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Competition Law for a Post-Scarcity World

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ARTICLES

COMPETITION LAW FOR A POST-SCARCITY WORLD

*by Salil K. Mehra**

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Now it is true that the needs of human beings may seem to be insatiable. But they fall into two classes—those needs which are absolute in the sense that we feel them whatever the situation of our fellow human beings may be, and those which are relative in the sense that we feel them only if their satisfaction lifts us above, makes us feel superior to, our fellows. . . . [As for] the absolute needs—a point may soon be reached, much sooner perhaps than we are all of us aware of, when these needs are satisfied in the sense that we prefer to devote our further energies to non-economic purposes.

—John Maynard Keynes¹

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1. JOHN MAYNARD KEYNES, *Economic Possibilities for Our Grandchildren*, in *ESSAYS IN PERSUASION* 321, 326 (Palgrave Macmillan 2010) (1931).

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I. INTRODUCTION

Young Americans have more education than their predecessors, yet unemployment and underemployment are critical—and possibly worsening—problems.² Apple is the one of the most valuable companies in the world,³ but its total number of employees is a tiny fraction of the number who once worked at the firms that used to hold that title.⁴ Investments in technology have yielded tremendous efficiencies for producers and consumers, but unequal results; consider the tremendous impact of the ridesharing service Uber, which unlocks the tremendous potential of underutilized private cars but leads to increasingly low pay for those who drive them.⁵ These technologies are helping drive GDP in the United States to record levels, but at the same time, they may accelerate economic and political inequality, as “[t]hose who own the robots and the tech[nology] are becoming the new landlord rentier types” and “[i]t’s hard to penetrate beyond the barrier on education alone.”⁶ Increasingly, economic thinkers have come to take seriously the possibility that such developments are the result of moves towards a “post-scarcity” society.⁷

2. See Derek Thompson, *The Economy Is Still Terrible for Young People*, THE ATLANTIC (May 19, 2015), <http://www.theatlantic.com/business/archive/2015/05/the-new-normal-for-young-workers/393560> [https://perma.cc/D4DK-F2U3].

3. Jen Wieczner, *Apple Takes Back Title of World’s Most Valuable Company*, FORTUNE (Feb. 3, 2016, 4:25 PM), <http://fortune.com/2016/02/03/apple-facebook-amazon-google> [https://perma.cc/L549-6NSW] (proclaiming Apple “once again the most valuable company in the world” after recently being supplanted); see also Paul Krugman, Opinion, *Profits Without Production*, N.Y. TIMES (June 20, 2013), <http://www.nytimes.com/2013/06/21/opinion/krugman-profits-without-production.html> (“Depending on the vagaries of its stock price . . . [Apple is] either the highest-valued or second-highest-valued company in America.”).

4. Consider the changing identity of the American company—GM once employed more than 400,000 Americans; Apple has hardly any employees. See Krugman, *supra* note 3.

5. Jack Smith IV, *Uber Drivers Are Scrambling to Make Ends Meet After Latest Fare Cuts*, OBSERVER (Feb. 9, 2015, 3:22 PM), <http://observer.com/2015/02/uber-drivers-are-scrambling-to-make-ends-meet-after-latest-fare-cuts> [https://perma.cc/CWB3-UPC5].

6. Izabella Kaminska, *Time to Take Basic Income Seriously?*, FIN. TIMES: FT ALPHAVILLE (June 17, 2013, 10:04 AM), <http://ftalphaville.ft.com/2013/06/17/1536022/time-to-take-basic-income-seriously> [http://web.archive.org/web/20151203235246/http://ftalphaville.ft.com/2013/06/17/1536022/time-to-take-basic-income-seriously/] (quoting economist and Nobel laureate Paul Krugman).

7. See Michael Rapoport, *NYCC 2015: Paul Krugman and Brad DeLong Ponder the ‘Star Trek’ Economy*, WALL ST. J.: SPEAKEASY (Oct. 12, 2015, 12:00 PM), <http://blogs.wsj.com/speakeasy/2015/10/12/nycc-2015-paul-krugman-and-brad-delong-ponder-the-star-trek-economy> [https://web.archive.org/web/20160131005909/http://blogs.wsj.com/speakeasy/2015/10/12/nycc-2015-paul-krugman-and-brad-delong-ponder-the-star-trek-economy/] (describing panel discussion in which economics professor and former Treasury Department official DeLong notes that “[w]e’ve actually come a long way toward a ‘post-scarcity’ society already”); Izabella Kaminska, *Larry Summers on Forwarding the Doozer Economy*, FIN. TIMES: FT ALPHAVILLE (Apr. 17, 2014, 3:34 PM), <http://ftalphaville.ft.com/2014/04/17/1832512/larry-summers-on-forwarding-the-doozer-economy> [https://web.archive.org/web/20151203235341/http://

Talk of a post-scarcity society can easily sound like the stuff of science fiction,⁸ techno-utopianism, or worse—blithe disregard for the billions of people on the planet for whom real scarcity of basic needs is very much an entrenched difficulty of the present.⁹ Nevertheless, the convergence of a series of technological developments has convinced observers both within and outside law that, at least with respect to some industries, highly developed economies are approaching a world in which goods may be produced at or near a marginal cost of zero—and where, increasingly, also fixed or first-unit costs¹⁰ are falling rapidly.¹¹ To clarify, this is not simply the familiar world of nominally zero-dollar priced goods, in which users “pay” with, for example, the yielding of their valuable private information.¹² Instead, some accounts observe that for many already near-zero-marginal-cost goods

ftalphaville.ft.com/2014/04/17/1832512/larry-summers-on-forwarding-the-doozer-economy/] (describing interview by Chrystia Freeland of former Treasury Secretary and World Bank chief economist Lawrence Summers in which the latter stated that “there’s something more significant going on in the industrialized global economy than the effects of a banking crisis per se, and that that [‘something’] is probably related to technological abundance”).

8. Indeed, science fiction repeatedly presents examples of post- or almost-post-scarcity societies. See, e.g., Abhimanyu Das & Charlie Jane Anders, *Post-Scarcity Societies (That Still Have Scarcity)*, 109: GIZMODO (Sept. 30, 2014, 3:23 PM), <http://io9.com/post-scarcity-societies-that-still-have-scarcity-1640882232> [<https://perma.cc/A26K-MG7X>].

9. Even though a fifty percent reduction in the world’s extreme poverty rate from that of 1990 was accomplished five years prior to the UN Millennium Development Goals’ target date of 2015, more than 800 million people continue to live in extreme poverty. See *We Can End Poverty: Millennium Development Goals and Beyond 2015: Goal 1: Eradicate Extreme Poverty & Hunger*, UNITED NATIONS, <http://www.un.org/millenniumgoals/poverty.shtml> [<https://perma.cc/Z8Y9-ZC2L>].

10. This Article combines the categories of fixed and first-unit costs as they have been traditionally understood, in examples such as printing presses and factory equipment. However, it should be noted that, as discussed in this Article, future first-unit costs such as 3D printers may not be fixed for particular products or categories of products in the manner that those for printing presses and factory equipment traditionally have been. See *infra* Section II.B.

11. See, e.g., Mark A. Lemley, *IP in a World Without Scarcity*, 90 N.Y.U. L. REV. 460 (2015); see also Kyle Langvardt, *The Replicator and the First Amendment*, 25 FORDHAM INTELL. PROP. MEDIA & ENT. L.J. 59 (2014) (describing likely First Amendment challenges to attempts to restrain 3D printing as it advances toward its “theoretical endpoint . . . a machine that, like the ‘replicators’ of Star Trek, can produce anything the user asks for out of thin air from a digital blueprint”); JEREMY RIFKIN, *THE ZERO MARGINAL COST SOCIETY: THE INTERNET OF THINGS, THE COLLABORATIVE COMMONS, AND THE ECLIPSE OF CAPITALISM* (2014); Deven R. Desai & Gerard N. Magliocca, *Patents, Meet Napster: 3D Printing and the Digitization of Things*, 102 GEO. L.J. 1691 (2014).

12. See, e.g., John M. Newman, *Antitrust in Zero-Price Markets: Foundations*, 164 U. PA. L. REV. 149, 152 (2015) (“[C]ustomers of zero-price products pay for those products, primarily by exchanging their attention, information, or both.”); Alec J. Burnside, *No Such Thing as a Free Search: Antitrust and the Pursuit of Privacy Goals*, CPI ANTITRUST CHRON. (May 2015), <http://www.cadwalader.com/uploads/books/ab5e2ca2b45bae232e10996c57017a4a.pdf> [<https://perma.cc/FBJ6-67WU>]; Michal S. Gal & Daniel L. Rubinfeld, *The Hidden Costs of Free Goods: Implications for Antitrust Enforcement*, 80 ANTITRUST L.J. 521 (2016); Chris Jay Hoofnagle & Jan Whittington,

traditionally protected by intellectual-property law—such as software, recorded music, and video entertainment—even high initial fixed production costs are falling drastically.¹³ These observers suggest that the combination of the rise of the Internet, the development of collaborative innovation and production, and the advance of 3D printing is leading to a post-scarcity society.¹⁴ Knowledgeable economists and business writers take the possibility of an economy “beyond scarcity” seriously.¹⁵ Simply put, Star Trek’s Replicator may be closer to reality than previously thought.¹⁶

Economists, most notably John Maynard Keynes, recognized this possibility decades ago. By 1930, Keynes observed that “the *economic problem*”—that is, material scarcity—“may be solved, or be at least within sight of solution, within a hundred years.”¹⁷ Keynes’s timing may be surprisingly accurate; legal scholars, particularly in the field of intellectual property, have of late recognized the implications of this possibility.¹⁸

While this may seem like naïve over-optimism, in fact, commentators have recognized that even if society attained the potential to build a post-scarcity economy, social, economic, and political forces exist that would seek to prevent its realization. Indeed, Keynes himself recognized this nearly a century ago.¹⁹ Economists, economic journalists, and science-fiction writers have all recognized that technology has created “something of a self-cannibalising effect for most of the capital[ist] system” in which the greater the technology-driven

Free: Accounting for the Costs of the Internet's Most Popular Price, 61 UCLA L. REV. 606, 606 (2014) (“Offers of free services abound on the Internet.”).

13. See, e.g., Marc Andreessen, *Why Software Is Eating the World*, WALL ST. J. (Aug. 20, 2011), <http://www.wsj.com/articles/SB10001424053111903480904576512250915629460> [<http://web.archive.org/web/20160720221543/http://www.wsj.com/articles/SB10001424053111903480904576512250915629460>].

14. See *infra* Section II.A.

15. See, e.g., Izabella Kaminska, *The Parable of Water*, FIN. TIMES: FT ALPHAVILLE (June 7, 2012, 12:44 PM), <http://ftalphaville.ft.com/2012/06/07/1031561/beyond-scarcity-the-parable-of-water> [<https://web.archive.org/web/20151203231324/http://ftalphaville.ft.com/2012/06/07/1031561/beyond-scarcity-the-parable-of-water/>] (starting a twenty-four-part series by the Financial Times’s Alphaville Blog, including a discussion of economist Lawrence Summers’s views on the real possibility of the need for post-scarcity economics).

16. See *infra* Section II.A.

17. KEYNES, *supra* note 1, at 321, 326.

18. See, e.g., Barton Beebe, *Intellectual Property Law and the Sumptuary Code*, 123 HARV. L. REV. 809, 815 (2010) (observing that a “post-rarity society is already upon us”).

19. JOHN MAYNARD KEYNES, *The General Theory and After, Part I: Preparation*, in 13 THE COLLECTED WRITINGS OF JOHN MAYNARD KEYNES 491 (Macmillan Press 1973) (“Economic welfare and social well-being will be increased in the long run by a policy which tends to make capital goods so abundant, that the reward which can be gained from owning them falls to so modest a figure as to be no longer a serious burden on anyone. . . . None of this, however, will happen by itself or of its own accord. The system is not self-adjusting, and, without purposive direction, it is incapable of translating our actual poverty into our potential plenty.”).

“abundance[,] the more likely capital itself would be undermined,” inducing the owners of capital to “protect[] their rate of profit by stalling efficiency . . . and by . . . monopolisation.”²⁰ These writers fear “artificial scarcity” and worry that “profits increasingly reflect market power rather than production.”²¹

Despite classic concerns that call for a competition-law response—that incumbent firms’ privately optimal conduct would harm overall economic welfare²²—American antitrust scholarship has yet to engage with this development; this Article is the first to advocate for a role for U.S. antitrust law in the emergence of a post-scarcity economy.²³ Regrettably, determining the exact likelihood that a broad post-scarcity economy will emerge is beyond the scope of this Article. Significantly, though, even if the changes at work do not become broadly economy-wide, they will still impact antitrust law greatly, since antitrust analysis proceeds market by market and industry by industry. Accordingly, this Article takes the movement towards post-scarcity as a given, and asks: What sort of competition law, if any, would be needed? It argues that the likelihood that a post-scarcity economy will develop hinges on changes in competition policy—that is, antitrust law is not exogenous to the realization of a post-scarcity society. Despite antitrust law’s deep ties to economic theory and analysis, the implications of a post-scarcity society have not yet been appreciated. This Article has two goals. First, it provides an account of the drivers of the trend towards a post-scarcity society and how they will challenge the heartland of antitrust legal analysis. Second, with that snapshot as a springboard, this Article identifies and analyzes the normative consequences for consumer welfare and antitrust law. To be sure, the interdependent technological and social changes that are working to drive costs down are still works in progress; an effort to describe and predict their future interrelationship with antitrust law must necessarily be

20. Kaminska, *supra* note 6. See generally Paul Krugman, Opinion, *Sympathy for the Luddites*, N.Y. TIMES (June 13, 2013), <http://www.nytimes.com/2013/06/14/opinion/krugman-sympathy-for-the-luddites.html> (discussing the effects of “global technological trends”); Tom Streithorst, *The Economics of Mad Max and Star Trek*, L.A. REV. BOOKS (June 21, 2015), <https://lareviewofbooks.org/essay/the-economics-of-mad-max-and-star-trek> [<https://perma.cc/MLY8-JM83>] (discussing a potential future where “technology has advanced so far it seems almost magic” and “[w]e manufacture iPhones and steak dinners out of thin air”).

