EMI ratio for the existing copyright regime, let alone all possible copyright regimes, may therefore be beyond our ability at this time.

Nevertheless, under certain assumptions,¹³⁷ we can use the peak-to-median revenue or demand ratio as a rough proxy for the excess and marginal incentives copyright likely provides, and thus as a rough measure of copyright's likely efficiency. Specifically, if costs for producing any work of authorship are constant,¹³⁸ regardless of the work's popularity, then revenue or demand becomes a reasonable proxy for profit.

¹³⁵ For some of the tricks that Hollywood uses to ensure that even high revenue films do not generate a profit, see the sources cited in notes 174-180 *infra*.

¹³⁶ See text accompanying notes 42-45 *supra*.

¹³⁷ We can use the peak-to-median demand ratio for the existing copyright regime as a proxy for the excess-to-marginal incentive ratio if the most popular game is non-marginal and the median game is the marginal work, or if we assume that the median work (in terms of popularity) is the marginal work, and all works more popular than the median work are non-marginal. For this to be the case, we need: (i) revenue to be correlated with demand, so that a more popular game earns more than a less popular game; (ii) for each game to have a constant cost, and thus higher demand games are more profitable per unit cost; and (iii) expected demand cannot be completely uncertain *ex ante*. Under these assumptions, the more popular games are more profitable under any given degree of copyright protection, and so are the videogames producers will invest in first, with the least copyright protection.

¹³⁸ This is plausible for the creation of some works of authorship, such as sound recordings. It is less plausible for PC videogames.

The more popular a work is, the more likely it is profitable. The more popular a work is, the more likely that is non-marginal. Comparing the demand for the most popular videogame to the demand for the median video game can thus provide a rough estimate of the “quick-look” EMI ratio. To be accurate in evaluating whether any given marginal expansion in copyright is desirable, we would have to compare the marginal social value of the one marginal work that an incremental copyright expansion generates not just to the marginal excess incentive costs associated with the most popular work, but for all of the non-marginal works to which the expansion applies. Again, we can approximate this “more accurate” EMI ratio by assuming that all works more popular than the median work are non-marginal, and then compare the total demand, whether streams or player count, for those non-marginal works to the demand for the median work. While this “more accurate” ratio is the correct one to use, for many copyright industries, we may have data only for the most popular and average work and may therefore have to rely on the “quick-look” ratio.

When we calculate the peak-to-median demand ratio for Figure 5, and use it as a proxy for the EMI ratio,¹³⁹ we find an EMI orders of magnitude higher than two – the outer boundary of welfare-enhancing copyright. For Figure 5, the most popular game had 50,191,347 estimated players. The mean player count was 133,951.5 players, and the estimated player count for the median game was 4,163.¹⁴⁰ Thus, if we expand copyright to increase the earnings of the median game¹⁴¹ by \$1, and earnings increase proportionally to player count, then that same expansion would also increase the earnings of the most popular game by \$12,056.53. If we assume that the most popular game would have been profitable with less or no copyright protection and is thus non-marginal, then these \$12,056.53 in additional earnings represent excess incentives. As a result, the “quick-look” EMI ratio for the most popular-to-median game ratio for Figure 5 is 12,056.53. If we extend the analysis to be more accurate, assume that all games more popular than the median game are non-marginal, and so include the player count for all of the games more

¹³⁹ As discussed, *see* note 136 *supra*, for this relationship to hold, we must assume that: (i) revenue is correlated with demand, so that a more popular game earns more than a less popular game; (ii) for each game to have a constant cost, and thus higher demand games are more profitable per unit cost; and (iii) expected demand cannot be completely uncertain *ex ante*. We can have more confidence that the peak-to-median revenue or demand ratio serves as an effective proxy for the EMI ratio for something like sound recordings that have a relatively constant cost structure to create and distribute regardless of how popular or unpopular the sound recording at issue proves to be. Yet, even if the peak-to-median demand or revenue ratio is not a perfect proxy for the EMI ratio, it is likely the best estimate we can get. As mentioned, in theory, profit per unit cost would provide a better guide to which works are marginal and which non-marginal. However, real world cost figures are not available and are skewed in any event by: (i) the desire to limit taxable income; (ii) the desire to limit profit-sharing with partners; (iii) the practice of accounting as costs rent-transfers to contractual partners; and (iv) socially wasteful, rent-seeking expenditures. Thus, using the PMR revenue ratio is probably the best approximation for the EMI ratio we have.

¹⁴⁰ For the data in Figure 5, the mean-to-median ratio is 32.177. The mean is sharply higher than the median because the distribution of demand is sharply skewed in favor of the most popular games.

¹⁴¹ I use the median player estimate, rather than the mean, because the mean is itself inflated by the popularity of the most popular games. In my book, *COPYRIGHT’S EXCESS*, I used the mean in calculating this ratio at several points because I did not have access to the median, either for Spotify streams or album sales.

popular than the median game, then to increase the earnings associated with the median game by \$1, copyright must also increase the earnings of the more popular games by \$425,730.08. Thus, the “more accurate” EMI ratio for Figure 5, which compares the total player count for all of the more-popular-than-median games to the player count for the median game, is 425,730.08.

Whether we use the quick-look or more-accurate EMI ratio, on this third measure, the EMI ratio for the videogame player distribution in Figure 5 is closer to the EMI ratio for the straight-line demand depreciation model than for the hypothetical L-shaped demand distribution. Proponents of broader copyright hoping to take comfort from that fact will find little solace, however. The quick-look EMI ratio for the straight-line demand depreciation model is two. Assuming that demand depreciates in a straight line establishes mathematically that the demand for the most popular work is exactly twice the demand for the median work. The more-accurate EMI ratio, which looks at how the one dollar in additional incentives for the median work increases the excess incentives for all of the non-marginal works more popular than the median work, is 8 for the straight-line depreciation model. In contrast, for the hypothetical L-shaped distribution of demand, the EMI ratio, whether quick-look or more-accurate, is infinity. In the L-shaped distribution, the median work receives no demand at all. However high the demand for the most popular game in copyright’s tall peak, that demand is still finite. As a result, when we divide that peak by zero, the ratio becomes infinity. Compared to infinity, either the quick-look or more-accurate EMI ratio for Figure 5, is, in a precise mathematical sense, nothing at all.¹⁴² So in that sense, the ratios for Figure 5 and the straight-line depreciation model, because they are both finite numbers, are closer.

However, in the real world of copyright’s benefits and costs, even the lower estimate of \$12,056.33 in proxied welfare losses, is nowhere close to \$2 in proxied welfare losses. For an EMI ratio of two, it is at least possible that \$1 in additional incentives for works at the margins of profitability might generate marginal social value in excess of the welfare losses associated with \$2 in additional excess incentives. If, for example, we take the peak average social return of 134% found for patentable inventions, assume that it applies to copyrighted works, and also assume that \$1 in additional marginal incentives attracts \$1 in investment towards additional creative works, then that \$1 in additional marginal incentives would generate \$1.34 in marginal social value. If we assume that any additional excess incentives generate welfare losses at only fifty cents on the dollar,¹⁴³ then the \$2 in additional excess incentives would generate welfare losses of only \$1.

¹⁴² Any finite number divided by infinity is zero.

¹⁴³ I have suggested that 50 cents on the dollar might be an appropriate conversion factor for estimating the welfare losses from excess incentives elsewhere. See Lunney, *The Death of Copyright*, *supra* note 33, at 866 n.181; Lunney, *Copyright’s Incentives-Access Paradigm*, *supra* note 19, at 557 n.283.

