

COMPULSORY LICENSING: AN UNDERRATED ANTITRUST REMEDY



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Compulsory Licensing: An Underrated Antitrust Remedy

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Restoring Antitrust, Restoring Competition

By John E. Kwoka



Antitrust and Tech: Europe and the United States Differ, and it Matters

By Gregory J. Werden & Luke M. Froeb



Vertical Media Mergers: An Anatomy of Two Cases in Portugal

By Ana Sofia Rodrigues



Business Models, Incentives, and Theories of Harm

By Cristina Caffarra



CADE and the Challenges of the Digital Economy

By Patricia Alessandra Morita Sakowski & Christine Park



Identifying Empirically the Extent of Economic Analysis and the Legal Standards Applied in Antitrust Enforcement: A Methodology

By Yannis Katsoulacos



Why Common Shareholdings Should Not be Considered in Merger Analysis

By A. Neil Campbell



“Multi-Homing by all Means”: Russian Competition Policy Towards Digital Platforms

By Svetlana Avdasheva



The Evolution of Competition Law in Digital Markets in India

By Augustine Peter & Neha Singh



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I. INTRODUCTION

What antitrust action had the most significant positive impact on the welfare of American consumers? I expect many would nominate the Modified Final Judgment in *U.S. v. AT&T*, which cleaved the sprawling Bell System (AT&T and its subsidiaries) into Regional Bell Operating Companies, a long-distance company, and separate manufacturing and R&D facilities. Others might choose the breakup of the U.S. petroleum industry that resulted from *U.S. v. Standard Oil* or the antitrust case brought by the Department of Justice (“DOJ”) and several states against Microsoft.

These cases deserve to be on a list of greatest antitrust hits. But I expect that few would call out one of my favorites: A provision in a 1956 consent decree that settled an antitrust case filed by the DOJ against AT&T which required AT&T to offer royalty-free licenses to nearly all of its existing U.S. patents and to license future patents on a non-discriminatory basis to all applicants upon the payment of reasonable royalties, provided that the licensees offer licenses at reasonable royalties to their own relevant patents in return.² In 1956 AT&T and its subsidiaries owned more than 7800 patents that covered many basic and applied technologies, including transistors, cellular telephony, switching, solar cells, and the laser. While the Bell System companies might have licensed their patents without the consent decree,³ that was not assured, and the broad compulsory license eliminated potential barriers to competition and innovation for a wide range of technical applications.⁴

2 The antitrust case sought to separate AT&T from its manufacturing subsidiary Western Electric and to confine AT&T to basic telephone services. The settlement did not divest Western Electric from AT&T, but precluded the company from manufacturing equipment other than that used by the Bell System, and enjoined AT&T from engaging in any business other than furnishing common carrier communications services. See “Report of the Antitrust Subcommittee of the Committee on the Judiciary,” House of Representatives, Eighty-Sixth Congress, first session, January 30, 1959 at 351.

3 In 1956, AT&T had existing cross-licensing arrangements with General Electric, RCA, and Westinghouse. *Ibid.* at 353.

4 In the same year, a consent decree that settled a case brought by the DOJ against IBM required that IBM grant licenses at a reasonable royalty to its patents on tabulating and electronic data processing machinery, conditional on agreements by the licensees to license their own patents. *U.S. v. International Business Machines*, Final Judgment, U.S. District Court for the Southern District of New York, January 25, 1956.

Gordon Moore, a co-founder of Intel, affirmed that the 1956 decree was “one of the most important developments for the commercial semiconductor industry.”⁵ Peter Grindley and David Teece added unequivocally that “[AT&T’s licensing policy shaped by antitrust policy] ... remains as one of the most unheralded contributions to economic development – possibly far exceeding the Marshall plan in terms of the wealth generation capability it established abroad and in the United States.”⁶ Others have credited the consent decree for facilitating the success of the Unix operating system.⁷

Another antitrust action that deserves honorable mention is the 1975 consent decree that settled allegations by the Federal Trade Commission (“FTC”) that Xerox had monopolized the market for plain paper copiers. In the settlement, Xerox agreed to offer nonexclusive licenses for any three of its plain paper copier patents at no royalty and to license other patents with a maximum royalty of 1.5 percent of the licensee’s sales.⁸