21. Krugman, *supra* note 3.

22. See Keith N. Hylton, *The Law and Economics of Monopolization Standards*, in 4 ANTITRUST LAW AND ECONOMICS 82, 97 (Keith N. Hylton ed., 2d ed. 2010) (explaining and applying these standard questions in antitrust law).

23. This Article uses the term “competition law” to denote a broader body of law worldwide that aims to address anticompetitive restraints whether private or public in origin, and uses “antitrust law” to denote the American approach focusing overwhelmingly on private restraints with a very limited application to anticompetitive use of state power. Because of the large scope of overlap, the terms are mostly interchangeable.

partial, tentative, and quickly outdated. Nevertheless, the transformation that they are effecting is too important to disregard.

Of course, at first glance, one might ask: Why would a world in which production costs approach zero need competition law—wouldn't everything just be more or less free? This Article argues that, perhaps counterintuitively, as we advance towards the potential for zero cost production, the need for antitrust—and a *different* kind of antitrust—may actually be greater. As a result, this Article proposes a new role for antitrust in assisting the transition from the “legacy” economy of scarcity to the predicted post-scarcity world. Taking the potential of a post-scarcity world as a given, competition law should recharge and focus itself on two targets: it should combat private exclusionary conduct that threatens cost-reducing innovation and it should fight the use of state power to maintain or create artificial scarcity. Simply put, we need antitrust for the transition; there are reasons to think that incumbent firms—and the policymakers who collect rents from them—may have strong incentives to prevent the transition to a post-scarcity society.

More specifically, this Article explains that in important recent examples, such as the Apple/eBooks antitrust case and the regulatory responses to Uber, traditional industry incumbents have a powerful incentive to engage in “anti-disruption”—that is, it is optimal for them to harm social welfare by inhibiting technology-driven cost reductions. In making this argument, this Article proceeds with the four following Parts. Part II provides an overview of the changes that are leading observers to predict an imminent post-scarcity economy. Then Part III, using the *United States v. Apple* (eBooks) antitrust case as a jumping-off point, sketches an approach to anti-disruption; it further explains that antitrust's traditional balance of fears of increased market power versus hopes for increased efficiency of production tips towards more active antitrust as production costs approach zero—essentially, there remains less and less cost left to wring out through greater efficiency. In Part IV, the focus turns towards the adverse competitive effects of state power; the desire for economic profits may drive firms towards expending more effort at rent-seeking by using private anticompetitive restraints or lobbying government for favorable anti-consumer action. Therefore, some prescriptions are provided. While American antitrust law already has a history of taking aim at private, and to a lesser degree, public anticompetitive restraints, the transition to a post-scarcity economy will require a rethink—and to some degree a rejection—of the Chicago School dogma that forced a retrenchment in addressing private exclusionary conduct. It will also require a willingness to take a more aggressive tack against anticompetitive government action than federal courts traditionally have done. As a result, to the extent that firms currently face a choice between investing in achieving greater efficiencies on the one hand or spending to achieve

market power through collusion, exclusion, or lobbying the state on the other, a post-scarcity world makes the latter set of welfare-destroying choices more attractive; a brief conclusion notes the potential magnitude of the gain that could result from stopping private interests from preventing a post-scarcity world.

II. TOWARDS A POST-SCARCITY ECONOMY?

Our digital age runs on the increased speed, power, and influence of Internet-linked computers, making possible previously unexpected levels of mass collaboration, and the large-scale collection and analysis of data.²⁴ These developments give us more powerful information and communication devices; ordinary people now “own electronic toys that millionaires and kings would have lusted for a decade ago.”²⁵ Recent applications to the manufacturing and service sectors have forced thinkers from a variety of fields to contemplate the birth of a post-scarcity economy.

To identify, in a general way, what thinkers describe as a post-scarcity economy, this Part sets forth two defining accounts. First, it sets out the predictions and positive descriptions recently emerging from writers, economists, and others. Second, it reviews the impact that post-scarcity thinking has had in the field of intellectual-property law; in particular, IP scholars have identified a series of technologies that drive the trend towards a post-scarcity society, at least with respect to IP. Finally, this Part considers the implications of these two accounts for thinking about production costs and efficiency—longstanding touchstones for competition law.

A. *Star Trek vs. Margaret Atwood vs. Paul Krugman*

The idea of a post-scarcity society made possible by technology has been a staple of science fiction and futuristic thinking. But as it has become easier to imagine it becoming reality, writers and economists have sketched out both optimistic and pessimistic visions of how society would handle the innovation that could enable this transition. The optimistic view often revolves around analogies to *Star Trek*’s “Repliator”; the pessimistic view can be seen in dystopian science fiction such as Margaret Atwood’s Booker Prize-shortlisted *Oryx and Crake*.²⁶

Almost a half-century ago, the renowned architect, author, and inventor R. Buckminster Fuller argued for “do[ing] away with the absolutely specious notion that everybody has to earn a living,” since “one

24. See YOCHAI BENKLER, *THE WEALTH OF NETWORKS: HOW SOCIAL PRODUCTION TRANSFORMS MARKETS AND FREEDOM* (2006).

25. Tom Streithorst, *Post-Scarcity Economics*, L.A. REV. BOOKS (July 11, 2013), <https://lareviewofbooks.org/essay/post-scarcity-economics> [<https://perma.cc/HX2Q-CZUT>].

26. MARGARET ATWOOD, *ORYX AND CRAKE* (Doubleday 2003) (2003).

in ten thousand of us can make a technological breakthrough capable of supporting all the rest.”²⁷ Perhaps the most common depiction is that of 24th century human society in the “Star Trek” television series and films; as the character Captain Jean-Luc Picard states, “[t]he acquisition of wealth is no longer the driving force of our lives.”²⁸ This optimistic view is compelling; in particular, the image of the Star Trek Replicator has been magnetic for economic and legal commentators contemplating a possible post-scarcity future. For example, the economist J. Bradford DeLong has observed that “[w]e don’t yet have replicators, but we’ve progressed far beyond the conditions that made life nasty, brutish and short hundreds of years ago for all but the elite.”²⁹ Similarly, Paul Krugman has contemplated the Replicator’s implications for economics:

So, in Star Trek they have a replicator that can make any thing you want. But it makes any *thing* you want. Even now, we spend only 30 per cent of our income on goods the rest is for services, and the replicators won’t help with that. We have fewer manufacturing workers but lots and lots of nurses, so. So that’s the point. We can imagine a world where all services are provided as well. We have robots or something to do the services.³⁰

While still nonexistent, the Replicator itself has become a kind of totem for economists and others when thinking about what a post-scarcity society would look like,³¹ indeed, a popular line of 3D printer is sold under the name “Replicator.”³²

But not all views of such quantum technological change are optimistic. In her acclaimed dystopian novel *Oryx and Crake*, Margaret Atwood sketches a much darker view of how society might assimilate dramatic changes in its technological ability. The world she sketches has dramatic technological capabilities—notably biotechnological—that are monopolized for the benefit of a very small subset of the

27. Elizabeth Barlow, *The New York Magazine Environmental Teach-In*, N.Y., Mar. 30, 1970, at 24, 30.

28. Stephen Baxter, *The Cold Equations: Extraterrestrial Liberty in Science Fiction*, in *THE MEANING OF LIBERTY BEYOND EARTH* 13, 26 (Charles S. Cockell ed., 2015).

29. Rapoport, *supra* note 7.

30. Izabella Kaminska, “You See, Money Doesn’t Exist in the 24th Century,” *FIN. TIMES*: FT ALPHAVILLE (Oct. 12, 2015, 6:23 PM), <http://ftalphaville.ft.com/2015/10/12/2142030/you-see-money-doesnt-exist-in-the-24th-century> [<https://web.archive.org/web/20160115213700/http://ftalphaville.ft.com/2015/10/12/2142030/you-see-money-doesnt-exist-in-the-24th-century>].

31. See, e.g., Chinh H. Pham, *Could Star Trek’s Replicator Become a Reality with 3D Printing Technology?*, *NAT’L L. REV.* (Jan. 28, 2016), <http://www.natlawreview.com/article/could-star-trek-s-replicator-become-reality-3d-printing-technology> [<https://perma.cc/Z5YH-EG4K>].

32. Tony Hoffman, *MakerBot Replicator Desktop 3D Printer*, PC (Sept. 15, 2015), <http://www.pcmag.com/article2/0,2817,2491092,00.asp> [<https://perma.cc/77SD-W2WV?type=image>] (reviewing the latest edition of a leading model of 3D printer, named the “Replicator”).

world's population.³³ The economic structure leads to the deployment of technology largely in the service of positional goods involving personal appearance, and to resource crises outside the "charmed circle"—as well as disenchantment that leads to disaster.³⁴

Besides economists and science-fiction writers, the question of how society might embrace technology-driven abundance has drawn the attraction of another group necessarily charged with thinking about the future: Wall Street. The idea that new technologies are about to create a society of abundance that will look radically different from what we are used to has started to register on investment analysts' radar.³⁵ These analysts suggest that technologies such as artificial intelligence, Big Data, and the Internet of Things "all destroy existing systems and replace them with new ones" that will "[i]ncrease living standards by lowering costs and improving quality."³⁶ While costs have been driven downward by technological change in the past, these analysts observe that the changes currently involved are more drastic than traditional innovation that lowered cost or improved quality; "[d]igital innovations in particular often provide products more conveniently and cheaply, but via substitution or the redistribution of sales rather than the creation of new incremental sales."³⁷ And indeed, the fact that financial markets value Uber more than General Motors and Airbnb more than Marriott Hotels suggests that investors agree that these are changes of a great magnitude.³⁸ As a result, such

33. See ATWOOD, *supra* note 26.

34. See *id.* For a similar view of technological benefit for the few in a society with overweening corporate power, see also CHANG-RAE LEE, ON SUCH A FULL SEA (2014).

35. See Izabella Kaminska, *The Mainstreaming of Technological Abundance Thinking*, FIN. TIMES: FT ALPHAVILLE (Oct. 27, 2015, 5:33 PM), <http://ftalphaville.ft.com/2015/10/27/2143173/the-mainstreaming-of-technological-abundance-thinking> [<https://web.archive.org/web/20151231013251/http://ftalphaville.ft.com/2015/10/27/2143173/the-mainstreaming-of-technological-abundance-thinking/>] (observing that "[t]echno-utopianism is no longer the fringe view of some wildly over-optimistic guys at MIT" and that "[i]n the last two years, techno abundance has become a core investment thesis").

36. *Id.* (alteration in original) (emphasis omitted) (quoting *Global Markets: A Short Paper on Everything*, INDEPENDENT STRATEGY 3 (Oct. 23, 2015), <http://www.instrategy.com/download/Reports/A-short-paper-on-everything-231015.pdf> [<https://perma.cc/S4SM-YMAG>]).

37. Izabella Kaminska, *Disrupting FREEDOM!*, FIN. TIMES: FT ALPHAVILLE (July 30, 2015, 4:55 PM), <http://ftalphaville.ft.com/2015/07/30/2135837/disrupting-freedom> [<https://web.archive.org/web/20151002065149/http://ftalphaville.ft.com/2015/07/30/2135837/disrupting-freedom/>] (alteration in original) (emphasis omitted) (quoting James Ainley et al., *Disruptive Innovations III: Ten More Things to Stop and Think About*, CITI GPS: GLOBAL PERSPECTIVES & SOLUTIONS (July 2015), <https://codex.com/wp-content/uploads/2015/11/Citi-Disruptive-Innovation-Report-July-2015.pdf> [<https://perma.cc/8GCE-RVZW>] [hereinafter CITI GPS]).

38. Richard Read, *Uber Is Now Worth More than General Motors. Yes, Really*, CHRISTIAN SCI. MONITOR: IN GEAR (Dec. 7, 2015), <http://www.csmonitor.com/Business/In-Gear/2015/1207/Uber-is-now-worth-more-than-General-Motors.-Yes-really> [<https://perma.cc/6WXS-GF6H>] (reporting "significantly higher" valuation); Rolfe

analysts view technological progress as having experienced a quantum change “akin to a supply shock” whereby “lower unit costs and heightened competition . . . ought to generate lower levels of consumer prices than might otherwise be the case.”³⁹

Nonetheless, these analysts have also recognized that a shift to a post-scarcity economy via technological abundance will not be without opponents. Incumbent firms now understand the challenge of disruptive innovation;⁴⁰ as a result, some analysts worry that “companies are playing defense and trying to protect existing profit pools in an innovation environment that is increasingly disruptive.”⁴¹ Indeed, this concern has driven a number of intellectual-property law commentators to consider what the move towards post-scarcity means for IP-heavy industries—the next Section focuses on their accounts.

B. *Post-Scarcity Economics and the Law*

Among legal commentators, IP scholars have been particularly prescient at grappling with the possible emergence of a post-scarcity society. For IP, this was perhaps a natural development—at its core, the field confronts regimes of state power designed to create artificial scarcity for products such as books, software, and pharmaceuticals, where the marginal cost of production may be quite low or zero, but the fixed or first-unit costs may be tremendous. Indeed, early inklings of post-scarcity thinking can be discerned in scholarship that addressed, for example, the shifting of trademarks’ value from source identification to inherent worth as status goods because of state-enforced artificial scarcity.⁴² This vein of IP scholarship has important implications for antitrust law. In particular, the trends these scholars identify in specific industries—drastic cost reductions coupled with incumbents’ attempts to preserve their profitability with steps that sometimes hurt consumers—should also challenge antitrust scholars to rethink their existing approaches.

Winkler & Douglas MacMillan, *The Secret Math of Airbnb’s \$24 Billion Valuation*, WALL ST. J. (June 17, 2015, 3:15 PM), <http://www.wsj.com/articles/the-secret-math-of-airbnbs-24-billion-valuation-1434568517> [<http://web.archive.org/web/20160622043700/http://www.wsj.com/articles/the-secret-math-of-airbnbs-24-billion-valuation-1434568517>] (reporting investors’ higher valuation of Airbnb than Marriott).