Under these, generous, but not entirely implausible assumptions, we might be able to justify copyright with an EMI ratio of two.¹⁴⁴

On the other hand, even assuming a very generous social rate of return on the additional marginal incentives and a very low estimate of welfare losses from additional excess incentives, it is essentially impossible to justify copyright at a quick-look EMI ratio of 12,056. Under any reasonable assumptions regarding how these two incentives convert into welfare losses and gains, the welfare losses associated with the additional excess incentives will exceed the welfare gains from the additional marginal incentives. For example, let us assume that the \$1 in additional incentives for works at the margins yields a social rate of return of 1000 percent, and that \$1 in additional excess incentives leads to welfare losses of one cent. Even with these absurdly generous assumptions towards the case for copyright, the welfare losses associated with the \$12,056.33 in additional excess incentives would still be \$120.56. The welfare gain on the other hand would be only \$10. In other words, for the distribution of demand Figure 5 depicts, which has a quick-look EMI ratio of 12,056, the welfare losses from the excess incentives would likely exceed the welfare gain from the marginal incentives by an order of magnitude. And that's both for our lower quick-look EMI ratio, rather than our higher more-accurate EMI ratio, and with absurdly generous, pro-copyright assumptions for converting the additional marginal incentives and the additional excess incentives into welfare gains and losses, respectively.

As a result, while the EMI ratios for the Figure 5 distribution are, in a mathematical sense, closer to the EMI ratios for the straight-line depreciation model than they are to the L-shaped distribution ratio, that mathematical closeness is simply because the first two sets of EMI ratios are both finite numbers. While they are therefore closer to each other than either is to infinity, in the real world of copyright policy, the two sets of EMI ratios are not close at all.

The actual distribution of demand for the videogames on Steam's platform with developer-designed achievements is not quite a perfect L curve. It does, however, come quite close. In the next section, I will further explore the normative implications of this fact. I will also examine how we might change, amend, or interpret aspects of copyright law so that it can rationally serve its constitutional purpose if this data from the videogame sector accurately reflects the distribution of demand for copyrighted works generally.

III. *Normative Implications and a Call for Action*

A. *If the Demand Distribution is L-Shaped or Nearly So, Can We Justify Copyright?*

¹⁴⁴ Of course, even for straight-line depreciation, the more-accurate EMI is eight. That suggests that the welfare losses from copyright for such a market exceed any welfare gains from additional works at the margins.

If the question is whether we can justify copyright in the face of an L-shaped distribution of demand, the answer is simple: No. If the distribution of demand is L-shaped, we cannot justify copyright.

From an efficiency perspective, in the face of an L-shaped distribution of demand, copyright becomes inefficient. With an L-shaped distribution, essentially all of copyright's incentives flow to non-marginal works. None, or essentially none, flows to marginal works. The incentives copyright provides are all excess; none are marginal. As a result, the welfare losses associated with the excess incentives copyright provides will vastly outweigh any potential welfare gains from whatever additional incentives copyright may provide for works at the margins of profitability.

While the actual distribution of demand in Figure 5 does not precisely match the hypothetical extreme of the L curve, at almost every point along the distribution, enacting or expanding copyright will likely generate additional excess incentives and associated welfare losses that far exceed the welfare gains associated with the additional incentives for works at the margins. To illustrate, let us assume that some of the PC videogames in Figure 5 would be produced without any copyright at all. History, economics, and common-sense all tell us that this is virtually certain, even if we limit our focus to profit-motivated production. Even so, we do not know which or how many videogames would be produced with less or no copyright. As discussed, the information does not exist to enable us to separate marginal and non-marginal games for every possible copyright regime. Nevertheless, if the most popular games are also the most profitable for any given level of copyright protection,¹⁴⁵ then those are the games that will become profitable and hence be produced first, as we move from a legal regime with no copyright protection to legal regimes with increasing degrees of copyright protection.¹⁴⁶ Putting intrinsically motivated authorship to one side, these popular games may be produced because lead-time advantages, reputational rents, or other market forces enable the producer to cover the costs of such games even without copyright. Or they may be produced because Marshall's superstar model applies, and we see overinvestment in and overproduction of such games, relative to the social ideal. But whatever the reason some profit motivated production will occur even without copyright, and under our assumptions, the most popular videogames will be produced first. Let us further assume that we are considering a move from a legal regime with no copyright protection to a legal

¹⁴⁵ Certainly, we know that some of the most popular games are extremely profitable. Although not available on Steam, Fortnite, for example, earned \$3 billion in profits in 2018. See Erik Klein, *Fortnite Creator Epic Games Reportedly Earned \$3 billion in Profits in 2018*, FORBES, Dec. 27, 2018 (available at <https://www.forbes.com/sites/erikkain/2018/12/27/fortnite-developer-reportedly-earned-3-billion-in-profits-in-2018/#64559fe11c79>) (last visited Jan. 17, 2019).

¹⁴⁶ This assumption allows us to use the peak-to-median demand ratio as a proxy for the excess-to-marginal incentive ratio. The assumption may well be wrong. But the choice is to make the assumption and have a plausibly accurate proxy for the welfare balance or not have a measure at all. The welfare balance and costs associated with excess incentives are real in either event.

regime with the first, smallest possible increment of copyright protection.¹⁴⁷ If adopted, this first increment will ensure the expected profitability and hence production of just one more videogame. Given our assumptions, that one more videogame will be the next most popular. At the same time that adopting copyright increases the revenue and thus ensures the existence of this marginal work, adopting copyright increase the revenue of the more popular, and by assumption, non-marginal, games proportionally. It will also therefore create additional excess incentives.

Even with these assumptions, we still do not know how many videogames will be produced without copyright. We can nevertheless illustrate various possibilities by assuming that: (i) only the most popular game will be produced without copyright; (ii) only the top two most popular games will be produced without copyright; (iii) only the top ten most popular games will be produced without copyright; and (iv) only the top one percent of games will be produced without copyright. For each of these possibilities, we can treat the second, the third, the eleventh, or the 133rd most popular game as the marginal game and calculate quick-look and more-accurate demand ratios accordingly. Table 2 presents the results.

Table 2. Quick-Look and More-Accurate Demand Ratios for the Actual Distribution of Demand, Assuming that the 2nd, 3rd, 11th, or 133rd most popular game is the marginal work and all more popular games are non-marginal

<u>Marginal Work</u>	<u>Quick-Look¹⁴⁸</u>	<u>More-Accurate¹⁴⁹</u>
2 nd	1.08	1.08
3 rd	1.37	2.64
11 th	3.79	20.14
133 rd	19.50	343.62

¹⁴⁷ In the model, we adopt the smallest possible increment of copyright. We define that increment as one that would render just one more work at the margins profitable. Such an increment might provide only one more hour or one more day of copyright protection. While that is fine for a model, it is unrealistic to expect Congress to debate and enact such a trivial change in the protection regime. In the real world, the smallest politically viable increment of copyright protection might resemble the copyright protection Congress provided in 1790 in the first copyright act in the United States. It might include: (i) a short, fourteen-year term; (ii) a narrow scope of protection again only exact, mechanical duplication by competing commercial publishers; and (iii) a limited set of remedies. This does not affect the calculations in the model, however. Adopting such a discrete, politically-feasible increment would increase the revenue and hence ensure the profitability of not just one additional works at the margins, but many. Nonetheless, for any given increment of copyright, there will always be one marginal work, exactly at the border of profitability. For the rest of the additional works, there would be some element of excess incentives, for which we would need to account.

¹⁴⁸ Recall that the “quick-look” ratio compares the player count for the most popular game, which we have assumed to be non-marginal, to the player count for the marginal work.

¹⁴⁹ Recall that the “more-accurate” ratio compares the total player count for the non-marginal works, which we have assumed to be those games more popular than the marginal work, to the player count for the marginal work.

If we take these demand ratios as a rough proxy for our quick-look and more-accurate EMI ratios, they suggest why copyright is essentially impossible to justify under the actual distribution of demand in Figure 5 from an efficiency or social welfare perspective. Obviously, if no works would be created and distributed in the absence of copyright, adopting some minimal degree of copyright protection is welfare enhancing. In such a case, there are no non-marginal works. No non-marginal works, no excess incentives. No excess incentives, no welfare losses. But history, economics, and common-sense all suggest that even without copyright, we will likely see a substantial degree of profit-motivated authorial production in the market.

