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Antitrust and Platform Monopoly

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I. INTRODUCTION

Should antitrust policy do more to promote competition in digital markets? The claim that antitrust is falling short comes from both left and right, but also provokes strong disagreement. How much of the call for action is a response to real competitive harm and how much to large firm size, personal animus, myopia, perceived political power, or something else is unclear. This is evidenced by the diverse responses to a House Judiciary Committee's request for recommendations concerning digital platform monopoly in early 2020.[1] Some believe that everything is fine and we should do nothing.[2] Others would drive through the industry with a power mower, breaking

[1] For my own response see Herbert Hovenkamp, *House Judiciary Inquiry into Competition in Digital Markets*, 15 May 2020 (available at https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3579693). The others include Testimony of James C. Cooper et al, 27 Apr 2020 (available at https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3584629); Testimony of Spencer Weber Waller, 29 Apr. 2020 (available at https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3567376); Testimony of D. Daniel Sokol, 4 May, 2020 (available at https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3592567); Testimony of Robert H. Lande, 20 May 2020 (available at https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3604116); Testimony of Thomas A. Lambert (17 Apr 2020) (available at https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3598601); Testimony of moderate academics, April 30, 2020 (available at https://equitablegrowth.org/wp-content/uploads/2020/04/Joint-Response-to-the-House-Judiciary-Committee-on-the-State-of-Antitrust-Law-and-Implications-for-Protecting-Competition-in-Digital-Markets.pdf); Testimony of conservative academics, 20 May 2020, available at https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3604374. See also *Digital Platforms and Antitrust*, YALE SCH. MGMT., https://som.yale.edu/faculty-research-centers/centers-initiatives/thurman-arnold-project-at-yale/digital-platforms-and-antitrust (last visited June 14, 2020).

[2] E.g., Testimony of Conservative Academics, *supra* note __.

the platforms up with very little thought about the impact on output or consumers.[3] One question underlying all of this is whether established economic science is sufficient to address competition problems in digital platforms, or are they so unique that we need an entirely different approach?

The Chicago School of antitrust in particular pushed a mindset that saw markets as all alike.[4] This leaves them toothless when confronted with something that behaves in unexpected ways. Others are more circumspect about appreciating that markets are institutions that can be quite different from one another. As a result, they require more specific fact finding rather than overly broad policy generalizations. Digital platforms are merely one of the variations. For example, in the *AmEx* case Justice Breyer in dissent was much more comfortable than the Court's majority in factual examination of the digital platform before it as a market.[5] The majority spoke mainly in generalities, largely ignored the record, and drew legal conclusions that are inconsistent with fundamental economic principles.[6] Antitrust law needs to treat digital platforms for what they are: markets that have some unique characteristics, but markets nonetheless.

A digital platform is a website, app or other digital venue that interacts commercially with one or more groups of users. Not every website is engaged in commercial activities; however, the antitrust

[3] E.g., Sophia Lam, *It's Time to Break Up Big Tech*, THE GATE (Oct. 20, 2019), http://uchicagogate.com/articles/2019/10/20/its-time-break-big-tech/. Somewhat more sensitive to the administrability question is Rory Van Loo, *In Defense of Breakups: Administering a "Radical" Remedy*, __ CORN. L. REV. 2020) (forthcoming), available at https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3646630.
[4]See Herbert Hovenkamp & Fiona M. Scott Morton, *Framing the Chicago School of Antitrust Analysis*, ___ PENN. L. REV. (2020) (forthcoming), available at https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3481388.
[5] Ohio v. American Express Co., 138 S. Ct. 2274 (2018) (Breyer, J. dissenting).
[6] See Herbert Hovenkamp, *Platforms and the Rule of Reason: the* American Express *Case*, 2019 COL. BUS. L. REV. 35 (2019).

laws apply only to commerce.[7] A "two-sided" digital platform is one that facilitates activities involving at least two different but interdependent groups of users. In some cases (Amazon, eBay, Uber, AmEx) transactions between these groups are negotiated directly on the website and there is a one-to-one correspondence between exchanges on the two sides. In other cases (Google Search, Facebook, Match.com, and most periodicals) users do not make commercial transactions directly with one another, but commercial transactions do support the platform as a profit center.