39. Izabella Kaminska, *Inflationistas and the Global Supply Shock*, FIN. TIMES: FT ALPHAVILLE (July 30, 2013, 5:24 PM), <http://ftalphaville.ft.com/2013/07/30/1585982/inflationistas-and-the-global-supply-shock> [<https://web.archive.org/web/20151203235256/http://ftalphaville.ft.com/2013/07/30/1585982/inflationistas-and-the-global-supply-shock/>] (alteration in original) (emphasis omitted) (quoting the UBS Global Economic Perspectives Report).

40. See generally Jon M. Garon, *Mortgaging the Meme: Financing and Managing Disruptive Innovation*, 10 NW. J. TECH. & INTELL. PROP. 441 (2012) (discussing the need to be aware of and plan for disruptive innovation).

41. Kaminska, *supra* note 37 (quoting CITI GPS).

42. See Beebe, *supra* note 18.

A recent body of literature has emerged in which IP scholars have identified specific technological advances as the drivers of post-scarcity developments; these technologies include 3D printing, robotics, synthetic biology, and, adding value by knitting all of these together with users and producers, the ever-evolving Internet.⁴³ In particular, IP commentators believe 3D printing will enable the Internet to challenge the fundamentals of patent law in the way that digitized content and file-sharing software upended copyright law and the music industry—as one article puts it: “Patents, Meet Napster.”⁴⁴ 3D printing has drawn IP scholars’ attention for several reasons. First, the possibility of a 3D printer in millions of private homes—much like the mass distribution of Internet-connected personal computers did with copyrighted music—conjures the specter of “decentralized piracy” of protected physical objects.⁴⁵ Accordingly, enforcement would become much more difficult. Second, 3D printing creates gaping loopholes in IP doctrine in places where they did not exist before, at least not to such a degree.⁴⁶ Finally, 3D printing may disrupt intellectual-property protections that rely not just on law, but also on physical limits to prevent infringement.⁴⁷

Besides 3D printing, several other technologies have drawn IP scholars to consider a post-scarcity world’s impact on their field of study. First, synthetic biology may reduce the need for pharmaceutical patents. Mark Lemley raises the possibility that such technologies will one day enable doctor’s offices to custom produce gene therapies.⁴⁸ Second, he posits that, as digital music did to copyright and 3D printing may do to patent law, “[a]dvances in robotics may bring . . . disruption to the service economy.”⁴⁹ In particular, he points out the transition from specific-purpose robots (such as in auto assembly) to general-purpose robots will allow robotic technology to “advance with the speed of software, not hardware.”⁵⁰ In other words, general-purpose robots that can serve as generative platforms will allow owners to harness the shared creativity of the online world.

43. See *supra* note 11 (listing articles discussing existing and potential tensions between existing IP law and 3D printing).

44. Desai & Magliocca, *supra* note 11.

45. Ben Depoorter, *Intellectual Property Infringements & 3D Printing: Decentralized Piracy*, 65 HASTINGS L.J. 1483, 1486 (2014) (warning of such “decentralized piracy”).

46. James Grimmelman, *Indistinguishable from Magic: A Wizard’s Guide to Copyright and 3D Printing*, 71 WASH. & LEE L. REV. 683, 696 (2014) (explaining that copyright laws may prohibit “unauthorized 3D printing, even where the resulting object is not copyrightable”).

47. Desai & Magliocca, *supra* note 11, at 1710.

48. Lemley, *supra* note 11, at 479 (“[I]t is certainly possible to imagine a time in which every doctor’s office can generate custom genes to order.”).

49. *Id.*

50. *Id.* at 480.

Indeed, as a kind of turbocharging factor, IP commentators point out that the connectivity enabled by the Internet makes technologies such as 3D printing, synthetic biology, and robotics even more powerful. People worldwide can more easily share instructions, plans, recipes, and the like for how to use these technologies.⁵¹ Accordingly, both the fixed and marginal costs of employing these technologies may drop dramatically. The next Section considers how changes in production costs may create a post-scarcity world.

C. Beyond IP—Falling Marginal and Fixed Costs of Production

While IP scholars have created a recent lively discussion about a post-scarcity world, other commentators have assessed the post-scarcity paradigm's fit within the changing broader economy. Though these predictions can easily sound a bit "pie in the sky," they are beginning to draw serious consideration. As Lemley writes:

[N]ew technologies promise to do for a variety of physical goods and even services what the Internet has already done for information. . . . Combine the[] four developments—the Internet, 3D printing, robotics, and synthetic biology—and it is entirely plausible to envision a not-too-distant world in which most things that people want can be downloaded and created on site for very little money⁵²

New York Times bestselling author Jeremy Rifkin has termed this "The Zero Marginal Cost Society"—despite the title, he also addresses falling fixed costs;⁵³ similarly, in their Amazon bestseller *Abundance*, Peter H. Diamandis and Steven Kotler echo the theme of technology-driven progress eliminating scarcity.⁵⁴

The argument that technology-driven abundance will lower marginal, that is, incremental per-unit production, costs is fairly straightforward. First, a larger, and growing, share of GDP derives from intellectual property, where low- to zero-marginal cost is common—think recorded music, books, and pharmaceuticals. Second, transportation and distribution make up a significant chunk of marginal cost; these factors are decreasing as some products (think music and books) are increasingly distributed as electrons to an iPad rather than as hard

51. See *id.* at 462, 487, 494.

52. *Id.* at 461–62.

53. RIFKIN, *supra* note 11, at 11, 23, 256 (“[A]n economy based on scarcity is slowly giving way to an economy of abundance.”).

54. PETER H. DIAMANDIS & STEVEN KOTLER, *ABUNDANCE: THE FUTURE IS BETTER THAN YOU THINK* 9 (2012) (“Abundance for all is actually within our grasp [though i]n this modern age of cynicism, many of us bridle in the face of such proclamation.”); see also PHILIP SADLER, *SUSTAINABLE GROWTH IN A POST-SCARCITY WORLD* 7 (2010) (“The world’s most highly developed economies . . . are moving at an accelerating pace towards a state of post-scarcity, an age of abundance, a state in which an ever wider range of economic goods and services are available in abundant supply and at extremely low cost”).

products, and as distribution networks are made more efficient through Internet-enabled coordination (think Amazon). Finally, per-unit labor costs may also potentially decrease due to advances in robotics.

However, commentators also observe that technological change is driving this change by lowering not only marginal, but also fixed and first-unit, costs of production. Several examples illustrate this. First, IP scholars have noted how Internet-driven connectivity and digital distribution have lowered the entry barrier to produce creative content. In short, aspiring journalists no longer need access to a printing press, and musicians have little to no need for a record press. Technological change has removed these initial fixed costs of production. Second, Rifkin argues that 3D printing reduces the need for large-scale manufacturing plants and this change, along with mass-collaborative production of software and designs, and breakthroughs in energy production, all create a “new economic infrastructure.”⁵⁵ As an illustration, Deven Desai points to the extreme difficulty of producing a working firearm at home prior to 3D printing—and the relative ease after its introduction.⁵⁶ Finally, increased interconnectivity and algorithmic processing can now replace hardwired communications infrastructure. Take, for example, Uber: adding software to preexisting, general-use, Internet-linked smartphones made it unnecessary that Uber invest in a high-fixed-cost taxi dispatching station and radio system, let alone a fleet of cabs.⁵⁷

In fact, some industries are seeing technology-driven falls in both their marginal and fixed costs. The Apple/eBooks antitrust case, which will be discussed in detail in the next Part, presents a good example.⁵⁸ The agreements between Apple and the major hardcopy book publishers concerning the latter’s sale of eBooks took place against the backdrop of a rapidly changing industry. Via its bookselling website, its Kindle eBook reading device, and its own publishing arm, Amazon was driving down the initial cost of producing the first copy of a book as well as the marginal cost of each additional unit.⁵⁹ Note the lowering of fixed or initial-unit costs: no longer was access to a printing press required, and Amazon was developing systems that provided traditional publishers’ curation and promotion functions at a lower cost. To a great degree, the agreements between Apple and the publishers were an attempt to bolster the hardcopy book market by slowing or rolling back the adoption of eBooks.

55. RIFKIN, *supra* note 11, at 214.

56. See Deven Desai, *The New Steam: On Digitization, Decentralization, and Disruption*, 65 HASTINGS L.J. 1469, 1473 (2014) (discussing how the legal situation that “[u]nder [existing] federal law, anyone can make a gun at home” takes on new significance in a world of home 3D printing).

57. See *infra* Section IV.A.

58. See *infra* Section III.A.

59. See *infra* Section III.A.

This example illustrates that, even if technology is driving down fixed and marginal costs, these forces will reach their full potential is not inevitable. Desai worries that “incumbents may seek new laws to protect their positions” from these technology-driven disruptions, that “as soon as digitization offers a method of control, it will be exerted,” and that “new oligopolies will emerge.”⁶⁰ The concern that the emergence of a post-scarcity economy will be thwarted by acts that incumbents find profitable, but that reduce social welfare, is what must force competition law to take notice.

III. A COMPETITION-LAW RESPONSE?

None of this, however, will happen by itself or of its own accord. The system is not self-adjusting, and, without purposive direction, it is incapable of translating our actual poverty into our potential plenty.

—John Maynard Keynes⁶¹

Our prosperity requires productivity growth: technological advances that continue to allow us to make goods and services more cheaply. Star Trek is the extrapolation of this trend. If it costs hardly anything to produce goods, then everyone can afford almost everything. . . . [But] [w]hat if the benefits of productivity gains are monopolized by the top one percent, as they largely have been for most of the past 30 years?

—economics columnist Tom Streithorst⁶²

Changes all around us—starting with IP, but reaching beyond—have led leading economists to consider the possibility of a post-scarcity society. Even if the post-scarcity shift does not take place across all sectors, and instead remains confined to a subset of industries, this shift would still be critical for antitrust law, whose analysis proceeds market by market and industry by industry. Moreover, technology-driven abundance is not inevitable, and countervailing forces may seek to thwart it to protect their own interests. In general, concerted actions aimed at anticompetitive means fall within the heartland of antitrust enforcement’s focus. However, because of its retrenchment since the onset of the Chicago School—aimed at cabining antitrust’s targets to a narrow set of horizontal restraints on price and output without any redeeming virtue—antitrust will require a shift in its attitude and energy. This Part explains that some incumbents may choose to engage in what this Article terms “anti-disruption” in order to preserve profit margins against dramatic cost-reducing innovation—such conduct can be privately rational yet harmful to social welfare overall.

60. Desai, *supra* note 56, at 1480–81.

61. KEYNES, *supra* note 19.

62. Streithorst, *supra* note 25 (continuing on to describe this as the world of Margaret Atwood’s novel *Oryx and Crake*).

In doing so, this Part first presents the *United States v. Apple* (eBooks) case as an example of anti-disruption and then proceeds to discuss the related implications of the trend towards post-scarcity for the antitrust analysis of efficiencies and essential facilities. The takeaway: Antitrust must become more active to prevent the post-scarcity society from being smothered in its cradle.

A. *Protecting Innovation by Preventing “Anti-Disruption”: The Apple/eBooks Case as Example*

Once upon a time, whole industries—think music, broadcast television, and newspapers—were blindsided by disruption. New, quantum-level cheaper forms of distribution undercut their business models and hollowed out their revenue sources—think Napster, Netflix, and on-line news sites. However, disruption is no longer such a bolt out of the blue. To be sure, the forces of technology-driven disruption continue to rage. But now, businesses striving to be the “Uber of X”⁶³ and the very existence of an annual “TechCrunch Disrupt” conference demonstrate that *disruption itself* is becoming a business model.⁶⁴ As a result, incumbents should be greatly less surprised to find themselves in the crosshairs of the disrupters—and, as a result, incumbents may in the future be more likely to take steps towards “anti-disruption.”⁶⁵

While there have been embryonic antitrust responses to anti-disruption in the past,⁶⁶ the most prominent fully-formed example is *United States v. Apple* (“*Apple*”).⁶⁷ In *Apple*, the Department of Justice Antitrust Division brought suit against five major book publishing companies and Apple Inc. (“Apple”), alleging that they conspired to raise

63. See Abby Phillip, ‘The Uber of . . . You Name It,’ WASH. POST: POST NATION (May 28, 2014), <https://www.washingtonpost.com/news/post-nation/wp/2014/05/28/the-uber-of-you-name-it> [<https://perma.cc/NL5Q-WDLF>] (describing startups striving to become or being labeled as “Uber for snowplows” and “an Uber-for-Laundry”).

64. See Christian Lannig, *At the World Economic Forum, A Study of Disruption and Its Discontents*, TECHCRUNCH: CRUNCH NETWORK (Jan. 20, 2016), <http://techcrunch.com/2016/01/20/at-the-world-economic-forum-a-study-of-disruption-and-its-discontents> [<https://perma.cc/463Z-N7K3>] (describing the 2016 World Economic Forum’s theme, “The Fourth Industrial Revolution,” as recognition of “the disruption happening everywhere today as part of a larger paradigm shift”).

65. *Id.* (describing the multifaceted response of SAP, IBM, and global consulting firms as evidence that “[d]isruption is being co-opted”).

66. See, e.g., John R. Wilke & Tristan Mabry, *Homestore.com Uses its Lock on Listings to Widen Realtors Net*, WALL ST. J., <http://www.wsj.com/articles/SB933892822858417880> (last updated Aug. 6, 1999, 10:20 AM) (discussing home selling website’s use of exclusive contracts with local realty boards to thwart rivals); Keith Regan, *Homestore.com Faces Antitrust Probe*, E-COMMERCE TIMES (Apr. 26, 2000, 12:00 AM), <http://www.ecommercetimes.com/story/3133.html> [<https://perma.cc/WP2N-65P7>] (reporting U.S. Department of Justice Antitrust Division investigation into Homestore.com and the National Association of Realtors); Salil Kumar Mehra, *Information in an Antitrust Age*, 2000 U. CHI. LEGAL F. 219, 241–42 (2000).