Once we have essentially any works created and distributed in the absence of copyright, the welfare losses associated with the additional excess incentives even the narrowest possible copyright regime would provide will likely exceed the welfare gains from the additional incentives and associated creative output at the margins.¹⁵⁰ Perhaps, it might be possible to justify the initial adoption of some minimal degree of copyright protection if only one game would be produced without copyright. But even then, the copyright adopted would need to be extremely short, very narrow, and relatively ineffective at controlling unauthorized copying – sufficient to ensure the expected profitability and hence production of just one more game. As soon as two games are produced without copyright or with extremely narrow copyright, the welfare losses associated with the excess incentives for these two games likely outweigh the welfare gains from enacting or expanding copyright to ensure the expected profitability of the third game. As Table 2 reflects, if the two most popular videogames are produced without copyright, then to generate just one dollar in incentives for the marginal work, the third most popular videogame, copyright would also generate \$2.64 in additional excess incentives. As discussed, we can plausibly assume that marginal and excess incentives serve as dollar-for-dollar proxies for the associated welfare gains or losses.¹⁵¹ As a dollar-for-dollar proxy, the welfare losses from \$2.64 in additional excess incentives would likely exceed the welfare gain from \$1 in additional marginal incentives. As a result, if the market would produce just two videogames in the absence of copyright protection, then

¹⁵⁰ The skewed distribution of demand leads the additional excess incentives and associated welfare losses to rise extremely quickly. Even without the skew, the math of the excess-to-marginal incentive balance establishes that only a very narrow, extremely short, and relatively ineffective copyright regime can plausibly be welfare-enhancing. For example, if we switch to profit-per-unit cost and make the assumption most generous to copyright, that the demand decreases only infinitesimally from the first to the second to the third and so on most popular works, the more-accurate EMI would be one if only work is produced without copyright, two if two works are produced without copyright, three if only three works are produced without copyright, and so on. Again, as long as any significant, non-intrinsically-motivated authorship occurs in the absence of copyright, today's long, broad, and relatively effective copyright cannot be justified. Even under a step function distribution of demand – the distribution most favorable to copyright – copyright is a losing proposition if the market is able to produce just the first two or three works without copyright.

¹⁵¹ See text accompanying notes 140-143 *supra*.

enacting any form of copyright is undesirable and inefficient. It would reduce social welfare. Only if the market would produce essentially no works in the absence of copyright can we justify copyright, and even then we can justify only the shortest, narrowest, and least effective copyright regime imaginable.

As for the other two justifications for copyright, copyright is not a welfare system.¹⁵² Even if we wanted it to be, Figure 5 illustrates two reasons why copyright would not prove effective as a welfare system. First, under today's copyright, again assuming that Figure 5's demand distribution is typical, nearly ninety percent of the incentives that copyright provides go to the top ten percent of the works. The remaining ninety percent of works receive only slightly more than ten percent of the incentives that copyright generates. That means that in order to provide very small sums to the median artist or author, copyright must also provide vast sums to our most popular superstars. In recent work, using data from Spotify, I estimated that to provide one dollar to the copyright owners of the "average" song, copyright would also have to provide \$66,666 to the copyright owners of the song that was, at the time, most popular, *One Dance*.¹⁵³ For this calculation, I used a mean Spotify stream count of roughly 15,000 streams per year as the demand for the "average" work because I did not have the stream count for the median work.¹⁵⁴ Use of the mean is inappropriate in this context, however, because the mean is skewed sharply upwards by the extremely high demand for the most popular works. For the videogames in Figure 5, for example, the mean player count was 133,951.5. The median player count, on the other hand, was only 4,163. If we want to know how much help copyright provides the average artist, we should use the stream count for the median work. While we do not have a stream count for the median work on Spotify, we can get an estimate by assuming that the distribution of demand on Spotify is as skewed as the distribution of demand for videogames in Figure 5.¹⁵⁵ If we do, then my initial calculation vastly overstates how much copyright can do for the average artist. If the median-to-mean ratio for streams on Spotify is the same as for the videogames shown in Figure 5,¹⁵⁶ then the "average" song on Spotify, defined as the song at the 50th percentile of popularity, receives not 15,000 streams a year, but only 466 streams a year. As a result, to put \$1 for a loaf of bread in the hands of the copyright owner of such a median song, copyright has to give the copyright owner of the most popular song on Spotify, *Shape of You*, \$4.29 million – the price of a fully furnished and nicely stocked vacation home. Because of the skewed demand, and at least so long as copyright is uniform, there is simply no way copyright can ensure the median artist or author a livable wage without vastly overpaying

¹⁵² Thanks to Pam Samuelson for expressing the point in this way.

¹⁵³ See LUNNEY, *supra* note 5, at 21.

¹⁵⁴ *Id.*

¹⁵⁵ As discussed, demand decays more rapidly, on a percentile of total works basis, for the Spotify top 100 songs than it does for the Steam top 100 games. See text accompanying notes 117-120 *supra*. This suggests that the demand for music on Spotify is even more skewed and even more L-shaped than it is for the videogames in Figure 5.

¹⁵⁶ For Figure 5, the mean-to-median ratio is 32.177.

our most popular superstars. If a livable wage is our goal for the average artist, then copyright, at least as presently imagined, is not a viable mechanism for achieving it.

Perhaps, however, we are prepared to live with this math and are willing to enrich vastly our superstars and ignore the associated deadweight and other welfare losses associated with overpaying our superstars if that is what it takes to provide the median artist or author a livable wage. Yet, that will not in the end promote distributive justice for the second reason. The Gini coefficient associated with the demand for videogames in Figure 5, at 99.25 percent, represents almost perfect inequality. It is also far higher than the Gini coefficient for family income in the United States generally, at 45 percent. Because of this disparity, the more national income that is redistributed through the copyright system the less equal our national income distribution will become, at least if Figure 5's demand distribution is typical for copyrighted works generally. Indeed, as more of our national income is redistributed through the copyright system,¹⁵⁷ the closer our distribution of income, and our associated Gini coefficient, will come to the near-perfect inequality of Figure 5. For this reason, attempting to use copyright to achieve distributive justice would prove self-defeating. Copyright creates the very inequity in the distribution of income that distributive justice abhors.

B. *Moving Forward: No Legislation without Information*

In the light of our inability to justify copyright in the light of the skewed distribution of demand shown in Figure 5, the question becomes: How do we move forward from here? The first step is obvious. We need to determine whether: (i) Figure 5 is idiosyncratic and reflects the distribution of demand only for PC videogames; or (ii) Figure 5 is representative of the distribution of demand for a broad range of copyrighted works. Copyright owners, copyright collectives, and copyright intermediaries have this information. We need it. As a result, when these entities come to our government, whether that be Congress, an administrative agency, or a court, and ask for assistance in enacting, expanding, or enforcing copyright, our government needs to insist that these entities provide the information that we need. With respect to pleas for amendments to the Copyright Act, we should adopt a simple rule: No legislation without this information.

In the meantime, until we have this information, the only prudent approach is to assume that the distribution of demand that Figure 5 shows for PC videogames is representative of the distribution of demand for all works of authorship for two reasons. First, we know that Figure 5 represents the real world distribution of demand for PC videogames. We know that many other works of authorship share the same popularity

¹⁵⁷ Again, assuming the distribution of copyright income reflects the distribution of demand. I would also note that for corporate-authored works, such as videogames, the income from a popular videogame may be redistributed to employees of the corporate author in a way that ameliorates, at least to some extent, the unequal distribution of demand in the marketplace.

and network effects that seem to drive the skewed demand in Figure 5.¹⁵⁸ We also know that superstar artists and authors, whose works sharply outsell the average artist or author, are a commonplace feature of markets for copyrighted works generally.¹⁵⁹ Thus, it seems quite likely, even if we do not have the data to prove it, that the markets for other works of authorship share, at least to some degree, the same skewed distribution of demand as PC videogames. Second, presuming that Figure 5 is representative and that the distribution of demand in most copyright markets is an L curve places the burden on the parties with the actual data to prove otherwise.¹⁶⁰ If the market for some other type of copyrighted work does not share the highly skewed demand we see for PC videogames in Figure 5, all copyright owners, copyright collectives, or copyright intermediaries have to do is show us.

Until they do, we should assume that Figure 5 is representative of the distribution of demand for works of authorship generally. With that first step taken, at least until further information becomes available, the next steps require Congress and the courts to amend or interpret copyright law in ways that reduce excess incentives while maintaining incentives for works at the margins of profitability. To those next steps I now turn.