The FTC case is unusual because it did not allege that Xerox engaged in the kind of exclusionary conduct that is necessary under current antitrust policy to sustain liability for monopolization. Willard Tom wrote in reference to the complaint that “A group of extremely talented people of obvious dedication and good will took a course that, with a quarter-century of hindsight, seems in good measure to have been wrong.”⁹ However, he added that “More deeply, the case is unsettling because, for all the case’s flaws, the FTC’s remedy actually seems to have done quite a bit of good, by breaking up a ‘killer patent portfolio’ that threatened to insulate Xerox from competition, not for seventeen years, but forever, bringing with it the sluggish unimaginativeness long thought characteristic of monopoly.”¹⁰

Competition and innovation flourished for plain paper copiers following the 1975 consent decree. Although Xerox was an innovative company before the consent decree, its innovations were mainly limited to technological advances in the quality and speed of reproduction. After 1975, new entrants brought changes of a different character, including document feed devices (the Kodak 150) and the “convenience copier” (the Savin 750), which was a new product market that Xerox had ignored.¹¹

The 1956 AT&T consent decree and the 1975 Xerox consent decree demonstrate benefits from compulsory licensing for competition and innovation. Nonetheless, these are only anecdotes and there is a common view that antitrust enforcement should shun compulsory licensing as a remedy for monopolization because it severely undermines incentives for innovation. Is this a correct presumption? The next section reviews several empirical studies that have examined the consequences of compulsory licensing for innovation.

II. DOES COMPULSORY LICENSING STIFLE INNOVATION?

Martin Watzinger, Thomas Fackler, Markus Nagler, and Monica Schnitzer conducted a systematic analysis to assess the impact of the 1956 AT&T consent decree on industry innovation. The decree compelled the licensing of a large number of patents in a wide range of patent classes, which allowed the authors to estimate the impact of the decree on future patenting in patent classes that were subjected to compulsory licensing relative to classes in which there was no compulsory licensing. The authors found an increase of about 25 percent in the total number of patents filed in fields affected by compulsory licensing compared to patents filed in fields with no compulsory licensing obligations, most of which was driven by small firms and new entrants. Total innovation, measured by patents filed and citations to filed patents, increased following the 1956 AT&T decree, although the increase did not occur in the telecommunications industry where regulatory barriers protected AT&T from competition.¹²

5 National Research Council, “Capitalizing on New Needs and New Opportunities: Government-Industry Partnerships in Biotechnology and Information Technologies,” The National Academies Press (2001) at 86.

6 Peter C. Grindley & David J. Teece, “Licensing and Cross-Licensing in Semiconductors and Electronics,” 39 Cal. Mgmt. Rev. 8, 13 (1997).

7 See Matthew Lasar, “The Unix revolution – thank you Uncle Sam?,” Ars Technica, July 19, 2011, available at <https://arstechnica.com/tech-policy/2011/07/should-we-thank-for-feds-for-the-success-of-unix/>, accessed August 19, 2019.

8 *In the Matter of Xerox Corporation*, Docket 8909, Decision, July 29, 1975, 86 F.T.C. 370.

9 Willard Tom, “The 1975 Xerox Consent Decree: Ancient Artifacts and Current Tensions,” 68 Antitrust L. J. 967, 989 (2001).

10 *Ibid.* at 967-968.

11 Timothy Bresnahan, “Post-Entry Competition in the Plain Paper Copier Market,” 75 Amer. Econ. Rev. 15, 18 (1985).

12 Martin Watzinger, Thomas A. Fackler, Markus Nagler, & Monika Schnitzer, “How Antitrust Enforcement Can Spur Innovation: Bell Labs and the 1956 Consent Decree,” (January 2017). CEPR Discussion Paper No. DP11793. Available at SSRN: <https://ssrn.com/abstract=2904315>.