67. See *United States v. Apple, Inc. (Apple II)*, 791 F.3d 290 (2d. Cir. 2015), *cert. denied*, 136 S. Ct. 1376 (2016); *United States v. Apple Inc. (Apple I)*, 952 F. Supp. 2d 638 (S.D.N.Y. 2013).

and fix the price for electronic books in violation of Section 1 of the Sherman Act.⁶⁸ While the publisher defendants settled the claims against them, Apple proceeded to lose at trial and on appeal; a certiorari petition was denied by the Supreme Court.⁶⁹ Apple's Supreme Court case turned on a question regarding the standard of review for vertical restraints, but, as for the case as a whole, the publishers' conduct in concert with Apple provides an example of anti-disruption.

In particular, the facts of *Apple* exemplify a concerted response by incumbents to disruptive innovation that lowered both fixed and marginal costs. Although eBooks had existed since the early 1970s, their adoption grew rapidly in the early twenty-first century due to Internet distribution and increasingly useful e-readers using E Ink, a paper-like display technology invented in the late 1990s at MIT and incorporated first in the Motorola F3 e-reader in 2006.⁷⁰ Although Amazon invented neither E Ink nor the e-reader, the marriage of its successful bookselling website to its Kindle e-reader drove the rapid adoption of eBooks.⁷¹ For consumers, eBooks are potentially a tremendous boon. They make possible the significant reduction of both fixed costs (no investment in printing presses, for example) as well as marginal costs (considerably cheaper distribution and no per-copy printing and binding costs). This was not, however, a welcome development for the ma-

68. *Apple II*, 791 F.3d at 296.

69. Petition for Writ of Certiorari, *Apple II*, 136 S. Ct. 1376 (2016) (No. 15-565). The cert. petition turned on the appropriate standard for analyzing vertical restraints such as the contracts between Apple and its upstream suppliers (the book publishers). It emphasizes the Supreme Court's decision in *Leegin* to contend that because Apple stands in vertical relationship with the other cartel participants, Apple's conduct cannot be reviewed under the *per se* rule; accordingly, the cert. petition echoes the dissent in *Apple II* in claiming that the majority's contrary treatment creates a circuit split with the Third Circuit's opinion in *Toledo Mack Sales & Service, Inc. v. Mack Trucks, Inc.*, 530 F.3d 204 (3d Cir. 2008) (citing *Leegin Creative Leather Prods., Inc. v. PSKS, Inc.*, 551 U.S. 877 (2007), and applying *per se* standard to claims involving the horizontal relationship as competitors between allegedly conspiring Mack dealers but the rule of reason standard to claims involving the vertical supplier-distributor relationship of the parent Mack company with its dealers).

70. See *A Very Short History of Ebooks*, DIGITAL PUBLISHING 101, <http://digitalpublishing101.com/digital-publishing-101/digital-publishing-basics/a-very-short-history> [<https://perma.cc/W4S7-6BEK>] (last updated July 21, 2015, 6:45 AM) (ascribing the beginnings of eBooks to Project Gutenberg in 1971, and discussing the development of E Ink as a key turning point for the technology); see also Alec Klein, *A New Printing Technology Sets off a High-Stakes Race*, WALL ST. J., <http://www.wsj.com/articles/SB946939872703897050> [<http://web.archive.org/web/20160626084222/http://www.wsj.com/articles/SB946939872703897050>] (last updated Jan. 4, 2000, 12:21 AM) (discussing origins of E ink); *E Ink Press Release: Motofone Makes Its Global Debut Introducing Stylish Connectivity for Everyone*, INTERNET ARCHIVE: WAYBACK MACHINE (Nov. 28, 2006, captured Oct. 14, 2009), <https://web.archive.org/web/20091014090758/http://www.eink.com/press/releases/pr96.html> [<https://perma.cc/WB3U-8QBY>] (touting the introduction of E ink in the 2006 Motofone F3).

71. Hui Li, *Cannibalization or Market Expansion? The Impact of E-Books on Print Book Sales* 2 (Feb. 20, 2015), <http://ssrn.com/abstract=2613757> [<https://perma.cc/8HXL-Q74U>].

major book publishers, who saw the increasing sales of eBooks cannibalize their profitable market for hardback books but could not risk alienating Amazon, the largest bookseller on Earth, by refusing to sell eBooks. As a result, the traditional book publishers allegedly conspired with Apple, upon the launch of the iPad, to raise the prices of eBooks.⁷² For the publishers, this was driven by a desire to “anti-disrupt” the threat of eBooks to their existing business model.

At a deeper level, the *Apple* case suggests a need for antitrust enforcement: incumbents now understand Internet-driven disruption and face a strong incentive to take exclusionary steps to prevent it to protect their existing positions. Indeed, such efforts may be seen in the context of music downloads⁷³ and, allegedly, by broadband Internet and cable incumbents to thwart video streaming firms such as Netflix.⁷⁴ Where they currently enjoy oligopoly or monopoly rents, that incentive for incumbents will be even stronger. Scott Hemphill and Tim Wu have argued for the recognition of an antitrust violation they term “parallel exclusion”—the concerted conduct “engaged in by multiple firms, that blocks or slows would-be market entrants.”⁷⁵ Consideration of concerted anti-disruption would be driven by a heightened form of exclusion, one in which quantum leaps in cost reduction through innovation are prevented and deterred, with potentially disastrous effects on overall welfare.

To be sure, *Apple*, in which each of the three judges on the Second Circuit panel wrote an opinion, suggests some key challenges for treating anti-disruption as an antitrust violation. Specifically, the opinions highlight problems for judges in dealing with markets with rapidly falling costs, in comprehending competition that extends beyond big incumbent players, and in understanding the incentives for dominant incumbents to engage in anti-disruption. These problems and the high cost of false negatives in this context—the inhibiting by market incumbents of a move towards a post-scarcity world—require a rethinking of how antitrust enforcement should proceed.

Reforming antitrust enforcement to promote a transition to a post-scarcity world will not be easy. First, the Second Circuit’s majority

72. *Apple II*, 791 F.3d 290; *Apple I*, 952 F. Supp. 2d 638.

73. See, e.g., Alexa Klebanow, Note, *Is Music the Next eBooks? An Antitrust Analysis of Apple’s Conduct in the Music Industry*, 39 COLUM. J.L. & ARTS 119 (positing that Apple may be protecting its position in the music-download business versus insurgent streaming services by using exclusionary conduct that may violate antitrust laws).

74. See Susan Crawford, *How to Fight Telecom Gameplaying*, BACKCHANNEL (Oct. 30, 2014), <https://medium.com/backchannel/how-to-fight-telecom-gameplaying-aa3765edc385#kmz8finex> [<https://perma.cc/VN25-VLVM>] (arguing that the FCC “needs to create rules for interconnection deals between the terminating monopolies [such as Comcast and Verizon, which control the connection that terminates at the user’s home] and everyone else [such as Netflix and other services]”).

75. C. Scott Hemphill & Tim Wu, *Parallel Exclusion*, 122 YALE L.J. 1182, 1185 (2013).

opinion in *Apple* and its contrast with the dissent suggest that courts may struggle to accurately weigh the importance of falling fixed and marginal costs, particularly where the extent to which they will fall is uncertain. *Apple* shows that courts currently working under the industrial age antitrust paradigm struggle to give appropriate weight to the value of falling fixed and marginal costs. As noted in prior Sections, to the extent antitrust has grappled with cost reductions, it has done so in contexts involving mergers and joint ventures. And in these contexts it has often struggled, for the simple reason that enforcement officials and judges must make a prediction based on efficiency arguments that may be difficult to prove.⁷⁶ Indeed, the *Apple* case illustrates the indeterminacy of these arguments. The majority opinion leads off from its first paragraph with the observation that while the printing press had been a constant of book publishing for centuries, eBooks “had the potential to change the centuries-old process for producing books by eliminating the need to print, bind, ship, and store them.”⁷⁷ The majority then goes on to note the impact of falling costs several more times,⁷⁸ as well as the publisher defendants’ interest in preserving their higher-cost—but also higher-priced and higher-profit—hardcover book sales from the cost- and price-reducing impact of eBooks’ development.⁷⁹ In contrast, the dissent at no point discusses the cost-reduction impact through innovation that eBooks’ development represents.⁸⁰ However, it would be unfair to suggest that the dissenting opinion has no appreciation for innovation; Chief Judge Jacobs cites the impact of the iPad (without demonstrating that it could not have been successfully launched without cartelizing eBooks) as justification for Apple’s participation in a price-fixing cartel.⁸¹ Understandably, it is easier to appreciate the effects of innovation when they come in a shiny, tangible package than when they represent the intangible economic boon of mass reading without the fixed- and marginal-cost investments in a printing press for the first time since the Chinese invented movable type a millennium ago.

Second, *Apple* illustrates the danger that judges may erroneously hold on to a static paradigm in which competition takes place between powerful incumbents; in particular, the dissent in *Apple* lets a picture of a battle between Apple and Amazon hold it captive—ignoring the

76. See Daniel A. Crane, *Rethinking Merger Efficiencies*, 110 MICH. L. REV. 347, 374–76 (2011) (considering effect of argument that “efficiencies are difficult to prove”).

77. *Apple II*, 791 F.3d at 296.

78. *Id.* at 299, 328.

79. *Id.* at 298–301.

80. The dissenting opinion by Judge Jacobs does discuss cost repeatedly to suggest that Amazon—which was not a party to the case and so did not have the opportunity to litigate the facts nor legal allegations of predatory pricing concerning it—was selling below cost in a manner that he describes as “predatory” from the standpoint of the defendants. *Id.* at 342 (Jacobs, J., dissenting).

81. *Id.* at 352.

backdrop of innovation and massive cost reduction that impacts not just competitors, but competition.⁸² The contrast between the majority opinion and the dissent in the *Apple* case demonstrates the danger of an emphasis on existing incumbents in an assumed static world. While the iPad was a new product, both Apple and Amazon were huge and valuable firms with a strong presence both online (iTunes/App Store and Amazon.com) and in hardware (the iPhone/iPod/Mac and the Kindle, respectively).⁸³ Indeed, the majority castigates the dissent for too easily assuming that adding the iPad to the marketplace even required, let alone justified, the cartelization of publishers to throttle a transformative technology in the form of eBooks.⁸⁴ In part, the tension between the two opinions reflects a different appreciation of the dynamic effects of emergent technology versus vigorous competition between incumbent industry leaders. In the dissent's view, "Apple took steps to compete with a monopolist"—allegedly, Amazon.⁸⁵ In particular, Chief Judge Jacobs, who has written elsewhere about the implicit biases of judges,⁸⁶ accuses his colleagues of making "the implicit assumption that competition should be genteel, lawyer-designed, and fair under sporting rules."⁸⁷ However, he himself seems to be suffering from the cognitive error of status quo bias; by reifying the interest of big industry players like Amazon and Apple without considering the value of eBooks themselves as rapidly emergent technological products that benefit consumers, he performs an antitrust analysis that is at best, incomplete, and at worst, unmoored from the anchor of American antitrust: consumer welfare.⁸⁸

82. LUDWIG WITTGENSTEIN, *PHILOSOPHICAL INVESTIGATIONS* 53 (P.M.S. Hacker & Joachim Schulte eds., G.E.M. Anscombe et al. trans., 4th ed. 2009) ("A picture held us captive. And we couldn't get outside it, for it lay in our language, and language seemed only to repeat it to us inexorably.").

83. See generally Wiecezner, *supra* note 3 (proclaiming Apple "once again the most valuable company in the world" after recently being supplanted); Paul R. La Monica, *Amazon is Now Worth WAY More than Walmart*, CNNMONEY (July 24, 2015, 3:57 PM), <http://money.cnn.com/2015/07/24/investing/amazon-worth-more-than-walmart> [<https://perma.cc/VC92-HKUV>] (noting that Amazon is among the dozen most valuable companies on the S&P 500, and "the most valuable retailer in the world").

84. *Apple II*, 791 F.3d at 298 ("[T]he dissent's armchair analysis wrongly treats the number of ebook retailers at any moment in the emergence of a new and transformative technology for book distribution as the *sine qua non* of competition in the market for trade ebooks.").

85. *Id.* at 352 (Jacobs, J., dissenting).

86. E.g., Dennis Jacobs, Lecture, *The Secret Life of Judges*, 75 *FORDHAM L. REV.* 2855, 2855 (2007) (lecturing about "judge[s'] inbred preference for outcomes controlled by proceduralism, the adversary system, hearings and experts, representation by lawyers, ramified complexity of doctrines and rules, multiple prongs, and all things that need and use lawyers, enrich them, and empower them vis-à-vis other sources of power and wisdom").

87. *Apple II*, 791 F.3d at 342 (Jacobs, J., dissenting).

88. See Joshua D. Wright & Douglas H. Ginsburg, *The Goals of Antitrust: Welfare Trumps Choice*, 81 *FORDHAM L. REV.* 2405, 2406 (2013) ("The promotion of economic welfare as the lodestar of antitrust laws . . . transformed the state of the law and restored intellectual coherence to a body of law Robert Bork had famously described

Finally, forces both within and outside of the legal system will tend to support rulings that would sacrifice the benefits of a post-scarcity society in favor of smaller gains to powerful private interests. The *Apple* case illustrates the incentive for incumbents to prevent the transition to a post-scarcity society. Their acts go beyond mere counter-disintermediation—they are not merely seeking to preserve a buy-sell price spread for wholesalers, brokers, and other intermediaries. Both the dissent in *United States v. Apple* and the mass-media coverage of the case⁸⁹ provide strong examples of a willingness to sacrifice potentially massive public gain due to falling fixed and marginal costs in order to preserve private benefits to favored firms.

In effect, the dissent would immunize Apple's role in a cartel that thwarts the transition to lower fixed and marginal costs for the reading public. The dissenting opinion turns on two points of contention with the majority. It mistakenly concludes that Apple's role in undermining a claimed (but unadjudicated) monopoly—the bare existence of which, unlike the act of monopolization, has long been held legal⁹⁰—could offset liability for its participation in a horizontal price-fixing conspiracy.⁹¹ Neither precedent nor prominent commentary support this view. The Court in *Trinko* made clear that the Sherman Act “seeks merely to prevent *unlawful monopolization*” and does not go so far as “*to eliminate the monopolies*” that firms might otherwise enjoy;⁹² by contrast, the Sherman Act has long been held to prohibit price fixing.⁹³ And as Herbert Hovenkamp, the single most prominent commentator in antitrust, has long pointed out, it makes good sense to treat price fixing more harshly than monopolization for a number of reasons, not least of which is the relative speed and ease of making an anticompetitive multi-firm agreement compared with building and maintaining a long-lasting monopoly.⁹⁴ As a result, a judge-granted

as paradoxical. . . . [T]here is now widespread agreement that this evolution toward welfare and away from noneconomic considerations has benefitted consumers and the economy more broadly.” (footnotes omitted)).