C. *A Call for Cost-Based Copyright*

As a regulatory intervention, the purpose of copyright is to help ensure that authors and artists have a reasonable opportunity to recoup their persuasion costs to create and distribute socially valuable works of authorship. Vastly enriching superstar artists and authors was never the purpose of copyright. It was an accident of poor regulatory design. The resulting excess incentives are costly, both directly and indirectly.

Directly, excess incentives create the same welfare losses as monopoly rents generally: (i) deadweight welfare losses; and (ii) socially-wasteful rent-seeking expenditures. In this context, however, excess incentives impose a further welfare loss. As I have shown happened in the recording industry when revenues peaked in the 1990s, vastly overpaying our superstars reduced the creative output of our most popular authors and artists.¹⁶¹ Overbroad copyright thus interferes with the very goal copyright is meant to serve. Consider an example that plainly illustrates the cultural cost of copyright. The Beatles released their first album in 1963 – a low revenue era for the recording industry. During the early 1960s, the best-selling artists released, on average, fourteen studio albums in their first ten years. The Beatles came close to matching that average. They

¹⁵⁸ See Lunney, *The Death of Copyright*, *supra* note 33, at 883-87.

¹⁵⁹ See *id.* at 884 (noting that the top ten percent of the films released in 1999 and 2000 captured 48.2 and 43.9 percent, respectively, of the total domestic box office receipts in those years).

¹⁶⁰ Adopting such a presumption has longstanding roots in the Anglo-American legal system. See *Armory v. Delamirie*, 1 Strange 505, 93 Eng. Rep. 664 (K.B. 1722) (“[T]he Chief Justice directed the jury, that unless the defendant did produce the jewel, and shew it not to be of the finest water, they should presume the strongest against him, and make the value of the best jewels the measure of their damages: which they accordingly did.”).

¹⁶¹ See LUNNEY, *supra* note 5, at 157-92.

released twelve studio albums and an EP in ten years and then broke up. As revenues for the industry rose, however, the output of our best-selling artists fell. By the time we reach the high-revenue 1990s, our best-selling artists release, on average, fewer than five albums in their first ten years. Imagine the loss to our cultural legacy if the Beatles had released their first album in 1993 and had matched the average output of the top recording artists in the peak revenue 1990s. In that case, the Beatles would have produced only four or five studio albums before breaking up. As a society, we would have lost *Sergeant Pepper's Lonely Hearts Club Band*, *The White Album*, and *Abbey Road*.¹⁶²

Indirectly, these excess incentives also limit our ability to provide adequate protection for the truly marginal work. So long as copyright is uniform, the cost of excess incentives limits our ability to extend more extensive protection to the socially valuable work at the margins of profitability.¹⁶³ Because of the welfare balance, as excess incentives rise, we must limit the scope of copyright protection. We may therefore be unable to provide the protection that a truly marginal work needs to achieve expected profitability. Excess incentives thus limit the ability of copyright, as a regulatory intervention, to achieve its stated purpose.

We need therefore to change how we think about copyright. In doing so, we need to put aside labels and stories that will lead us astray. It is not helpful and is affirmatively misleading to speak of copyright as property, whether intellectual or otherwise, or as a natural or human right. For many, these labels serve as heuristic shortcuts that suggest a nature, strength, and intrinsic desirability of the right to control copying fundamentally inconsistent with designing a copyright regime that rationally advances its constitutional objective. To design a rational copyright, it is best to think of, and label, copyright as a mere regulatory intervention whose purpose is to provide society with a wide and varied supply of original works of authorship. As a regulatory intervention, copyright best serves its constitutional objective when it seeks to provide a copyright owner with a reasonable opportunity to recoup its persuasion costs for authoring and distributing an original work of authorship. Nothing more. When a copyright owner has had the opportunity to recoup, and certainly, when the copyright owner has recouped, its persuasion costs, the purpose of copyright has been satisfied. At that point, copyright protection should end.

The ideal then for which Congress, the courts, and the Copyright Office ought to strive is cost-based copyright. A “cost-based” copyright seeks to mimic what we see in competitive markets and would strive to achieve two goals. First, it would seek to provide each copyright owner with a reasonable opportunity to recoup its persuasion costs for authoring and distributing the work at issue. Second, it would seek to eliminate, or at least, minimize excess incentives. To accomplish these two goals, we should re-design copyright expressly as a cost recovery or cost recoupment mechanism. Through such an

¹⁶² *Id.* at 169-75.

¹⁶³ See Lunney, *A Quiet Revolution*, *supra* note 27, at 64-68 (illustrating the trade-off in the patent context).

approach, we can better match the private returns in copyright markets to the returns available in competitive markets generally. In this re-design, Congress, the courts, and the Copyright Office all have roles they can play.

While I have suggested other approaches to such a re-design elsewhere,¹⁶⁴ in this article, I will explore two alternative approaches. First, Congress and the courts can and should incorporate cost recoupment into copyright directly. Moreover, they should do so on a work-by-work basis within the existing framework of broad and long copyright protection. Under this approach, to establish infringement or obtain injunctive relief, a copyright owner would have to prove that if the use is allowed, it would not have expected to recoup the work's costs at the time it invested in the work at issue. The idea is not to cut off copyright protection as soon as any given work achieves profitability. Such an approach would change the expected return on every work and leave copyright owners only with expected losses. Rather, the idea is to tailor copyright protection so that each work receives precisely that level or degree of copyright protection necessary to generate the expectation *ex ante* that the work will just cover its costs and a reasonable, risk-adjusted return on investment. Under this proposal, works right at the margins of profitability would receive the broad and long protection copyright currently provides. But for those extremely popular works that would prove profitable even with much narrower and shorter copyright protection, Congress or the courts would adjust copyright protection for that work accordingly.

The goal of the proposal is to ensure that every valuable work has a chance to recoup its costs, but end protection once any given work has recouped its costs or is expected to recoup its costs despite the use at issue. Congress could implement this approach by amending the Copyright Act to require a plaintiff to prove that protection against the defendant's use at issue is necessary at the time it occurs to ensure the work's expected profitability at the time the decision to author and distribute the work was made. Alternatively, courts could implement this approach by incorporating cost recoupment on a work-by-work basis into the fourth fair use factor¹⁶⁵ or into the fourth *eBay* factor for determining whether to give injunctive relief.¹⁶⁶

Under the fair use approach, if the defendant's use would not reduce the expected return at the time of a work's creation and distribution below a reasonable risk-adjusted

¹⁶⁴ See LUNNEY, *supra* note 5, at 198-207 (proposing: (i) replacing copyright with prize or grant system; (ii) using existing structures to reduce excess incentives and increase marginal incentives by adopting a two-tier pricing approach for mechanical licenses and providing a livable wage through performing rights organizations, such as ASCAP; and (iii) adopting a copyright windfall profit tax to reduce excess incentives).

¹⁶⁵ The fourth fair use factor requires a court to consider "the effect of the use upon the potential market for or value of the copyrighted work." 17 U.S.C. § 107 (2018).

¹⁶⁶ The fourth *eBay* factor in the equitable balancing to determine whether to grant injunctive relief requires a court to determine "that the public interest would not be disserved by a permanent injunction." *eBay Inc. v. MercExchange, L.L.C.*, 547 U.S. 388 (2006).

return on costs, the use, whether to create a further creative work or even for mere duplication, would be fair. As the Court has recognized, “[t]he fair use doctrine . . . ‘permits [and requires] courts to avoid rigid application of the copyright statute when, on occasion, it would stifle the very creativity which that law is designed to foster.’”¹⁶⁷ Unfortunately, courts today do not interpret the fourth fair use factor in a way that aligns copyright with its constitutional objective. They treat any loss in market value as weighing against fair use. They should not.¹⁶⁸ The only loss in actual or potential market value that should weigh against fair use is a loss that moves a work from an *ex ante* expectation of profitability to an *ex ante* expectation of unprofitability.¹⁶⁹ If the loss in value moves a work from an *ex ante* expectation of obscenely profitable to an *ex ante* expectation of only hugely profitable, that should not weigh against fair use. To the contrary, that there remains an expectation of huge profits should weigh conclusively in favor of finding the use at issue fair.¹⁷⁰

Consider, for example, the *Harry Potter Lexicon* case.¹⁷¹ In 1997, the copyright owners published the first *Harry Potter* novel, *Harry Potter and the Sorcerer’s Stone*.¹⁷² The copyright owners went on to publish a total of seven *Harry Potter* novels. The novels

¹⁶⁷ Campbell v. Acuff-Rose Music, Inc., 510 U.S. 569, 577 (1994) (quoting Stewart v. Abend, 495 U.S. 207, 236 (1990)).