Other studies have shown that strong patent rights can suppress follow-on innovation, and conversely, that eliminating patent protection can stimulate follow-on innovation. An event that is similar to a zero-royalty compulsory license is a judicial determination that an existing patent is invalid. Alberto Galasso and Mark Schankerman examined how such invalidations affected citations to the extinguished patent, which are a measure of innovations that build on the invalidated patents. They found that, on average, a determination of invalidity increases citations to the invalidated patent by 50 percent. The effects varied by industry and were almost entirely driven by increases in the number of small firms that subsequently cited invalidated patents owned by large firms.¹³ These results are consistent with the study of the ramifications from the 1956 AT&T consent decree and suggest that strong patent rights strengthen dominant firms and deter follow-on innovations by small firms and new entrants.

Petra Moser and Alessandra Voena found a similar result in a different context. Congress passed the Trading With The Enemy Act in 1917, which permitted U.S. firms to violate enemy-owned patents if they contributed to the war effort. In 1919 Congress strengthened the Act to effectively confiscate all German-owned patents; in effect, a compulsory license at a zero royalty. These zero-cost compulsory licenses had short-term benefits for U.S. firms and consumers, but they might have reduced incentives for U.S. firms to innovate around the affected German patents. Instead, Moser and Voena found that the number of patents granted to U.S. inventors in technological fields with at least one confiscated German patent increased by an average of about 20 percent relative to patents granted to U.S. inventors in similar fields that did not have confiscated patents, although the increase required several years to achieve its full impact.¹⁴

What about innovation incentives for the firms that were compelled to license their intellectual property? In a subsequent study of the effects of the Trading With The Enemy Act, Joerg Batena, Nicola Bianchid, and Petra Moser showed that German firms increased their investment in research and development (“R&D”) and generated 30 percent more patents after their intellectual property was confiscated.¹⁵ Compulsory licensing appeared to have had a positive effect on innovation by the firms that were compelled to license their patents. Colleen Chien examined the effects of compulsory licensing orders in six merger consent decrees to determine whether the firms that were required to license their intellectual property subsequently reduced their efforts to patent new discoveries. She found no significant reduction in five of the six cases, and noted that the outlier faced uncertainty caused by a delay in finding a divestiture recipient.¹⁶ My own work uncovered other examples of compulsory licensing in merger consent decrees with no significant adverse effects on industry innovation.¹⁷ An earlier study found that firms that were the targets of compulsory licensing in antitrust consent decrees subsequently filed fewer patents but did not reduce their investment in R&D.¹⁸

Most law and economics scholars, including this author, recognize the benefits from intellectual property rights and would strongly oppose a proposal for widespread compulsory licensing.¹⁹ Frequent interventions to compel the licensing of intellectual property would undermine innovation incentives. Furthermore, compulsory licensing often requires a court or enforcement agency to act as a regulator to determine royalties and other licensing terms and to monitor compliance.²⁰ Moreover, licensing may not promote competition and follow-on innovation unless it is paired with support to transfer related know-how, which can engender protracted disputes over its cost and the necessary scope, depth, and time-frame for assistance, and can be difficult to administer. An additional objection is that compulsory licensing can harm competition in some situations. Compulsory licensing may allow, or indeed require, firms to share sensitive information that can make it easier for rivals to collude either explicitly or tacitly and may encourage firms to enter into cross-licensing arrangements with other incumbents that raise entry barriers for new competitors.

13 Alberto Galasso & Mark Schankerman, “Patents and Cumulative Innovation: Causal Evidence from the Courts,” 130 Qtrly. J. Econ 317 (2014).

14 Petra Moser & Alessandra Voena, “Compulsory Licensing: Evidence from the Trading With The Enemy Act,” 102 Amer. Econ. Rev. 396 (2012).

15 Joerg Batena, Nicola Bianchid, & Petra Moser, “Compulsory Licensing and Innovation – Historical Evidence from German Patents After WWI,” 126 J. Dev. Econ. 231 (2017).

16 Colleen Chien, “Cheap Drugs at What Price to Innovation: Does the Compulsory Licensing of Pharmaceuticals Hurt Innovation?,” 18 Berkeley Tech. L. J. 853 (2003).

17 Richard J. Gilbert, “Innovation Matters: Competition Policy for the High-Technology Economy,” MIT Press (forthcoming), Chapter 7.