89. See, e.g., *infra* note 95.

90. See *United States v. Aluminum Co. of Am.*, 148 F.2d 416, 429–30 (2d Cir. 1945) (Hand, J.) (“It does not follow because ‘Alcoa’ had . . . a monopoly, that it ‘monopolized’” in violation of Section 2 of the Sherman Act, since “monopoly may have been thrust upon it” via “accident” or “superior skill, foresight and industry.”).

91. *Apple II*, 791 F.3d at 347–48 (Jacobs, J., dissenting).

92. *Verizon Commc'ns, Inc. v. Law Offices of Curtis V. Trinko, LLP*, 540 U.S. 398, 415 (2004) (Scalia, J.).

93. See *United States v. Trenton Potteries Co.*, 273 U.S. 392, 397 (1927) (applying Section 1 and *per se* rule to price-fixing agreement).

94. HERBERT HOVENKAMP, *FEDERAL ANTITRUST POLICY: THE LAW OF COMPETITION AND ITS PRACTICE* §5.1b (3d ed. 2006). Hovenkamp argues that multilateral activity deserves closer antitrust scrutiny for several reasons:

1. The Sherman Act's structure emphasizes restraint of trade. *Id.*
2. “[A]greements creating significant market power can be formed very quickly” while “[m]ost firms do not become monopolists overnight” since “[r]ivals can generally be expected to resist a single firm's attempts to domi-

plenary indulgence for price fixing due to contributions that erode a quite possibly legal monopoly makes little sense.

However, it would be wrong to conclude that the inclination to misread an antitrust case in a manner that favors and insulates powerful incumbent firms can only be found in conservative judges. The *Apple* case drew heavy coverage from media outlets critical of the Justice Department's decision to bring the case and especially of Amazon's price-dropping effects on eBooks and by extension the overall book market. In particular, *The New Yorker* magazine, notable for many things but not generally for antitrust commentary, had four separate articles on the case and the events surrounding it, each of which contained significant criticism of or concern regarding Amazon—which was not even a party.⁹⁵

nate its market." *Id.* By contrast for monopoly through agreement, "[r]esistance is much less because the agreement creates market power by bringing firms *into* the venture rather than excluding them from the market." *Id.*

3. Monopoly alone is not illegal even though it restricts output, while in agreements between competitors we consider lower output vs. increased efficiency and greater output.

Courts' ability to fashion relief has more flexibility and effectiveness with multiple actors. *Id.* Contrast externally regulating the rates of American Express, a single firm, with simply enjoining rate fixing by Visa—"a joint venture of some 6000 banks and other financial institutions." *Id.*

95. See Vauhini Vara, *Did Apple Fix E-Book Prices for the Greater Good?*, NEW YORKER: CURRENCY (Dec. 16, 2014), <http://www.newyorker.com/business/currency/apple-claiming-virtue-e-book-price-fixing-case> [<https://perma.cc/B2U3-8P5Y>] (considering the argument that Apple's role in a horizontal cartel was justifiable due to Amazon's alleged role as an eBook monopolist); Matt Buchanan, *The E-Book Conspiracy Comes to a Close*, NEW YORKER: ELEMENTS (July 11, 2013), <http://www.newyorker.com/tech/elements/the-e-book-conspiracy-comes-to-a-close> [<https://perma.cc/43LS-VYAE>] (emphasizing that "[a] major beneficiary of the decision, Amazon, is not only one of the largest, most influential companies in technology but also the dominant company in bookselling"); Ken Auletta, *Paper Trail: Did Publishers and Apple Collude Against Amazon?*, NEW YORKER (June 25, 2012), <http://www.newyorker.com/magazine/2012/06/25/paper-trail-2> [<https://perma.cc/Z9T6-W79L>] (observing that "[t]he D.O.J. could have chosen not to bring" the case against Apple and the book publishers, stating that "Amazon is already using its position in the market to intimidate less powerful publishers," and quoting an anonymous small publisher that "Amazon is using its monopoly power to dictate to these companies that they will continue to discount our books below cost"); Ken Auletta, *Publish or Perish: Can the iPad Topple the Kindle, and Save the Book Business?*, NEW YORKER (Apr. 26, 2010), <http://www.newyorker.com/magazine/2010/04/26/publish-or-perish> [<https://perma.cc/C2Q5-WPPS>] (reporting that "[m]any publishers believe that Amazon looks upon books as just another commodity to sell as cheaply as possible, and that it sees publishers as dispensable" and describing joint withholding of eBooks from Amazon by publishers, but foregoing any discussion of potential collusion liability).

B. *The Declining Importance of Efficiencies in a Decreasing-Cost World*

As the possibility of a post-scarcity society comes into view, anti-trust must take a more skeptical view of efficiency arguments proffered in defense of private restraints. Such arguments attempt to justify the risk of increased market power by pointing to offsetting efficiency gains that the restraint helps achieve; the most common example is to ascribe potential production-cost savings to the restraint.⁹⁶ Antitrust law should look more skeptically at such arguments because, all things being equal, as the economy moves closer to zero-cost production, any gains from reduced production costs must become increasingly skimpy relative to the possible enhanced market power. And importantly, antitrust authorities must consider the possibility that alleged cost reductions and market-power enhancement from the current baseline do not match the true potential in an economy capable of developing a post-scarcity society because artificial scarcity may be “baked in” by existing distortive restraints.⁹⁷ While such arguments originated in the merger-review context, analogous arguments, though they often go by other names, are also found in order to justify agreements that otherwise might restrain trade in the Sherman Act Section 1 context (ancillary procompetitive justifications) and exclusionary conduct in the Section 2 context (legitimate business justifications).⁹⁸

Antitrust analysis’ trade-off between economies or efficiencies on the one hand and increased market power on the other is perhaps most closely associated with the work of Nobel laureate Oliver Wil-

96. *E.g.*, *Dagher v. Saudi Ref., Inc.*, 369 F.3d 1108, 1111 (9th Cir. 2004), *rev’d sub nom.* *Texaco Inc. v. Dagher*, 547 U.S. 1 (2006).

97. This problem is analogous to dealing with the so-called “Cellophane Fallacy” in antitrust law, named after *United States v. E. I. du Pont de Nemours & Co.*, 351 U.S. 377 (1956), in which the Court had to consider whether cellophane had a separate market, or competed with other flexible wrapping materials. While the Court applied questions of product substitution that are still in use today, it did so without considering whether the possibility that cellophane was being sold at monopolistically high prices was causing buyers to substitute with other flexible wrapping materials when they would not do so if the products were all sold in competitive markets. The failure to consider this “baked-in” price elevation has been called the Cellophane Fallacy, and less commonly, the Gingerbread Paradox. See George W. Stocking & Willard F. Mueller, *The Cellophane Case and the New Competition*, 45 AM. ECON. REV. 29 (1955) (introducing the concept); see also Mark A. Lemley & Mark P. McKenna, *Is Pepsi Really a Substitute for Coke? Market Definition in Antitrust and IP*, 100 GEO. L.J. 2055, 2089–90 (2012) (applying the concept of the Cellophane Fallacy to questions of IP and market power).

98. See C. Scott Hemphill, *Less Restrictive Alternatives in Antitrust Law*, 116 COLUM. L. REV. 927 (2016) (discussing in parallel similar approaches to restraints with both positive and negative effects on competition in contexts involving Sherman Act Section 1 multi-firm restraints and Section 2 single-firm monopolization).

liamson.⁹⁹ He recognized that where “a merger (or other combination) is proposed that yields economies [or efficiencies] but at the same time increases market power . . . then a rational treatment of the merger question requires that an effort be made to establish” the relative effects of the efficiencies versus the “market power effects.”¹⁰⁰ With a simple model that continues to have significant persuasive power in American antitrust circles, Williamson pointed out that, under normal assumptions, the decrease in the marginal cost of production will swamp the market-power effects—implying that enforcers should take efficiency defenses quite seriously.¹⁰¹ The reason for this can be seen in Figure 1—the triangle representing the deadweight loss due to transactions no longer taking place at the new, higher price due to enhanced market power will tend to be smaller than the rectangle representing efficiency gains—most typically a lowered production cost (or alternatively, a qualitatively better product at the same cost as before).¹⁰² The same logic is used in considering restraints with posi-

99. See Oliver E. Williamson, *Economies as an Antitrust Defense: The Welfare Tradeoffs*, 58 AM. ECON. REV. 18 (1968).

100. *Id.* at 18–19.

101. See *id.* at 22–23 (concluding that his model shows that “generally it is evident that a relatively modest cost reduction is usually sufficient to offset relatively large price increases” and so “supports the following proposition: a merger which yields non-trivial real economies must produce substantial market power and result in relatively large price increases for the net allocative effects to be negative”).

102. In Williamson’s simple model, he showed mathematically why this is so. A merger or other transaction or restraint would on balance improve social welfare when the cost-reduction effects (the blue rectangle in Figure 1) are greater than the deadweight loss (the red triangle in Figure 1).

The rectangle’s area is $(AC_1 - AC_2) Q_2$ and the triangle’s area is approximately (approximately because the demand curve would likely not actually be linear) $\frac{1}{2}(P_2 - P_1)(Q_1 - Q_2)$, since a triangle’s area is half of the base times the height. Thus the transaction will be welfare enhancing if:

$$(\Delta AC)(Q_2) > \frac{1}{2} (\Delta P)(\Delta Q)$$

Dividing through by Q_2 :

$$\Delta AC > \frac{1}{2} (\Delta P)(\Delta Q)/Q_2$$

Substituting for $(\Delta Q)/Q_2$ the expression $\mu (\Delta P/P)$ where μ is the elasticity of demand (a measure of how much the quantity consumed changes relative to a change in price, that is, $\mu = (\Delta Q/Q) / (\Delta P/P)$):

$$(\Delta AC) > \frac{1}{2} (\Delta P) (\mu (\Delta P/P))$$

Dividing through by k , an index of market power at the start such that $P = k(AC)$, and which is greater than or equal to 1, and which equals 1 in a perfectly competitive market where competition forces prices down to production cost:

$$(\Delta AC) / (k)(AC) > \frac{1}{2} (\Delta P) (\mu (\Delta P/P))/P$$

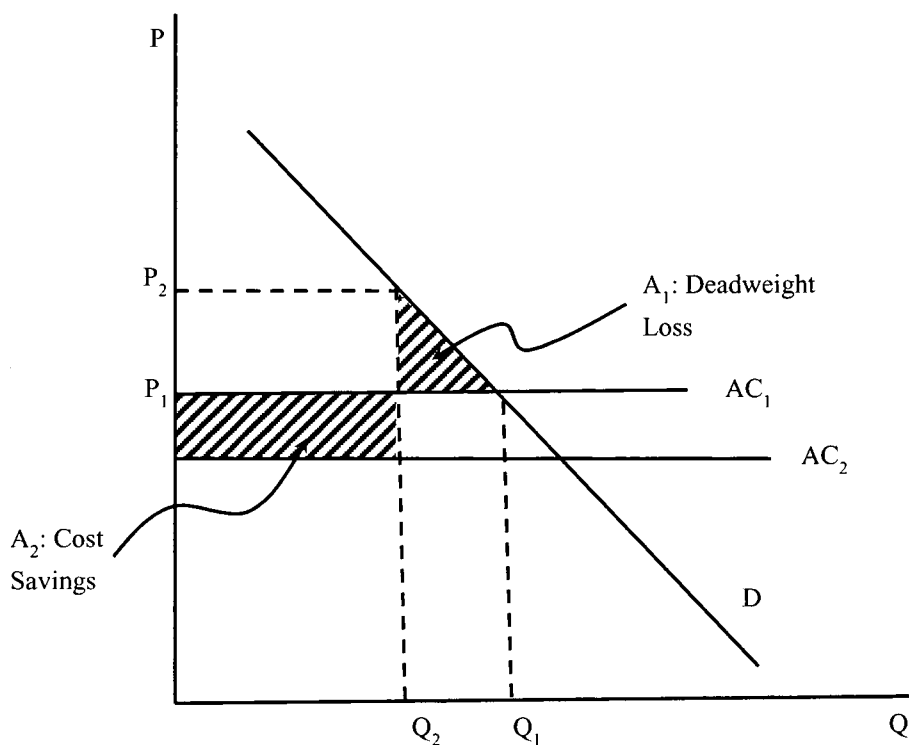
Simplifying:

$$(\Delta AC) / (AC) > \frac{1}{2} (k) \mu (\Delta P/P)^2$$

Meaning that, where there is no preexisting market power (that is, $k = 1$), for example, a 20% increase in price due to increased market power after the transaction will be offset by a mere 2% reduction in production cost where $\mu = 1$ (that is, the quantity consumed changes—in the opposite direction—by the same percentage as the change in price). The implication is that fairly small cost reductions will outweigh fairly large price increases. *Id.* at 18–19.

tive and negative effects on competition under both Section 1 and Section 2 of the Sherman Act.¹⁰³

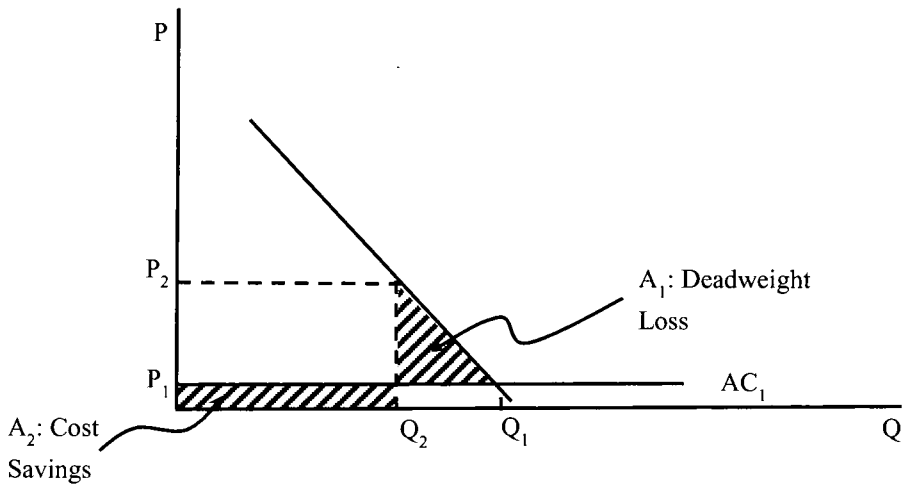
FIGURE 1



Technology-driven abundance has an important implication for this model: as marginal costs of production approach zero, all other things being equal, the anticompetitive market power effects' importance should increase relative to the procompetitive efficiency effects. This is true for two reasons. First, as shown in Figure 2, which is identical to Figure 1 except for the fact that the original price (P_1) is far closer to the zero-price horizontal axis, as costs approach zero, the same price and output effects will generate relatively less offsetting efficiency relative to the deadweight loss—that is, all things being equal, the red triangle will be bigger compared to the blue rectangle. Second, consider what happens if the demand curve is as usually assumed and flattens asymptotically along the x-axis as price goes to zero.