¹⁶⁸ As Congress noted in the legislative history accompanying the 1976 Copyright Act, the statutory codification of the four factors was not intended to freeze the doctrine in the statute, especially during a period of rapid technological change. H.R. Rep. No. 94-1476, at 65 (1976). Instead, Congress left the courts to adapt the doctrine to particular situations on a case-by-case basis. *Id.* at 66.

¹⁶⁹ In *Universal City Studios v. Sony Corp.*, the district court properly recognized that harm to the potential value of a copyrighted work should not be decided in the abstract, but in terms of the threat to the work’s creation:

Before proceeding to a discussion of these factors, the court notes that the extent of the harm which plaintiffs ask the court to assume is probable is unclear. Harm which “imperils the existence of a publication” is more destructive of a fair use defense than is harm which would “limit profits.” Plaintiffs’ experts have testified that if Betamax is not enjoined, their profits will decrease, and that for some programs, they may not recoup their production costs. If this happens, plaintiffs warn, they will have to reduce the quality, or at least the production costs, of their audiovisual works. Plaintiffs have not said that they will no longer be able to produce this material.

Universal City Studios, Inc. v. Sony Corp., 480 F. Supp. 429, 452 (C.D. Cal. 1979) (citation omitted), *rev’d*, 659 F.2d 963 (9th Cir. 1981), *rev’d*, 464 U.S. 417 (1984).

¹⁷⁰ I have advocated a similar approach in earlier work. See Glynn S. Lunney, Jr., *Fair Use and Market Failure: Sony Revisited*, 82 B.U.L. REV. 975, 999(2002) (“On one side of the balance, attention should be directed toward the extent to which prohibiting a particular use will lead to more and better works of authorship by asking: (1) whether the unauthorized use would otherwise reduce the revenue associated with the copyrighted work; and (2) if so, how, if at all, that reduction would likely affect the production of copyrighted works.”). This proposal differs. In the *Fair Use and Market Failure* article, I was still dealing with the issue as if a fair use finding for a specific use for one work would apply to all works. *Id.* at 1017. In this article, I advocate a work-by-work cost recoupment approach to fair use and embrace the rate regulation approach I there rejected. *Id.*

¹⁷¹ Warner Bros. Entm’t Inc. v. RDR Books, 575 F.Supp.2d 513 (S.D.N.Y. 2008).

¹⁷² *Id.* at 518.

became, in turn, eight theatrical movies. As the district court noted: “The *Harry Potter* series has achieved enormous popularity and phenomenal sales.” Yet, when a fan of the series wrote and published a lexicon that explained the characters, creatures and elements of the *Harry Potter* world, the copyright owners for the books and the movies sued. Based in part upon J.K. Rowling’s testimony that she planned to publish such an encyclopedia herself¹⁷³ (still waiting on that by the way), the district court found the use unfair and enjoined the Lexicon’s publication.¹⁷⁴

Yet, if fair use is intended to better align copyright with its constitutional purpose, the court’s decision is wrong. The relevant counterfactual asks: If we had told J.K. Rowling that once her work became widely popular, and she became rich almost beyond imagining, copyright law, through the fair use doctrine, would allow a fan to publish such a lexicon, would she have written and distributed her first *Harry Potter* novel nonetheless? As a counterfactual, we do not have empirical evidence on the issue. Nevertheless, I can see no reason for doubting that J.K. Rowling would still have published the *Harry Potter* novels. Finding the defendant’s use to be unfair, as the district court did, denies the public access to an additional creative work, the Lexicon itself, and for no reason.¹⁷⁵

More generally, once a work is expected to recoup its costs from any given level or term of copyright, providing further copyright protection to that work can only frustrate copyright’s constitutional objective. Once a work is expected to recoup its costs, further protection for that work becomes unnecessary to ensure that the work will be authored and distributed. Further protection at that point can only: (i) stifle further creative work that builds on the work at issue; or (ii) limit access to the work at issue. As a result, once a work is expected to recoup its persuasion costs, any further use of the work should be fair and non-infringing.¹⁷⁶ For similar reasons, injunctive relief should be available only if necessary to ensure an *ex ante* expectation of cost recoupment. Once a copyright owner

¹⁷³ *Id.* at 519.

¹⁷⁴ *Id.* at 551-53.

¹⁷⁵ The district court feared the finding fair use in this case would mean that lexicons were fair for every book series and thus “deplete the incentive for original authors to create new works.” *Id.* at 553. This reasoning reflects both an unjustified fear on its face – only popular works receive fan lexicons – and a misunderstanding of fair use doctrine. Fair use need not be one-size-fits-all.

¹⁷⁶ I understand that this means that we will give works different scope to their copyrights depending on what is necessary to generate an *ex ante* expectation of profitability. A marginal work, right at the margins of expected profitability, will have the right to control unauthorized copying and the preparation of unauthorized derivative works. A more popular and profitable work that will recoup its costs with much narrower or shorter protection will not. This does not violate principles of horizontal equity, however, any more than the fact that a recently published work has those rights today, while a work first published before 1924 does not. My house may be more valuable than your house. I may have different rights associated with my land than you do. For example, if my land is rural, I may have the right to operate a farm on it, where you, as the owner of an urban parcel, may not. None of these differences violate principles of horizontal equity so long as the differences reflect the underlying equitable principles and purposes copyright or real property regimes are intended to serve.

has an expectation of recoupment without an injunction against the use at issue, an injunction against the defendant's use would necessarily disserve the public interest.¹⁷⁷

In proposing this approach, I fully understand the difficulties involved in resolving the issue of expected cost recoupment.¹⁷⁸ The use of so-called "Hollywood" accounting rules that renders even the most profitable movie a money loser,¹⁷⁹ the desire to allocate some part of the cost of unpopular works to the money-making popular works, and other wrinkles will undoubtedly complicate the cost recoupment issues. Despite these issues, I believe the approach is workable for three reasons. First, the adversary process has proven its ability to cut through Hollywood's accounting and other tricks used to minimize the appearance of profits in other litigation contexts.¹⁸⁰ In *Buchwald v. Paramount Pictures*, for example, Art Buchwald sued alleging that Paramount had turned his eight-page screen treatment into the movie *Coming to America*.¹⁸¹ After the judge determined that Paramount had used Buchwald's treatment, Paramount contended that the movie had not earned any profits, despite earning \$288 million in revenues, and that Buchwald was therefore not entitled to compensation.¹⁸² The judge rejected this argument, however,¹⁸³ and his decision forced Paramount to pay Buchwald and his partner \$900,000 in settlement.¹⁸⁴

Second, even if these accounting tricks fool some of the people some of the time, and thereby make the proposed approach under-inclusive, these tricks still have their

¹⁷⁷ The Court has recognized the possibility of denying injunctive relief in cases presenting a close, but ultimately unsuccessful, assertion of fair use. See *Campbell v. Acuff-Rose Music, Inc.*, 510 U.S. 569, 578 n.10 (1994); see also Pierre Leval, *Toward a Fair Use Standard*, 103 HARV.L.REV. 1105, 1122 (1990) (proposing that courts consider carefully before granting injunctive relief in cases presenting close fair use issues).

¹⁷⁸ I explored the similar cost recoupment issues in patent law nearly twenty years ago in proposing that courts incorporate such considerations as a secondary factor for the non-obviousness inquiry. See Glynn S. Lunney, Jr., *E-Obviousness*, 7 MICH. TELECOMM. & TECH. L. REV. 363 (2000).