18 F.M. Scherer, “The Economic Effects of Compulsory Licensing,” New York University Monograph Series in Finance and Economics (1977).

19 Not everyone subscribes to the view that intellectual property rights are necessary to promote innovation. See, e.g. Michele Boldrin & David K. Levine, “Against Intellectual Monopoly,” Cambridge University Press (2008).

20 The Supreme Court warned that mandatory dealing (such as compulsory licensing) “requires antitrust courts to act as central planners, identifying the proper price, quantity, and other terms of dealing—a role for which they are ill-suited.” *Verizon Communs., Inc. v. Law Offices of Curtis V. Trinko, LLP*, 540 U.S. 398, 406 (2004).

Reforms such as raising the innovation thresholds for patentability, which would limit the ability to use intellectual property to erect barriers to competition without compensating benefits for innovation, would be superior to compulsory licensing. Absent such reforms, objections to compulsory licensing do not contradict its utility as an occasional remedy for competition concerns, including concerns about monopolization. There is a tradeoff between the benefits from patent protection to incentivize frontier innovations and its costs for follow-on innovations that infringe patented discoveries. There is little evidence of harm from past instances of compulsory licensing and considerable evidence that many of these instances have promoted innovation for products and services that build on the licensed technologies.

III. COMPULSORY LICENSING FOR THE MODERN ECONOMY

Does compulsory licensing have a role to address concerns about persistent monopoly in the modern economy? Experience from antitrust enforcement against Microsoft demonstrates benefits and costs from compulsory licensing obligations. The 2002 consent decree that settled the U.S. antitrust case against Microsoft had two provisions related to compulsory licensing. Section III.D required Microsoft to disclose certain application programming interfaces (“APIs”) that software developers can use to invoke Windows features or functions. Section III.E required Microsoft to license the communications protocols that the Windows client uses to communicate with Windows server operating systems.²¹ In 2004 the European Commission ordered Microsoft to offer to potential rivals, with no expiration date, “complete and accurate specifications for the protocols used by Windows workgroup servers in order to provide file, print, and group and user administration services to Windows work group networks”²² and to license them at reasonable and non-discriminatory terms.²³

Microsoft complied with the API disclosure obligations and arguably went further by making interface information available for all of its high volume products, such as Office and Exchange, that are called by any other Microsoft product,²⁴ but plaintiffs objected to insufficient disclosure and costly licensing terms for the communications protocols.²⁵ Only a few dozen firms signed licenses for the communications protocols and only a handful of the licenses were for workgroup server products. In contrast, open source Linux-based operating systems for web servers and cloud applications found wide acceptance. These products succeeded because they are technically and economically efficient for these applications and they can be accessed from any browser using common internet standards.²⁶ Nonetheless, without the decree and its attendant enforcement, it is possible that Microsoft would have taken steps to frustrate interoperability. David Heiner, writing as Deputy General Counsel at Microsoft, explained Microsoft’s decision to support interoperability in part by the desire to attract developers to Microsoft’s platform and in part by ongoing competition law scrutiny.²⁷

The Microsoft experience suggests a cautionary role for compulsory licensing to address current competition concerns for the digital economy. There is much talk about “big data” as a barrier to entry, particularly for digital platforms such as Google and Facebook and as an input for activities such as artificial intelligence and research and development for new medicines. However, there are many obstacles to the use of compulsory licenses for data to remedy competition concerns.

21 *United States v. Microsoft*, Final Judgment, U.S. District Court for the District of Columbia, November 12, 2002 (modified September 7, 2006).

22 Commission of the European Communities, Commission Decision relating to a proceeding under Article 82 of the EC Treaty, Case COMP/C-3/37.792 *Microsoft*, April 21, 2004 at para. 999.

23 *Ibid.* at ¶ 1007.

24 Microsoft Corp., “Microsoft Open Specifications: Interoperability Principles,” available at <http://www.microsoft.com/openspecifications/en/us/programs/other/interoperability-principles/default.aspx>, accessed August 26, 2019.