103. See HOVENKAMP, *FEDERAL ANTITRUST POLICY* (4th ed. 2011) §§ 5.6b, 6.4a (discussing such tradeoffs in the context of both Sections 1 and 2).

FIGURE 2

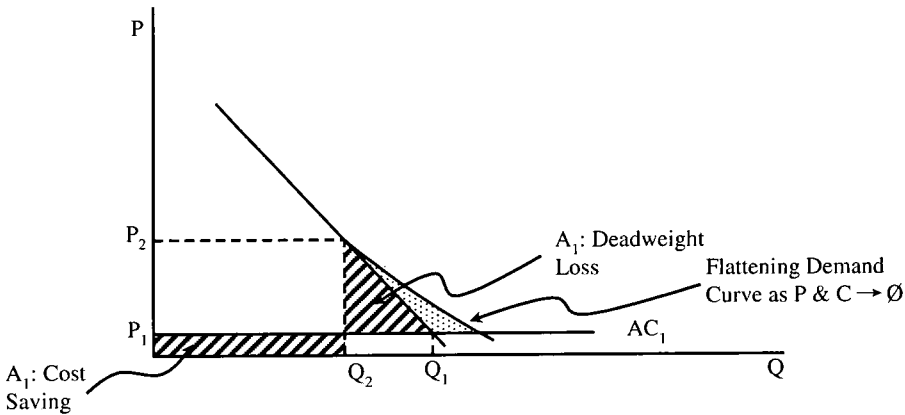


This is a common and normal assumption, seen for example in the case of unitary elasticity of demand, that is, where a 1% increase in price yields a 1% decrease in quantity demanded.¹⁰⁴ Again, all things being equal, as shown by Figure 3, which is identical to Figure 2 except for the addition of the flattening demand curve that approaches the zero-price horizontal axis asymptotically, the deadweight-loss triangle will actually be bigger than it would have been at higher price and cost levels (the dotted area represents the increase in deadweight loss due to flattening of the demand curve as price and cost approach zero). This is because, holding the price change constant as simply a function of increased market power (the height of the triangle), the change in quantity (the triangle's base), representing the volume of lost transactions, increases.¹⁰⁵ As a result, the transition to a post-scarcity economy raises some critical questions about one of the driving models in contemporary antitrust law.

104. See, e.g., JOHN CREEDY, DEMAND AND EXCHANGE IN ECONOMIC ANALYSIS 34 (1992) (“[A] constant unit elasticity implies that the demand curve is a rectangular hyperbola [that is, a parabola whose asymptotes are perpendicular, in this case being the X and Y axes of price and quantity].”).

105. An important caveat is that an incipient post-scarcity economy might yield different parameters for elasticity or differently shaped demand curves; we cannot yet determine empirically if that is so.

FIGURE 3



As a result, an economy capable of achieving post-scarcity conditions demands a much more critical approach to efficiency defenses. There is some debate, both normative and positive, over how much weight antitrust enforcers should and currently do give to efficiency defenses.¹⁰⁶ Some commentators argue that American antitrust enforcers should be willing to permit, for example, mergers that benefit producers more than they hurt consumers, even where the benefits are not redistributed via market competition to make both groups better off.¹⁰⁷ Others argue that, in various ways, American antitrust enforcers already apply a total-welfare standard,¹⁰⁸ or account for the difference between total welfare and consumer welfare via a “rough-justice” approach.¹⁰⁹ Essentially, the differences come down to “is” as

106. See, e.g., Crane, *supra* note 76, at 349 (arguing for enhanced consideration of efficiency defenses in merger analysis).

107. These commentators argue that the United States should, like Canada, explicitly adopt a “total-welfare” standard rather than a consumer-welfare standard. See Roger D. Blair & D. Daniel Sokol, *The Rule of Reason and the Goals of Antitrust: An Economic Approach*, 78 ANTITRUST L.J. 471, 472–73 (2012) (arguing that, e.g., the rule of reason should be applied as a total-welfare analysis rather than solely a consumer-welfare analysis); Kenneth Heyer, *Consumer Welfare and the Legacy of Robert Bork*, 57 J.L. & ECON. S19 (2014) (explaining that Robert Bork, though using the term “consumer welfare,” was actually advocating a total-welfare standard).

108. See Alan J. Meese, *Debunking the Purchaser Welfare Account of Section 2 of the Sherman Act: How Harvard Brought Us a Total Welfare Standard and Why We Should Keep It*, 85 N.Y.U. L. REV. 659 (2010) (arguing that, in Section 2 cases, courts have been using a total-welfare approach rather than a purchaser-welfare approach as other scholars believe).

109. See Crane, *supra* note 76, at 364–65 (speculating that antitrust regulators may in practice be implementing an approach advocated in the past by Profs. Fisher and Lande to “liberaliz[e] merger policy overall” to make up for the fact that merger-justifying efficiencies exist, but “are hard to detect on a case-specific basis”); see also Alan A. Fisher & Robert H. Lande, *Efficiency Considerations in Merger Enforcement*, 71 CALIF. L. REV. 1580, 1651–68 (1983) (discussing positives and negatives of the different approaches).

well as “ought” arguments about whether Pareto¹¹⁰ or Kaldor-Hicks efficiency¹¹¹ for consumers and producers, each separately aggregated as a unit, is the right standard¹¹²—the issue is whether it matters if the remaining market competition is sufficient that it could generate compensation to consumers via lowering prices enough to make up for the deadweight loss that consumers would otherwise suffer. These arguments have raged fairly prominently in the antitrust community this century.¹¹³

An important implication of a move towards post-scarcity is that existing antitrust debates about total welfare as a standard (that is, balancing cost reduction benefits to producers with harms to consumers) versus focusing solely on consumer welfare increasingly become obsolete. This is because to the extent that production costs approach zero, lowering marginal cost becomes much less important relative to market power effects, whether the decrease in marginal cost would be passed on to consumers in the form of lower prices or not. In short, as possible cost reductions become smaller and smaller, the question of whether they offset harm to consumers tends to become moot. This is crucial because this type of balancing analysis extends beyond the merger context and in fact ranges across antitrust law. While most prominent in merger review, the analysis of Section 1 restraints and Section 2 monopolization both involve the question of offsetting procompetitive gains. We can see clear examples in many cases involving media, intellectual property, and innovation. For example, in landmark Section 1 cases such as *NCAA v. University of Oklahoma*¹¹⁴ and *Broadcast Music v. CBS*,¹¹⁵ the Supreme Court squarely addressed the question of whether agreements among competitors to restrict output and price could be justified by countervailing gains in efficiency and productive capacity. In its monopolization discussion in *United States v. Microsoft*, the en banc D.C. Circuit directly addressed the possibility of legitimate business justifications that would preclude liability for otherwise actionable predatory or exclusionary conduct.¹¹⁶ In both contexts, the standard requires courts to balance the procompetitive benefits against the anticompetitive harms. Because the most

110. A state where it is not possible to improve any party's circumstances without also worsening at least one other party's circumstances.

111. A state where, even if one party benefits from a decision, other parties' circumstances are not worsened.

112. Consumers taken as a unit and producers taken as a unit, since, for example, those consumers who suffer the deadweight loss due to a merger will not necessarily be the same ones who might enjoy lower prices because the merger lowers marginal cost and competition forces some of that efficiency gain to be passed on to consumers.

113. See *supra* notes 107–109 (listing and describing leading articles in this debate).

114. *NCAA v. Bd. of Regents of Univ. of Okla.*, 468 U.S. 85, 104–108 (1984).

115. *Broad. Music, Inc. v. CBS, Inc.*, 441 U.S. 1, 18–22 (1979).

116. *United States v. Microsoft Corp.*, 253 F.3d 34, 59 (D.C. Cir. 2001) (en banc) (per curiam).

commonly asserted¹¹⁷—and most important—procompetitive benefits revolve around reducing cost and increasing productive capacity, as costs fall towards zero, this balance will shift against defendants, all things being equal.

Crucially, antitrust courts will have to reconsider efficiencies based not only on the current state of the market in the cases directly before them, but will also have to ask whether, were the current market a competitive one, the proffered efficiency defenses would not matter. As in the *du Pont* (cellophane) case, the question is not only about market behavior at the current price level—courts must avoid the “Cellophane Fallacy” of assuming that the current price level is competitive and refrain from concluding that because products are currently substitutes, they would also be substitutes at a competitive price level.¹¹⁸ Similarly, and this will no doubt be a difficult inquiry, courts in an economy with the capacity to generate a post-scarcity society will have to ask whether the procompetitive benefits of a merger or restraint are in part the result of preexisting anticompetitive practices or conduct. For example, if a merger reduces cost below the pre-merger state, but creates concentration that may tend to thwart the drive toward a reachable zero-marginal-cost state, that would be a harm worth weighing. This kind of assessment will likely be quite difficult, but as in the *du Pont* case, it may be critical to properly understanding a market.

In all three contexts—merger review and Sections 1 (multi-firm conduct) and 2 (single-firm conduct) of the Sherman Act—antitrust will have to consider decreasing its emphasis on efficiency defenses. That in itself may actually simplify antitrust analysis, since it suggests at some level cost-reducing efficiencies will matter less, reducing the factors a court must consider or regulate.

C. *Post-Scarcity and the Essential-Facilities Doctrine*

An economy with the potential to generate a post-scarcity society will also require American courts to reconsider the essential-facilities doctrine. While versions of essential facilities have been adopted in the competition law of the European Union and elsewhere,¹¹⁹ the United States Supreme Court, if not foreclosing it outright, has at

117. *E.g.*, *Starr v. Sony BMG Music Entm't*, 592 F.3d 314 (2d Cir. 2010).

118. *See supra* note 97 and accompanying text.

119. *See, e.g.*, Case C-418/01, *IMS Health GmbH & Co. OHG v. NDC Health GmbH & Co. KG*, 2004 E.C.R. I-5069; Rules of the Administration for Industry and Commerce on the Prohibition of Abuses of Intellectual Property Rights for the Purposes of Eliminating or Restricting Competition (proposed by the State Administration for Industry and Commerce) (China) (unofficial translation of draft for comments) (Freshfields Bruckhaus Deringer trans., June 11, 2014), <http://chinaipr2.files.wordpress.com/2014/07/aba-sal-sipl-sil-saic-ip-abuse-rule-comment-final-package.pdf> [<https://perma.cc/4YEU-EGDA>].

least kept a wary distance.¹²⁰ But post-scarcity economics undermines the three main arguments against adopting the essential-facilities doctrine.

In particular, the technologies driving post-scarcity economics undercut the strongest argument against essential facilities: that it weakens incentives to make competitive investments since dominant firms would not, for example, build infrastructure or invent new technology lest a court appropriate the investment for a competitor's use. However, in the face of technological abundance, incumbents' desire to exclude will not necessarily hinge on whether they themselves created the disruptive technology. For example, in the *Apple* case, Apple and the publisher defendants who constructed a group boycott had invented neither eBooks nor e-readers such as the Nook or Kindle. Increasingly, essential-facilities arguments may take place against such a factual backdrop in which a number of firms provide a necessary element of a sufficient set ("NESS") to create a breakthrough innovation—as opposed to the paradigm Justice Scalia described in the Supreme Court's leading case on the doctrine, *United States v. Trinko*, in which an essential facility was largely the product of a single durable monopoly.¹²¹ Rewarding a firm that extracts monopoly rents¹²² in a NESS situation due to its use of deception, government lobbying, or strategic holdup does not promote the development of an essential facility in the pro-innovation manner pointed out in *Trinko*. And the sheer desire of a firm to recoup investment cannot, without more, justify exclusion; helping private firms recover stranded costs cannot and should not be an antitrust function. Instead, an essential-facilities approach that builds, for example, on the injury-to-innovation limitation proposed by Christina Bohannon and Herbert Hovenkamp,¹²³ justifying exclusion and rejecting the doctrine only where the defendant actually created the cost-reducing disruptive technology it seeks to exclude, may be increasingly necessary as we approach a post-scarcity society.

Additionally, the single-monopoly-profit argument against essential facilities¹²⁴ collapses in a post-scarcity world. That argument posits that since a monopolist need not sell to consumers, but could license an essential facility for an equivalent royalty, there is no need for the

120. See *Verizon Commc'ns, Inc. v. Law Office of Curtis V. Trinko, LLP*, 540 U.S. 398, 410–11 (2004).

121. The essential facility in *Trinko* was the local telephone exchange network, created by Verizon during its period as a regulated monopoly. See *id.* at 402.

122. Economic rent is simply the difference between actual income and that income level required to bring a factor of production into its current use.

123. Christina Bohannon & Herbert Hovenkamp, *IP and Antitrust: Reformation and Harm*, 51 B.C. L. REV. 905 (2010) (advocating limiting recovery for IP injuries only to cases in which external harm would "affect[] the ex ante incentive to innovate").