¹⁷⁹ See, e.g., Mike Masnick, *'Hollywood Accounting' Losing in the Courts*, TECHDIRT, Jul. 8, 2010 (showing the accounting tricks that Warner Bros. used to show a \$167 million loss on *Harry Potter and the Order of the Phoenix* despite \$938 million in revenue) (available at <https://www.techdirt.com/articles/20100708/02510310122/hollywood-accounting-losing-courts.shtml>) (last visited Feb. 14, 2019).

¹⁸⁰ See, e.g., Masnick, *supra* note 179 (noting jury verdicts on popular television programs *Who Wants to be a Millionaire* and *Nash Bridges* awarding millions of dollars for profit shares despite producer's claims that programs lost money); Eriq Gardner, *Fox Rocked by \$179M 'Bones' Ruling: Lying, Cheating, and "Reprehensible" Studio Fraud*, HOLLYWOOD REPORTER, Feb. 27, 2019 (available at <https://www.hollywoodreporter.com/thr-esq/fox-rocked-by-179-million-bones-ruling-lying-cheating-reprehensible-studio-fraud-1190346>).

¹⁸¹ *Buchwald v. Paramount Picts. Corp.*, 1990 WL 357611 at *1 (Superior Ct., Los Angeles Co.).

¹⁸² *Buchwald v. Paramount Picts. Corp.*, 1992 WL 1462910 at *1 (Superior Ct., Los Angeles Co.) ("All of these witnesses believe Bernheim and Buchwald are entitled to no additional contingent compensation because 'Coming to America' has generated no net profits.").

¹⁸³ *Id.* at *5.

¹⁸⁴ See PIERCE O'DONNELL & DENNIS MCDUGAL, *FATAL SUBTRACTION: HOW HOLLYWOOD REALLY DOES BUSINESS. THE INSIDE STORY OF BUCHWALD V. PARAMOUNT* (1992).

limits. Even with all the accounting tricks in the world, it would be hard, I think, to persuade a judge or jury that the most obviously popular works, such as the *Harry Potter* series, have not yet recouped their persuasion cost.¹⁸⁵ Moreover, as with any other fact at issue in litigation, a party could attempt to prove cost recoupment circumstantially, by showing that the work at issue was the most popular of all time or that a sequel has been made. It may be that the proposed approach would work only for the most obviously popular and profitable works. Even so, that would be an improvement over the current regulatory regime. It would not only reduce excess incentives to some extent, but if popularity and profitability correlate, it would address the problem of excess incentives where the problem is most acute.

Third, I do not believe that the approach will reduce creative output. The worry, of course, is that by eliminating any excess profits copyright owners would otherwise earn on the popular works, we will leave them only with the losses on unpopular works. Creative output will therefore fall, or at least, that is what copyright owners will argue. Yet, that is not what happened in the recording industry from 2000 to 2015. During that period, competitive pressure from file sharing lopped two-thirds off revenue from record sales; sales fell from over \$20 billion dollars (in constant 2013 dollars) in 1999 to under \$7 billion in 2013-2014.¹⁸⁶ Yet, despite that collapse in revenue, there was no fall in music output.¹⁸⁷ To the contrary, by some measures, both the quantity and quality of music output increased.¹⁸⁸

I recognize that the proposed approach creates a risk that a judge or jury may mistakenly find that a copyright owner expected to recoup its costs if a defendant's use were allowed, but I believe that that risk is not a serious concern for three reasons. First, for copyright owners with large portfolios, judges and juries have to get the issue right only on average. It may be that fact-finders will occasionally find an expectation of cost recoupment when they should not, but they will also occasionally find no expectation of recoupment when they should. With large portfolios, the risk of type 1 errors is offset by the risk of type 2 errors. Second, the risk the proposed approach creates arises only when a copyright owner decides to sue. Not every profitable work will face a potentially infringing use precisely at the moment it becomes profitable. But if a work faces such a use as it approaches profitability, adopting the proposed approach creates a risk of invalidity, and that risk forces the copyright owner to consider carefully whether the potential benefits from the litigation is worth the risk of a cost-recoupment finding. If the risks of a cost recoupment finding appear unduly high, the copyright owner can choose to tolerate the specific defendant's use at issue, rather than risk losing the enforceability of

¹⁸⁵ See Masnick, *supra* note 179 (showing the accounting tricks that Warner Bros. used to show a \$167 million loss on *Harry Potter and the Order of the Phoenix* despite \$938 million in revenue).

¹⁸⁶ See LUNNEY, *supra* note 5, at 74-80.

¹⁸⁷ *Id.* at 3-4; see also Handke, *supra* note 30; Lunney, *supra* note 30; Waldfoegel, *supra* note 30.

¹⁸⁸ See LUNNEY, *supra* note 5, at 3-4.

its copyright altogether. In addition to aligning copyright with its constitutionally-defined purpose, the approach will also therefore have some tendency to deter overzealous copyright enforcement.¹⁸⁹ Third, defendants will tend to under-enforce their right to copy and reuse works under the proposed approach. Defendants will under-enforce this right for the same reason defendants fail to challenge weak patents¹⁹⁰ and fail to enforce their right to compete fairly in trademark law, as often, or as much, as they should.¹⁹¹ In all three instances, most of the benefits from winning such litigation flow to consumers, in the form of lower prices and increased competition, rather than to the particular, successful defendant.¹⁹²

Thus, incorporating a work-by-work expectation of cost recoupment standard into copyright would better align copyright with its constitutional objective. Such an approach avoids the uniformity costs copyright would otherwise impose and attempts to tailor protection on a work-by-work basis. Such tailoring tends to ensure that, for every potential work for which the marginal social value exceeds its cost, a copyright owner has a reasonable opportunity to recoup its persuasion costs. Yet, it does so without generating undue, and socially costly, excess incentives. At the very least, such an approach would reduce, perhaps sharply, the excess incentives copyright currently provides.

As an alternative to such work-by-work tailoring, Congress and the courts could adopt a short and narrow copyright that is relatively ineffective at preventing unauthorized copying generally. Copyright has expanded significantly in both length and breadth since Congress enacted the first copyright act in 1790.¹⁹³ The incentives-access balance has proven ineffective as a tool for slowing this expansion. While public choice

¹⁸⁹ The proposed approach would thus ensure a finding of fair use in cases involving extremely popular works, such as the *Harry Potter* lexicon and *The Cat Not in the Hat*. Compare *Dr. Seuss Enterprises, L.P. v. Penguin Books USA, Inc.*, 109 F.3d 1394 (9th Cir. 1997) (finding *The Cat Not in the Hat* to be an unfair use and hence infringing); *Penguin Random House LLC v. Colting*, 270 F. Supp.3d 736 (S.D.N.Y. 2017) (finding that the *Harry Potter* lexicon was not a fair use and was infringing).

¹⁹⁰ See FED. TRADE COMM’N, *PAY-FOR-DELAY: HOW DRUG COMPANY PAYOFFS COST CONSUMERS BILLIONS* 8 (2010); Joseph Farrell & Robert P. Merges, *Incentives to Challenge and Defend Patents: Why Litigation Won’t Reliably Fix Patent Office Errors and Why Administrative Patent Review Might Help*, 19 *BERKELEY TECH. L.J.* 943 (2004); Glynn S. Lunney, Jr., *FTC v. Actavis: The Patent-Antitrust Intersection Revisited*, 93 *N.C. L. REV.* 375, 387–88 (2015); John R. Thomas, *Collusion and Collective Action in the Patent System: A Proposal for Patent Bounties*, 2001 *U. ILL. L. REV.* 305, 333–34 (2001); see also Gideon Parchomovsky & Alex Stein, *Intellectual Property Defenses*, 113 *COLUM. L. REV.* 1483 (2013) (recognizing that this problem may apply to intellectual property cases more generally)

¹⁹¹ See Glynn S. Lunney, Jr., *Trademark’s Judicial De-Evolution: Why Courts Get Trademark Cases Wrong Repeatedly*, 106 *CALIF. L. REV.* 1195, 1201 (2018).

¹⁹² See, e.g., *In re K-Dur Antitrust Litig.*, 686 F.3d 197, 208 (3d Cir. 2012) (“The FTC estimates that about one year after market entry an average generic pharmaceutical product takes over ninety percent of the patent holder’s unit sales and sells for fifteen percent of the price of the name brand product. This price differential means that consumers, rather than generic producers, are typically the biggest beneficiaries of generic entry.” (citation omitted)).