25 Thousands of technical issues with the disclosures remained unresolved as late as 2010. See “U.S. v. Microsoft, Joint Status Report on Microsoft’s Compliance with the Final Judgments, U.S. District Court for the District of Columbia,” January 19, 2011.

26 See, e.g. William H. Page & Sheldon J. Childers, “Measuring Compliance with Compulsory Licensing Remedies in the American Microsoft Case,” 76 Antitrust L.J. 239, 256 (2009).

27 David A. Heiner, “Microsoft: A Remedial Success?,” 78 Antitrust L. J. 329, 340 (2012).

If enforcers compel firms to share data, they must define the relevant data, ensure that it is delivered in an interoperable format, and specify or provide a mechanism to determine the prices and other terms at which the relevant data is shared.²⁸ They also must specify the timing and required frequency of updates for shared data. Another issue is a determination of the applications for which shared data may be used. Suppose a competition authority or other regulatory agency concludes that Facebook must share its data to facilitate the entry of other social networks. A licensee might realize an unwarranted windfall by using the shared data for an entirely different application, such as a payments app, for which there is no finding of harm to competition.

Compulsory licensing obligations for data, if deemed appropriate, have to delineate the many parameters that define the sharing obligations and an enforcement agency has to monitor compliance. These tasks may be beyond the competence of a court or antitrust agency and may challenge the capabilities of even a dedicated regulatory authority.²⁹ Furthermore, compulsory sharing of data can raise critical privacy concerns and can create competitive hazards by facilitating collusion among firms that share similar data sources.

Another sector of the economy that may be considered as a candidate for compulsory licensing is the market for biologic drugs. Biologics are derived from living organisms and, unlike small molecule drugs, cannot be synthesized chemically. They are prescribed to treat serious medical conditions, many of which have no other therapeutic alternatives, including rare genetic disorders, autoimmune diseases, and cancers. And they are expensive, with an average price that can exceed \$100,000 per year. Because they are effective and expensive, biologics are the fastest growing segment of drug spending. Seven of the ten drugs with the highest worldwide sales in 2018 were biologics.³⁰ The top selling drug in 2018, the biologic immunosuppressive Humira (adalimumab), had almost \$20 billion in sales.³¹

Congress addressed competition for biologics when it passed the Biologics Price Competition and Innovation Act in 2009. The Act includes provisions for biologics that loosely parallel the Hatch-Waxman Act for small molecule drugs by creating an approval pathway for “follow-on biologics” that are biosimilar to or interchangeable with a pioneer reference drug in return for greater protections, including a 12 year period of data exclusivity for the pioneer drug. The U.S. Food and Drug Administration approved twenty-three biosimilars as of August 2019.³² Only a handful have been marketed. Most of the remainder have been held up by actual or threatened patent litigation.

Whereas small molecule drugs typically rely on only one or a few patents to prevent generic competition, many biologics have dozens of patents that cover the drug’s indications and methods of treatment, formulation, manufacturing processes, packaging, and other characteristics in addition to its basic composition. Many of these patents do not cover fundamental discoveries and others may not be valid or infringed by a biosimilar. Nonetheless, the patents can deter biosimilar competitors because they are costly to challenge and infringement, even if unlikely, would expose the challenger to large damages.

Humira illustrates the patent barrier to competition. Humira was approved for the treatment of rheumatoid arthritis at the end of 2002.³³ The drug’s first patent on its composition expired at the end of 2016, but more than seventy other patents continue to protect Humira from biosimilar competition in the U.S.³⁴ Europe has a smoother pathway for biosimilar approvals and a patent regime that is less favorable to patent owners. As a consequence, Humira biosimilars are already on the market in Europe, but they are not expected in the U.S. until no earlier than 2023.³⁵

28 See, e.g. Michael S. Gal & Daniel L. Rubinfeld, “Data Standardization,” 94 NYU L. Rev. (forthcoming, 2019).

29 See, e.g. Jacques Crémer, Yves-Alexandre de Montjoye & Heike Schweitzer, “Competition Policy for the Digital Era, Final Report to the European Commission” (2019) at 107. Available at <https://ec.europa.eu/competition/publications/reports/kd0419345enn.pdf>.