124. ROBERT H. BORK, *THE ANTITRUST PARADOX* 229 (1978); Richard A. Posner, *Exclusionary Practices and the Antitrust Laws*, 41 U. CHI. L. REV. 506, 523–24 (1974).

monopolist to exclude unless it is somehow procompetitive.¹²⁵ However, this argument is based on a static view of the market and is built on several critical assumptions, including the idea that the monopolist's product is an input into other products in competitive markets, that demand is observable, and that downstream products do not require product-specific investments that cannot easily be repurposed.¹²⁶ In contrast, with respect to each of these three assumptions, in the networked post-scarcity world, it is not hard to imagine that a monopolist with an essential facility may exclude a downstream firm when it sees that the latter's products may grow to supplant the former's notwithstanding the possibility of a license. Additionally, it is quite possible that demand may not be easily observable, especially where competition is "for the market,"¹²⁷ and that investments in platforms, networks, and the like are in fact not easily repurposed by the second-place finisher.

The third major argument against essential facilities also weakens in a post-scarcity world. That concern is that the essential-facilities doctrine places courts into the role of regulators, and that courts are ill suited to oversee the sharing that the doctrine demands.¹²⁸ To the extent that, in a post-scarcity world, the facilities at issue are increasingly nonrivalrous designs or that the costs of sharing start to approach zero, what costs remain may arise from commodities like network bandwidth or server space that even judges may find it easier to put a price tag on than they currently might in cases involving, for example, proprietary pharmaceutical data¹²⁹ or mobile-phone hardware research and development.¹³⁰

125. See, e.g., PHILLIP E. AREEDA & HERBERT HOVENKAMP, *ANTITRUST LAW* ¶ 773c (4th ed. 2015) ("[A] monopolist cannot earn double profits by monopolizing a second, vertically related market."); BORK, *supra* note 124, at 229 ("[V]ertically related monopolies can take only one monopoly profit."); Posner, *supra* note 124, at 524.

126. See Zachary Abrahamson, Comment, *Essential Data*, 124 YALE L.J. 867, 873–77 (2014) (critiquing the single-monopoly-profit argument with respect to nonrivalrous data in the essential-facility context).

127. See, e.g., *id.* at 873 (discussing that demand for "essential data" may be unobservable).

128. *Verizon Commc'ns, Inc. v. Law Offices of Curtis V. Trinko, LLP*, 540 U.S. 398, 408 (2004).

129. See Robert Pitofsky, Donna Patterson, & Jonathan Hooks, *The Essential Facilities Doctrine Under U.S. Antitrust Law*, 70 ANTITRUST L.J. 443, 444–45 (2002) (discussing a European Court of Justice decision applying the essential-facilities doctrine to a proprietary system for aggregating pharmaceutical data).

130. See M. Brinkley Tappan & Koren W. Wong-Ervin, *Essential Questions About Standard-Essential Patents in the U.S. and EU*, 2 INT'L ANTITRUST BULL. 10, 11–12 (2013), http://www.americanbar.org/content/dam/aba/publications/antitrust_law/at311000_newsletter_201302.authcheckdam.pdf [<https://perma.cc/2CFH-KUV7>] (discussing the European Commission's application of the essential-facilities doctrine to Samsung's standard-essential patents, and the FTC's application of a similar theory to Motorola in the context of a consent decree).

The discussion of essential facilities in a post-scarcity environment must unfortunately be quite preliminary. But as technological abundance progresses, this Article predicts that anti-disruption cases will force courts and scholars to reappraise the essential-facilities doctrine in the face of a falling-cost world.

IV. POST-SCARCITY, ARTIFICIAL SCARCITY, AND STATE POWER

If I am right in supposing it to be comparatively easy to make capital-goods so abundant that the marginal efficiency of capital is zero, this may be the most sensible way of gradually getting rid of many of the objectionable features of capitalism. . . . Yet there will be many social and political forces to oppose the necessary change.

—John Maynard Keynes¹³¹

[T]here is at least one important respect in which the 21st-century economy is different in a way that ought to have a significant effect on macroeconomics: the much larger role of rents on intangible assets. . . . There are a couple of obvious implications from this change in the nature of corporate success. One is that profits are no longer anything remotely resembling a “natural” aspect of the economy; they’re very much an artifact of antitrust policy or the lack thereof, intellectual property policy, etc. Another is that a lot of what we consider output is “produced” at low or zero marginal cost.

—Paul Krugman¹³²

While the preceding Part addressed the incentive to engage in private anticompetitive conduct to price higher than increasingly low costs, firms also face an incentive to influence the exercise of state power so as to maintain such economic rents. Incumbent firms that currently receive economic rents may face a strong incentive to spend some of that surplus—the price they receive above cost—to lobby or otherwise influence state actors to thwart insurgent disruptive firms. The successes and travails of Uber exemplify the negative role that the state may play in powering anti-disruption, and help explain why American antitrust law may be forced to more intrusively deal with anticompetitive restrictions enforced with state power.

131. Robert Chernomas, *Keynes on Post-Scarcity Society*, 18 J. ECON. ISSUES 1007, 1019 (1984) (first quoting JOHN MAYNARD KEYNES, *THE GENERAL THEORY OF EMPLOYMENT, INTEREST AND MONEY* (1936), *reprinted in* 7 JOHN MAYNARD KEYNES, *THE COLLECTED WRITINGS OF JOHN MAYNARD KEYNES* 221 (Donald E. Moggridge ed., Palgrave Macmillan 1973); then quoting 14 JOHN MAYNARD KEYNES, *THE COLLECTED WRITINGS OF JOHN MAYNARD KEYNES* 132 (Donald E. Moggridge ed., Palgrave Macmillan 1973)).

132. Paul Krugman, *How Are These Times Different?*, N.Y. TIMES: THE CONSCIENCE OF A LIBERAL (June 19, 2013, 4:28 AM), <http://krugman.blogs.nytimes.com/2013/06/19/how-are-these-times-different> [https://perma.cc/5MM6-7DHE].

A. *Uber, the Sharing Economy, and Artificial Scarcity*

Uber is no stranger to controversy. Labor law,¹³³ tort and insurance law,¹³⁴ and antitrust¹³⁵ have all been invoked in complaints about the popular and highly valued (more than \$50 billion recently¹³⁶) ridesharing service. But regardless of whether one falls into a pro-, anti-, or neutral camp regarding Uber, three insights about its development are quite clear: Uber's development hinges on massive cost reductions, its challenge to the traditional taxi industry raises important questions about the need for and social utility of taxi regulation regimes, and it has received fierce pushback from regulators—often asserting “passenger safety” concerns, but with the concomitant effect of maintaining an artificial scarcity of taxis and their competitors, as well as an existing flow of revenue to the state. These facts provide an important example that helps illuminate the potential role of the state in aiding incumbents in keeping rents—and hurting consumers—via anti-disruption.

Love it or hate it, Uber and its competitor ridesharing services have revealed previously hidden realities about taxi service.¹³⁷ In particular, the rapid growth of Uber hinges on important, dramatic reductions in both fixed and marginal costs.¹³⁸ Think about what a taxi ride requires: a way to match rider and driver, a driver, a car, gasoline, insurance. Some of these are relatively fixed, first-unit costs—you need a system for matching drivers and riders, and a car—others vary more

133. See Benjamin Means & Joseph A. Seiner, *Navigating the Uber Economy*, 49 U.C. DAVIS L. REV. 1511 (2016) (setting forth an approach to classifying sharing-economy workers within existing labor law); Brishen Rogers, *The Social Costs of Uber*, 82 U. CHI. L. REV. DIALOGUE 85, 100–102 (2015) (discussing Uber's relationship to, and potential effect on, labor standards).

134. See Jennie Davis, Note, *Drive at Your Own Risk: Uber Violates Unfair Competition Laws by Misleading UberX Drivers About Their Insurance Coverage*, 56 B.C. L. REV. 1097, 1106–08 (2015) (describing insurance coverage gaps—allegedly exacerbated by Uber's own policies—that put drivers at risk of becoming uninsured tortfeasors).

135. See Salil K. Mehra, *Antitrust and the Robo-Seller: Competition in the Time of Algorithms*, 100 MINN. L. REV. 1323 (2016) (discussing antitrust complaints about Uber's pricing algorithm).

136. Douglas MacMillan & Telis Demos, *Uber Valued at More than \$50 Billion*, WALL ST. J., <http://www.wsj.com/articles/uber-valued-at-more-than-50-billion-1438367457> [<https://web.archive.org/web/20160615035447/http://www.wsj.com/articles/uber-valued-at-more-than-50-billion-1438367457>] (last updated July 31, 2015, 8:50 PM).

137. See, e.g., Rogers, *supra* note 133, at 86–91 (observing that Uber seems to have created a “functioning market for car-hire services” that avoids the high search costs and monopoly rents of traditional taxi services, but listing other social costs involving labor law issues, discrimination, and privacy violations that Uber may facilitate or commit).

138. See Benjamin G. Edelman & Damien Geradin, *Efficiencies and Regulatory Shortcuts: How Should We Regulate Companies Like Airbnb and Uber?*, 19 STAN. TECH. L. REV. 293, 295–96 (2016) (observing that “key efficiencies” of firms like Uber, Lyft, and Airbnb stem in part from avoidance of fixed costs of traditional service).

with each ride, such as gasoline and driver-hours worked.¹³⁹ What Uber reveals is a tremendous amount of idle capacity. America's cars are used on average one hour per day, and millions of underemployed Americans possess available time and driver's licenses.¹⁴⁰ Like other "sharing economy" enterprises that seize on idle capacity,¹⁴¹ Uber's app-based platform drives down fixed and first-unit costs, as well as marginal costs of providing rides, through the use of the smartphones that almost two-thirds of Americans already carry¹⁴² and the absorption of idle capacity in cars and drivers.

Additionally, Uber's challenge to the traditional taxi industry raises questions about traditional taxi regulation. Much of this regulation is conducted by state and local government, and in some American cities, regulators have complicated the operations of ride-sharing services,¹⁴³ or even prohibited them.¹⁴⁴ Similarly, in Europe, Uber has been banned in some cities.¹⁴⁵ As would be predicted by George Stigler's classic theory of regulation,¹⁴⁶ well-organized incumbent taxi companies have worked with captured regulators to aggressively fight Uber and other ridesharing insurgents.¹⁴⁷ Concentrated economic interests—in this case incumbent taxi companies—lobby regulators to use state power to maintain entry barriers and artificial scarcity that

139. See generally *id.* at 297–99 (noting cost efficiencies of Uber).

140. Daniel E. Rauch & David Schleicher, *Like Uber, but for Local Government Law: The Future of Local Regulation of the Sharing Economy*, 76 OHIO ST. L.J. 901, 917 (2015); see also April Rinne, *How Shareable Is Your City?*, COLLABORATIVE CONSUMPTION (Oct. 25, 2013), <http://www.collaborativeconsumption.com/2013/10/25/how-shareable-is-your-city> [<https://perma.cc/7EPT-DP38>] (observing that "[w]e think nothing of cars that sit idle 23 hours a day"); Jordan M. Barry & Paul L. Caron, *Tax Regulation, Transportation Innovation, and the Sharing Economy*, 82 U. CHI. L. REV. DIALOGUE 69, 80–81 (2015) (citing data showing that "[t]he vast majority of American commuters get to work by driving in a car, alone" and that the availability of "car sharing reduces total vehicle ownership").

141. Rauch & Schleicher, *supra* note 140, at 917.

142. Aaron Smith, *U.S. Smartphone Use in 2015*, PEW RES. CTR. 2 (Apr. 1, 2015), <http://www.pewinternet.org/2015/04/01/us-smartphone-use-in-2015> [<https://perma.cc/LD4D-JGGQ>] ("[N]early two-thirds of Americans own a smartphone.").

143. See Christopher Bonanos, *Hail Storm*, N.Y. (July 31, 2014), <http://nymag.com/news/features/taxis-2014-7> [<https://perma.cc/2H9G-FARP>] (noting that New York has required taxi licenses for Lyft to operate).

144. E.g., Maryclaire Dale, *Uber Gets OK for Much of Pennsylvania, Not Philly*, CNS NEWS (Nov. 13, 2014, 2:35 PM), <http://www.cnsnews.com/news/article/uber-gets-ok-much-pennsylvania-not-philly> [<https://perma.cc/BX5C-ZXS6>] (reporting that Pennsylvania's Public Utility Commission, though considering a ban, allowed UberX to operate on a conditional basis throughout most of the state—but that drivers in Philadelphia were subject to fines).

145. E.g., Jeevan Vasagar, *Uber Taxi Service Suffers Setback in Berlin*, FIN. TIMES (Apr. 17, 2014, 10:19 AM), <https://www.ft.com/content/1591faf2-c638-11e3-ba0e-00144feabdc0#axzz387TxWRMa>.

146. See George J. Stigler, *The Theory of Economic Regulation*, 2 BELL J. ECON. & MGT. SCI. 3, 5 (1971) ("[E]very industry or occupation that has enough political power to utilize the state will seek to control entry [and] to retard the rate of growth of new firms.").

147. See Rauch & Schleicher, *supra* note 140, at 904, 927.

ultimately hurts consumers.¹⁴⁸ In Philadelphia, evidence has emerged that the Philadelphia Parking Authority (PPA), a local government agency that regulates taxicabs in addition to parking, has hired its own lobbyists to influence the state legislature not to legalize Uber in the city, while simultaneously organizing taxi companies to run undercover stings on Uber drivers and reporting them to police, in large part to preserve the value of the taxi licenses (medallions) from which the PPA generates revenue.¹⁴⁹ Remarkably, the PPA has justified this action based on a sense of “fairness” to licensees (medallion holders). Unfortunately for believers in the underlying rationale for antitrust law, the PPA does not seem to have weighed the possibility that consumer welfare might outweigh taxi companies’ cost recovery and the impact to the PPA’s own revenue.¹⁵⁰

But regulatory responses such as those shown in the Uber example could have repercussions beyond reductions in supply and the generation of cartel rents in a static sense. Specifically, the potential for incumbents to influence the use of state power to “anti-disrupt” firms that drive down cost through technological change could cause real harms to dynamic growth and innovation. While Uber and Airbnb¹⁵¹ have managed to create successful businesses despite their challenges to incumbent taxi companies and hoteliers, respectively, they have faced state-powered anti-disruption. And analogous to post-Napster IP rights holders, the next set of incumbents will be further forewarned and might be better forearmed against disruptive insurgents.¹⁵² In short, while the overall relationship between government and innovation is beneficial, incumbent-protecting application of existing regulation to thwart technology-driven cost reductions seems arguably bad for consumers.¹⁵³

148. Emily Badger, *The Taxi Industry Is Crushing Uber and Lyft on the Lobbying Front, 3,500 to 1*, WASH. POST: WONKBLOG (July 31, 2014), <https://www.washingtonpost.com/news/wonk/wp/2014/07/31/the-taxi-industry-is-crushing-uber-and-lyft-on-the-lobbying-front-3500-to-1> [<https://perma.cc/F39N-8TWY>].