¹⁹³ See, e.g., LUNNEY, *supra* note 5, at 3-5 (tracing the expansion in term and scope).

considerations undoubtedly partially explain this ineffectiveness,¹⁹⁴ part of the reason that the incentives-access balance has failed is that it intrinsically suggests that all incentives are welfare-enhancing and that more incentives generally are necessarily better.¹⁹⁵ But, as I have shown, this is wrong. Only incentives for works at the margins of profitability are welfare-enhancing. Additional incentives for non-marginal works impose welfare losses. More incentives are therefore not always better. Evaluating copyright's expansion, using the marginal versus excess incentives balance, more plainly reveals the inefficiency and unfairness of that expansion.

If we evaluate copyright's expansion in length and breadth since 1790 in terms of marginal and excess incentives, much of that expansion seems disproportionately likely to generate excess, rather than marginal, incentives. The longer term, for example, increases the earnings only for works with enduring popularity. But if popularity coincides with profitability, these are precisely the works that have likely already recouped their costs and that therefore least need additional protection. Adding twenty years to the copyright term in 1998 undoubtedly benefitted Disney as the owner of the copyrights in *Winnie the Pooh* and *Steamboat Willie*, but the associated windfall represented socially costly excess, not socially beneficial marginal, incentives.¹⁹⁶ For the average work published in 1923, the longer term did essentially nothing in terms of additional revenue.¹⁹⁷ While we would need additional data to know for sure, it seems quite likely that a longer term disproportionately generates excess, not marginal, incentives.

Similarly, data may also show that broad and non-statutory judicial interpretations of the reproduction and derivative work right disproportionately benefit non-marginal works. Read literally, "copy," "print," or "reproduce" would seem to suggest that copyright prohibits only exact copying of an entire work.¹⁹⁸ Courts however refused to give the statutory language such a literal construction, and over the last two hundred

¹⁹⁴ See, e.g., LUNNEY, *supra* note 5, at 40-44.

¹⁹⁵ As I have explained elsewhere, access and incentives may also appear as two-sides of the same coin. See Lunney, *Copyright's Incentives-Access Paradigm*, *supra* note 19, at 558-59. This may make the resolution of the balancing unclear in ways that reframing the issue as marginal versus excess incentives does not.

¹⁹⁶ That Disney was willing to spend resources lobby Congress tends to establish that these were excess, rather than marginal incentives. These expenditures represent precisely the sort of socially wasteful rent-seeking that convert what would otherwise be surplus into cost.

¹⁹⁷ Cf. Brief of George A. Akerlof et al. as Amici Curiae in Support of Petitioners at 12, *Eldred v. Ashcroft*, 537 U.S. 186 (2003) (No. 01-618) ("[T]he current copyright term already has nearly the same present value as an infinite copyright term.").

¹⁹⁸ Act of May 31, 1790, ch. 15, § 1, 1 Stat. 124, 124 (giving the copyright owner the exclusive right to "print, reprint, publish or vend" the copyrighted work); see LUNNEY, *supra* note 5, at 4-5.

years, have steadily expanded the infringement standard.¹⁹⁹ In *Daly v. Palmer*,²⁰⁰ for example, a court first recognized that copying a single dramatic scene, the railroad rescue,²⁰¹ was sufficient to establish infringement. Later decisions further expanded the scope of infringement. In *Kalem Co. v. Harper Bros.*,²⁰² the Court affirmed a finding that a motion picture infringed the novel, *Ben Hur*, under a broad reading of the dramatization right.²⁰³ In *Micro Star v. Formgen, Inc.*,²⁰⁴ the Ninth Circuit held that the distribution of additional, player-designed game levels for the videogame *Duke Nukem* constituted infringement under a broad reading of the derivative work right. In *Williams v. Gaye*,²⁰⁵ the Ninth Circuit affirmed the jury's finding that the song *Blurred Lines* infringed the Marvin Gaye hit, *Got to Give It Up*,²⁰⁶ under a broad reading of the reproduction right.²⁰⁷

Having established the excess-marginal incentive trade-off as the test for welfare-enhancing copyright, the key normative question becomes whether expanding the infringement standard beyond “exact copies of the entire work by commercial competitors for profit” benefits marginal works more than, or at least as much as, non-marginal works. It seems unlikely. Each of the underlying works at issue in these four cases were themselves quite popular in their day. More generally, when we focus on the typical work from which a movie or translation is made, or to which homage is paid, I would expect we would find that that typical work is usually exceedingly popular. Best-selling novels often get movie deals. Unpopular novels rarely do. If that is generally true, then an expansive view of copyright benefits more popular works far more than it benefits less popular works. Like an extended term, expansive rights seem quite likely to generate incentives that are disproportionately excess, rather than marginal.

While I am satisfied that longer terms and broader scope disproportionately generate welfare-diminishing excess incentives, rather than welfare-enhancing marginal incentives, I recognize that others may desire more data and analysis on these issues. In the meantime, as that work is done, I would simply caution courts to avoid overly

¹⁹⁹ In 1994, the Court credited Judge Story's decision in *Folsom v. Marsh* with laying the foundation for the modern fair use doctrine. See *Campbell v. Acuff-Rose Music, Inc.*, 510 U.S. 569, 576 (1994). Of course, at the time, Judge Story was not narrowing copyright's scope by recognizing a fair use defense, but broadening its scope, by finding that an abridgement infringed the reproduction right. See *Folsom v. Marsh*, 9 F. Cas. 342 (C.C.D. Mass. 1841) (acknowledging that a fair abridgement was not infringing but finding the abridgement at issue to be infringing nonetheless).

²⁰⁰ 6 F. Cas. 1132 (C.C.S.D.N.Y. 1869).

²⁰¹ In the railroad scene, the villain tied a victim to railroad tracks, from which, at the last second as a train approached, the hero rescued the victim. *Id.* at 1133-34.

²⁰² 222 U.S. 55 (1911).

²⁰³ *Id.* at 61.

²⁰⁴ 154 F.3d 1107 (9th Cir. 1998).

²⁰⁵ 895 F.3d 1106 (9th Cir. 2018).

²⁰⁶ *Got to Give It Up* peaked at number one on the Billboard Hot 100 chart on June 25, 1977. See Billboard, *Marvin Gaye* (available at <https://www.billboard.com/music/marvin-gaye>) (last visited Feb. 6, 2019).

²⁰⁷ *Williams*, 895 F.3d at 1138.

expansive interpretations of copyright protection. As the Ninth Circuit has cautioned in another context, “[d]isapproval of the copyist's opportunism may be an understandable first reaction, ‘but this initial response to the problem [needs to be] curbed in deference to the greater public good.’”²⁰⁸ In order to avoid undue excess incentives, the more popular a work is, the less copyright protection it should receive. To a large extent, the very fact that a work has been copied is itself probably the best evidence we have that the work is not a marginal work and so does not merit the copyright protection sought.

D. *Responses to Likely Objections*

The likely objections to the proposed approach are meritless and boil down to little more than it is not what we currently do. Some might insist that in a free market economy, a copyright owner should be able to capture everything that, with the assistance of copyright, they can force consumers to pay. As a factual description of how copyright owners are likely to behave, that statement is perfectly adequate. It tells us how copyright owners are likely to behave against the backdrop of whatever regulatory regime we establish. As a normative principle for designing a sensible copyright regime, it is completely inadequate. It tells us nothing about the nature of the regulatory regime we should establish.

Alternatively, some might insist that it is neither fair nor efficient that Sheeran should earn the same for *Shape of You* as someone earns for a marginal song to which hardly anyone listens. But it is entirely fair and efficient. In a competitive market economy, a heart surgeon who saves your life earns the same market reward as a nurse practitioner who gives you a vaccine. Neither earns the value of their work, in the sense of the maximum reservation price a patient could be forced to pay to avoid dying. Rather, both earn the cost of the service they provided. To the extent the market prices for the surgery and the vaccine differ, that price difference should reflect an underlying difference in cost. In a competitive market economy, it is not value, but cost that dictates what you earn. If copyright intends to create a market that mimics a competitive market, it should strive to do the same. As a result, if *Shape of You* cost the same as a marginal song to author and distribute, then that cost is all the market return that fairness and efficiency require each to earn.²⁰⁹

Moreover, the plea that we should not treat copyright owners this way because we do not treat doctors, lawyers, and other high earning professionals this way relies on a

²⁰⁸ Smith v. Chanel Co., 402 F.2d 562, 568 (9th Cir. 1968) (quoting American Safety Table Co. v. Schreiber, 269 F.2d 255, 272 (2d Cir. 1959)).