30 See Pharmaceutical Technology, “The Top Selling Prescription Drugs by Revenue,” May 21, 2019, available at <https://www.pharmaceutical-technology.com/features/top-selling-prescription-drugs/>, accessed August 31, 2019 and Center for Drug Evaluation and Research, List of Licensed Biological Products, available at <https://www.fda.gov/media/89589/download>, accessed August 31, 2019.

31 Abbvie 2018 Annual Report, available at <https://investors.abbvie.com/annual-report-proxy>.

32 U.S. Food and Drug Administration, FDA-Approved Biosimilar Products, available at <https://www.fda.gov/drugs/biosimilars/biosimilar-product-information>, accessed August 31, 2019.

33 “Humira Approval History,” Drugs.com, available at <https://www.drugs.com/history/humira.html>, accessed August 31, 2019.

34 Richard Gonzalez, *Abbvie Long-Term Strategy*, October 30, 2015, available at <https://investors.abbvie.com/static-files/af79eef2-5901-4b62-9354-982d2d95404e>.

35 Peter Loftis & Denise Roland, “By Adding Patents, Drugmaker Keeps Cheaper Humira Copies Out of U.S.,” Wall Street Journal, October 16, 2018.

Absent patent reforms that would limit protection for minor changes to a drug or its manufacture, compulsory licensing can be a useful tool to promote competition for biologics by allowing biosimilars to benefit from data collected by the pioneer drug and by breaking the patent logjam that protects many biologics from follow-on competition. Compulsory licensing would not expose innovators of biologics to ruinous competition because biologics are very costly to produce, which limits the number of biosimilars that can profitably compete against the reference drug.³⁶ Yet even small reductions in the prices of these drugs can generate large consumer savings. One study estimated that the failure to market FDA-approved biosimilars for twelve biologics as a consequence of actual and threatened patent litigation cost U.S. patients \$4.9 billion in 2018 alone.³⁷

Compulsory licensing can be imposed as a remedy for antitrust abuses or regulation could require compulsory licensing at reasonable royalties after the expiration of a biologic's basic patents or a minimum period of exclusivity, whichever is longer. The regulation could include provisions that would allow owners of biologics to obtain exemptions from compulsory licensing if changes to the drug or its manufacture add substantial value or if additional exclusivity is necessary to compensate research and development for new indications.

IV. CONCLUSIONS

Although antitrust enforcers sometimes compel the licensing of intellectual property as a remedy for mergers and acquisitions, there is a prevailing view that compulsory licensing is not an appropriate remedy for monopolization because the harm to innovation outweighs its benefits. Evidence paints a different picture. Dominant firms that have been compelled to license their intellectual property typically have not ceased to invest in research and development and the licenses often have promoted competition and innovation by firms that build on the licensed technologies.

Compulsory licensing has many limitations and it is inferior to reforms that would make it more difficult for firms to erect barriers to competition by patenting minor inventions or by exploiting a dominant position to amass other intellectual property, such as rights to data. Makan Delrahim, speaking as Deputy Assistant Attorney General in the DOJ, warned that "Before imposing [a compulsory licensing remedy in a unilateral conduct case], we would look for an extraordinary level of market dominance and a demonstrated history of monopolization and resistance to reform. In other words, we would look for a situation where the chief objections to compulsory licenses evaporate, because monitoring the defendant's behavior has *already* been demonstrated to be a problem and the harm to *other* innovation, by *other* competitors, trumps the alleged harm to the defendant's innovation incentives."³⁸ This is sound advice, but antitrust enforcers should keep compulsory licensing in their tool box to address abuse of market dominance as well as to remedy competition concerns for mergers.

³⁶ FTC, *Drug Product Selection: Staff Report to the Federal Trade Commission*, Bureau of Consumer Protection, January (1979).

³⁷ Biosimilars Council, "Failure to Launch: Patent Abuse Blocks Access to Biosimilars for America's Patients," June 2019.

³⁸ Makan Delrahim, "Forcing Firms To Share the Sandbox: Compulsory Licensing of Intellectual Property Rights and Antitrust," presented at the British Institute of International and Comparative Law London, England, May 10, 2004. (emphasis in original)



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