149. William Bender, *Emails: Parking Authority Worked with Taxis to Stop Uber*, PHILLY.COM (Jan. 29, 2016), http://articles.philly.com/2016-01-29/news/70154082_1_uberx-ppa-taxi-industry [<https://perma.cc/XY9D-KDHE>] (reporting that “emails obtained by the Daily News” show that the parking authority, which has “[a]n inherent conflict of interest” as it “collects millions of dollars a year in taxicab-related fees” and license (medallion) sales, “teamed with the taxi industry it regulates in an effort to ensure that ride-sharing services remain illegal in Philadelphia”).

150. See Vince Fenerty, *Safety, Fairness Drive PPA Ride-Share Concerns*, PHILLY.COM: THINK TANK (Feb. 1, 2016, 1:37 PM), <http://www.philly.com/philly/blogs/thinktank/Safety-fairness-drive-PPA-ride-share-concerns.html> [<https://perma.cc/JW8D-BYX2>] (head of PPA writing that its actions vis-à-vis Uber and its competitors are driven in part by the need for “fair competition” and the “interests of all impacted parties”).

151. See Winkler & MacMillan, *supra* note 38.

152. See generally Desai & Magliocca, *supra* note 11 (describing the effects of digitization and noting multiple industries that have already been affected).

153. See Sofia Ranchordás, *Innovation Experimentalism in the Age of the Sharing Economy*, 19 LEWIS & CLARK L. REV. 871 (2015) (describing the argument that state

In sum, the example of Uber shows how disruptive technology can reduce costs, creating efficiencies that can improve social welfare, but also how state power can be used to aid incumbents. Critically, these anticompetitive actions not only create an artificial scarcity that injures consumer welfare in a static sense, but also reduce the incentives for insurgents to generate dynamic changes in the future by entering markets and driving down fixed and marginal costs. This kind of state-sponsored anti-disruption inhibits the process by which a post-scarcity society might arrive. As a result, the United States will have to implement competition law and policy that addresses both effects on innovation and the use of state power. Neither will be easy.

B. *Artificial Scarcity and the State*

As discussed previously, IP scholars have been the “first movers” in addressing the implications of a post-scarcity society. Their analyses have been driven in part by IP’s recent experience with disruptive innovation-driven cost reductions—most notably with Napster and music file sharing.¹⁵⁴ But IP scholars have also had to reconsider intellectual-property law’s use of state power to enforce artificial scarcity. As these scholars have recognized, if innovation, production, and distribution of IP do not require the same degree of artificial scarcity as an incentive in the future, then such use of state power begins to look more like an abuse of the citizenry.¹⁵⁵

With this concern for potential unjustified, state-enforced artificial scarcity, antitrust should also reconsider its role. And indeed, antitrust should address attempts to use IP to maintain scarcity in a post-scarcity world. Such a role will be one that American antitrust law has often sought to avoid—though competition law elsewhere has developed to more actively address anticompetitive restraints stemming from the power of the state. Additionally, and less controversially, antitrust’s role in a post-scarcity world may involve a much stronger commitment to competition advocacy—that is, speaking up for the values of competitive markets and voicing critiques of state actions that injure consumer welfare.¹⁵⁶ In particular, American antitrust enforcers may need to be more aggressive in holding IP- or innovation-based regulation and rationales to more rigorous mean-ends tests. But there is also lower-hanging fruit: regulation aside from IP law can be used to maintain artificial scarcity long after the incentive goals of existing IP law have been satisfied, as can be seen from the Uber exam-

regulation tends to inhibit sharing-economy innovations that threaten traditional incumbents).

154. See generally Desai & Magliocca, *supra* note 11 (describing disruptive innovation’s effect on multiple industries, including the music-distribution industry).

155. See *supra* Section II.B (discussing this scholarship).

156. See Lemley, *supra* note 11 (questioning the role of IP as a competition stiffer in post-scarcity world).

ple and has recently been seen in connection with the generic drug Daraprim, in which FDA trial regulations create exploitable market power, with harmful effects on consumer welfare.¹⁵⁷

However, concern about state-powered artificial scarcity goes beyond not only IP law; it also goes beyond the traditional objects of IP. In fact, state power and regulation can be used to create scarcity for other goods and services.¹⁵⁸ Indeed, the use of sovereign authority to do so animated some of the earliest competition laws—law has long recognized that the use of state power to artificially generate scarcity is particularly harmful.¹⁵⁹

Harking back to the Williamson model discussed *supra* in Section III.A, when a monopolist or an oligopoly lobbies the state to help increase producers' market power, the losses are greater than simply the deadweight loss triangle familiar to economics students. Additionally, profit-maximizing firms should be willing to spend some of their supracompetitive profit to induce the state to help the firms acquire or retain market power; taking into account this political-economic reality, the offsetting gain in the Williamson model is thus overstated.¹⁶⁰

As a result, state-fostered artificial scarcity may require American antitrust law to become more like competition law in other parts of the world. In some of the largest world economies, such as those of China and the EU, the competition-law regime explicitly and actively regulates the use of state power in anticompetitive ways.¹⁶¹ By contrast, American antitrust law contains broad judge-made exceptions that greatly narrow its ability to deal with state power.¹⁶² The move towards post-scarcity conditions plus the increasing incentive for incumbents to lobby for state-powered artificial scarcity may require antitrust law to reconsider and to reach government anticompetitive action more broadly. This will be a difficult challenge, but not one without precedent, fortunately.

157. See Andrew Pollack, *Big Price Increase for Tuberculosis Drug Is Rescinded*, N.Y. TIMES (Sept. 21, 2015), <http://www.nytimes.com/2015/09/22/business/big-price-increase-for-tb-drug-is-rescinded.html> (discussing how a large U.S. price hike for Daraprim, a drug manufactured by a single U.S. company, could easily be undercut by imports from countries where it is made and sold much more cheaply, but for the regulatory burden that makes such importation infeasible).

158. See *supra* Section IV.A.

159. See, e.g., Statute of Monopolies 1623, 21 Jac. 1 c. 3 (Eng.), <http://www.legislation.gov.uk/aep/Ja1/21/3> [<https://perma.cc/NSL8-JCZT>].

160. See HOVENKAMP, *supra* note 94, at § 12.2b.

161. See Salil K. Mehra & Meng Yanbei, *Against Antitrust Functionalism: Reconsidering China's Antimonopoly Law*, 49 VA. J. INT'L L. 379, 416–23 (2009) (discussing the competition-law approach to anticompetitive state action in China and the EU).

162. See Jim Rossi, *Political Bargaining and Judicial Intervention in Constitutional and Antitrust Federalism*, 83 WASH. U. L.Q. 521, 545–46 (2005) (describing judicial deference to states under antitrust immunity based on federalism concerns).

C. Prescriptions

Despite—or arguably because of—a general political atmosphere that leans towards free-market economics, American antitrust law currently takes a “hands off” approach towards state interference with markets.¹⁶³ Given this tendency, together with a lack of judicial experience with a post-scarcity economy, any policy proposals must be somewhat tentative. Nonetheless, there are two ways in which American antitrust can evolve that may reduce attempts at state-driven artificial scarcity that do not involve drastic changes with potentially major unforeseen consequences.

First, courts should move towards more substantive review of economic regulation. Notably, the federal courts of appeal are currently split with respect to whether “naked economic protectionism” is justification enough to satisfy rational-basis review,¹⁶⁴ and this has led to a robust scholarly debate on the question.¹⁶⁵ While a full treatment of this discussion is beyond the scope of an antitrust-focused article, the considerations discussed previously about the transition to a post-scarcity economy counsel that, all things being equal, this question should be answered in the negative. Moving the review of “naked economic protectionism” in this direction may be particularly important since, as production costs fall towards zero, the relative benefits of investing in attempts to drive fixed or marginal costs down will start to pale in comparison to investments in lobbying to garner favorable artificial-scarcity creating regulation.

Additionally, and more broadly, the realization of a post-scarcity society may require a high degree of competition advocacy. In particu-

163. See FED. TRADE COMM’N OFF. POL’Y PLAN., REPORT OF THE STATE ACTION TASK FORCE (2003), https://www.ftc.gov/sites/default/files/documents/advocacy_documents/report-state-action-task-force/stateactionreport.pdf [<https://perma.cc/BP2Q-MXN3>] (thoroughly reviewing state-action cases and concluding that courts’ unsettled and expansive reading of antitrust immunity for state action had undeservingly shielded substantial anticompetitive conduct).

164. Compare *St. Joseph Abbey v. Castille*, 712 F.3d 215, 226–27 (5th Cir. 2013) (striking down exercise of state power based on naked economic protectionism), and *Craigsmiles v. Giles*, 312 F.3d 220, 229 (6th Cir. 2002) (same), with *Sensational Smiles, LLC v. Mullen*, 793 F.3d 281, 284–86 (2d Cir. 2015) (upholding exercise of state power based on naked economic protectionism), and *Powers v. Harris*, 379 F.3d 1208, 1225 (10th Cir. 2004) (same).

165. See Steven Menashi & Douglas H. Ginsburg, *Rational Basis with Economic Bite*, 8 N.Y.U. J.L. & LIBERTY 1055 (2014) (approving of the appearance of “rational basis with bite” in lower courts, in which they invalidate acts of naked economic protectionism); Randy E. Barnett, *Scrutiny Land*, 106 MICH. L. REV. 1479, 1495 (2008) (suggesting that the Court’s approach to rational-basis review in *Lawrence v. Texas* was a departure from the norm that could be applied in the future to create a “presumption of liberty” usable in economic-liberty cases); Cass R. Sunstein, *Naked Preferences and the Constitution*, 84 COLUM. L. REV. 1689, 1695–96 (1984) (advocating a more tolerant approach towards naked economic protectionism); see also Aaron Edlin & Rebecca Haw, *Cartels by Another Name: Should Licensed Occupations Face Antitrust Scrutiny?*, 162 U. PA. L. REV. 1093 (2014) (considering what amounts to naked protectionism for licensed occupations and the relevant antitrust implications).

lar, antitrust agencies should adopt stronger policies of speech and discussion regarding legislation and regulation that may tend to thwart cost-reducing disruptive technology. This is particularly important for those technologies—such as Internet-based mass collaboration—that do not have built-in advocates in the form of IP rightsholder political lobbies. The federal antitrust agencies are well placed to do this advocacy; they possess institutional strengths such as economic and industry knowledge, and they also have developed a reputation for technocracy that buffers them to a degree from political interference.¹⁶⁶ Much as federal authority guides and creates norms for local policy in law enforcement, education, and other areas, it may also do so regarding local economic regulation that creates artificial scarcity.¹⁶⁷ Furthermore, some attempts at warning that include an appraisal of regulatory costs—in the manner of the Office of Information and Regulatory Affairs (OIRA) for example—may be particularly useful in making competition advocacy in this regard more digestible for legislators, regulators, stakeholders, and the public at large.¹⁶⁸

V. CONCLUSION

Cast ye up, cast ye up, prepare the way, take up the stumblingblock
out of the way of my people.¹⁶⁹

The idea of a post-scarcity economy may sound a bit Panglossian, and competition law might not be the first thing most would associate with a potential material paradise on Earth. Admittedly, such a society would involve more changes, and probably more legal changes, than competition law reforms. As other commentators have noted,¹⁷⁰ areas of law such as copyright and patent might also require significant change. Indeed, the nature of a post-scarcity society might raise questions about whether such legal regimes would increasingly be used to maintain artificial scarcity rather than encourage technological progress. Still, as this Article has argued, the real challenge of techno-

166. Daniel A. Crane, *Technocracy and Antitrust*, 86 TEX. L. REV. 1159 (2008) (discussing development and policy shifts leading to the development of a technocracy in antitrust enforcement).

167. See, e.g., Press Release, U.S. Att'y's Office, N. Dist. Cal., Fed., State and Local Officials Band Together to Combat Bullying (Sept. 14, 2012), http://www.justice.gov/archive/usao/can/news/2012/2012_09_14_stopbullyingsummit.press.html [<https://perma.cc/UM5J-YPVT>] (discussing DOJ Civil Rights Division initiative guiding local government in an area involving both law enforcement and education).

168. See John M. Broder, *Powerful Shaper of U.S. Rules Quits, with Critics in Wake*, N.Y. TIMES (Aug. 3, 2012), <http://www.nytimes.com/2012/08/04/science/earth/cass-sunstein-to-leave-top-regulatory-post.html> (describing OIRA's role in providing regulatory burden cost-benefit analysis regarding acts of federal government).

169. *Isaiah* 57:14 (King James).

170. See Lemley, *supra* note 11; Desai & Magliocca, *supra* note 11; Beebe, *supra* note 18.

logical abundance may be the transition away from a traditional economy. Competition law for a post-scarcity society requires activity in the near term to counteract both private and state anti-disruption; it will fall on competition law to oppose forces that would prevent such a world from being realized. As this Article has discussed, under the standard cost-benefit rubric under which antitrust law has been analyzed for the past several decades, a revitalized antitrust law seems a small price to pay to transition to a world where marginal and fixed costs approach zero, and material needs are largely met. Keynes's dream¹⁷¹ is worth some reevaluation and re-energization of antitrust law.

171. See KEYNES, *supra* note 19.