²⁰⁹ Of course, the proposed approach would probably not limit Sheeran strictly to a cost-based reward. Other market forces, including the sale of a rivalrous service, such as concert tickets, would likely ensure that Sheeran captured much more than the marginal or average artist for his song.

false analogy.²¹⁰ That we have copyright already establishes that we have decided to treat copyright owners differently from these other professionals. Having made that decision, it is a bit perverse to insist that we must turn around and somehow treat them the same.²¹¹ In any event, for these superstar works, it is copyright itself, and in particular, the overly broad, overly long copyright that we have today, that is preventing the competitive market from working. Treating copyright owners and other professionals the same would require a copyright regime that ensures that competitive market forces bear on superstar artists in the same way that they bear on successful professionals in other fields. This would require an approach that mimics the cost-based returns that prevail in these other markets.

If we are going to rely on analogies to suggest the right answer, then we should use analogies that are analogous. Instead of discussing the legal rules that govern the provision of rivalrous private goods, such as medical or legal services, we should instead discuss other situations involving mechanisms for funding the private production of public goods. That, after all, is the role copyright plays. Consider then another situation involving the funding of a privately produced public good, specifically, the funding of a bridge's construction. To cover the costs for a private contractor to build the bridge, the state plans to issue bonds and institute tolls on the bridge to pay off the bonds. Once the bonds and the associated cost of building the bridge are paid off, should the tolls continue, or should they end?

Voters in the New Orleans area faced precisely that issue in May 2013. In 1989, tolls had been instituted on a bridge over the Mississippi River to pay for the construction of a second span connecting New Orleans to the west bank of Jefferson Parish.²¹² The

²¹⁰ For an example of the false analogy in action, see Hughes & Merges, *supra* note 61, at 542 (“We recognize that there may well be some ‘superstars’ of the entertainment business who are earning far more than is needed to induce their maximum productivity, just as there are many bankers, CEOs, physicians, and lawyers who are earning more than is needed to induce their maximum productivity.”).

²¹¹ There are two key differences. First, we use markets and price for two purposes with respect to rivalrous goods and services, such as a surgeon's time. See LUNNEY, *supra* note 5, at 35, 198 n.6. The price serves both: (i) to incentivize the surgeon to develop the requisites skills; and (ii) to allocate the surgeon's intrinsically scarce time between patients. But copyright protection, and price in the resulting markets, only serves the first purpose. Once a recording of a work is made, copies of the work are no longer intrinsically scarce. It is non-rivalrous. I can have a copy and so can you. It is copyright and only copyright that allows the copyright owner to create an artificial scarcity, and it does so in order to incentivize the author or artist to create the recording. There is no need for a price to allocate an intrinsically scarce resource between potential uses, because the resource at issue –copies of a work – are not intrinsically scarce. Second, in addition to the non-rival character of works of authorship, works of authorship are also subject to technological multiplication. If all the consumers in the world want to listen exclusively to Adele, they can do so. Adele may tire, but her recordings do not. In contrast, with current technology, a surgeon can work on only one patient at a time and must, on occasion, rest. See LUNNEY, *supra* note 5, at 34-35, 198 n.6.

²¹² See, e.g., Drew Broach, *Bridge tolls were killed on Crescent City Connection five years ago; what has changed?*, NOLA.com, May 11, 2018 (available at https://www.nola.com/politics/2018/05/bridge_tolls_five_years_later.html) (last visited Feb. 25, 2019).

capital costs were paid off, and the debt on the second span was retired, at the end of 2012. The tolls were therefore scheduled to end. Nevertheless, officials proposed extending the tolls for another twenty years. Officials advanced a variety of reasons why the tolls should continue, such as the need for maintenance on the bridge, the need to minimize congestion, and the benefits of a dedicated revenue source. On May 4, 2013, voters saw through these arguments and voted to end the tolls, 78 percent to 22 percent. They recognized that once the construction costs were paid off, there was no legitimate reason for the tolls to continue. Copyright protection should operate in the same manner. Once a copyright owner has recouped its persuasion costs to produce privately the public good at issue, copyright protection should end.

A more serious concern is that the proposed approach may unintentionally shift consumption more sharply in favor of the most popular works. By eliminating or reducing protection for the most popular works, the proposed approach would reduce the price for access to, and reuse of, such works. It might thereby make the L curve even more pronounced. Such a concern misunderstands my point, however. If consumers want less expensive copies of, or more derivative works based upon, extremely popular works, and the proposed approach satisfies that desire, that is not bias or inefficiency. That is the market working as it should. Honda Accords are much less expensive than Ferrari Testarossas. Because of that price difference, more consumers drive Accords than drive Testarossas. Yet, that price-driven shift in consumption is not a flaw, but a feature of a competitive market economy. So long as the price difference reflects a real difference in cost the resulting shift in consumption is not bias, but efficiency.

The same competitive market principles should govern copyrighted works. If one work is far more popular than another, such that its cost, even if higher in total, is much lower when spread out over the larger number of units sold, a lower price is fully appropriate. If that lower price shifts demand in favor of the more popular, and less expensive, work, that is not bias, but efficiency.

IV. *Stories, Beliefs, and Facts: Are We Rational?*

Many of us love the idea of copyright. Unfortunately, the reality does not match the ideal. As hard data becomes available, we are finding that the romanticized truths we hold dear, and nearly self-evident, regarding copyright are not true at all. In copyright, we need to stop relying on the stories and start relying on the data.

In this article, I present data from the PC videogame industry. That data demonstrates that the distribution of demand in that industry is L-shaped. The top one percent of the games, by popularity, capture nearly half the players. The top ten percent of the games capture nearly ninety percent of the players. Broad, long, and effective copyright protection, of the sort we have today, lavishes vast rewards on these popular games in copyright's tall peak. However, today's copyright does very little, and so long as

copyright remains uniform, can do very little, for the vast majority of works lying at the margins of profitability in copyright's short tail.

If we want a copyright that actually serves to promote “the Progress of Science,” we have two choices. First, we can introduce non-uniformity into copyright. There are many ways we might accomplish this. But each would seek to tailor copyright protection on a work-by-work basis to ensure that each work receives precisely the protection it needs – and no more – to cover its associated persuasion costs. In this article, I propose that we achieve such tailoring by incorporating a work-by-work cost recoupment limitation into copyright's existing structure of otherwise uniformly broad and long protection. Whether by Congressional amendment or by judicial interpretation of the fourth fair use factor, copyright should provide the minimum protection needed to generate an *ex ante* expectation of cost recoupment on a work-by-work basis. Beyond that minimum, no further protection should be provided. At the very least, beyond that minimum, courts should find that granting injunctive relief for infringement would disserve the public interest and so deny injunctive relief. Second and alternatively, if we fail to embrace the tailoring approach, then we must make copyright short, narrow, and relatively ineffective at preventing unauthorized reuse and copying generally. Otherwise, the costs associated with such uniform protection will, in the face of an L curve, overwhelm any benefits copyright might otherwise provide. Only through one of these two approaches can we avoid the inefficiency and unfairness that copyright's present uniformity imposes in the face of an L curve distribution of demand.

No one ever argues for copyright on the grounds that superstar authors and artists need more money. Yet, if the L-shaped distribution of demand for PC videogames is representative for works of authorship generally, overpaying superstars may be mostly all that copyright, in its present form, does. While copyright undoubtedly provides some incentives for average artists, and their works undeniably generate some social value, ninety percent of copyright's incentives flow to the top ten percent of works. Given that distribution, the welfare losses copyright generates by overpaying superstars will far outweigh whatever benefits copyright generates by offering, relatively speaking, token incentives to the average or marginal artist or author.