This paper first considers the extent to which competition is possible or desirable in markets dominated by digital platforms. Then it discusses the overall shape and form that competition rules for platforms should take. Notwithstanding overwhelming evidence to the contrary, digital platforms are often said to be "winner-take-all" markets.[8] For the great majority of them this is not the case, as we

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[7] See 1B PHILLIP E. AREEDA & HERBERT HOVENKAMP, ANTITRUST LAW ¶¶260-262 (5th ed. 2020).

[8] *See, e.g.*, Daniel A. Hanley, *A Topology of Multisided Digital Platforms*, 19 CONN. PUB. INT. L.J. 271, 289-290 (2020); Thomas R. Eisenmann, *Winner-Take-All in Networked Markets*, Harvard Business School Case Study (Feb. 21, 2006), available at https://store.hbr.org/product/winner-take-all-in-networked-markets/806131; Thomas Noe & Geoffrey Parker, *Winner Take All: Competition, Strategy, and the Structure of returns in the Internet Economy*, 14 J. ECON. & MGMT Strategy 141 (2005) (although excluding companies that sell products with a positive marginal cost, such as Amazon or eBay). Others are careful to limit the statement to markets subject to indirect network effects. *See*, *e.g.*, David S. Evans, *Antitrust Issues Raised by the emerging Global Internet Economy*, 102 NW. UNIV. L. REV. 1987, 2002 (2008) (platforms in markets subject to indirect network effects are "winner-take-all" or "a few winners take all"); Rob Frieden, *The Internet of Platforms and Two-Sided Markets: Implications for Competition and Consumers*, 63 VILLANOVA L. REV. 269 (2018); Patrick Barwise, *Nine Reasons Why Tech Markets are Winner-Take-All*, 29 LONDON BUS. SCHOOL REV. 54 (2018); K. Sabeel Rahman, *Regulating Informational Infrastructure: Internet Platforms as the New Public Utilities*, 2 GEO. L. TECH. REV. 234 (2018); K. Sabeel Rahman, *The New Utilities: Private Power, Social Infrastructure, and the Revival of the Public Utility Concept*, 39 CARDOZO L. REV. 1621 (2018). In the more popular literature, see

show.[9] Even assuming that some platforms are winner-take-all, however, the policy consequences are unclear. Winner-take-all status may entail less antitrust enforcement because the market is a natural monopoly in any event, and thus should be served by a single firm. Several older antitrust decisions embraced this view by recognizing a "natural monopoly defense" to antitrust actions.[10] Under this reasoning, natural monopoly status may indicate a need for regulation, such as we often apply to public utilities, but not antitrust enforcement.

Others believe natural monopoly status augers for increased antitrust enforcement, because the market itself will not discipline

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JONATHAN TAPLIN, MOVE FAST AND BREAK THINGS: HOW FACEBOOK, GOOGLE, AND AMAZON CORNERED CULTURE AND UNDERMINED DEMOCRACY (2017); SCOTT GALLOWA, THE FOUR: THE HIDDEN DNA OF AMAZON, APPLE, FACEBOOK, AND GOOGLE (2017); Zeynep Tufekci, *Google Buzz: The Corporation of Social Commons*, TECHNOSOCIOLOGY (Feb. 17, 2010). See also Ryan Grim, *Steve Bannon Wants Facebook and google regulated Like Utilities*, THE INTERCEPT (July 27, 2017), https://theintercept.com/2017/07/27/steve-bannon-wants-facebook-and-google-regulated-like-utilities/; Kristen E. Eichensehr, *Digital Switzerlands*, 167 U. PA. L. REV. 665 (2018) (private companies amassing as much power as governments have); Jack M. Balkin, *Information Fiduciaries and the First Amendment*, 49 U.C. DAVIS L. REV. 1186 (2016) (dominant control of data). For pushback, see David R. Keith & Hazhir Rahmandad, Are On-Demand Platforms Winner-take-All Markets?, 2019 PROCEEDINGS, ACAD. OF MGM'T, available at https://journals.aom.org/doi/abs/10.5465/AMBPP.2019.150

[9] *See* discussion *infra*, text at notes __.

[10] *E.g.*, Union Leader corp. v. Newspapers of New England, Inc., 284 F.2d 582 (1st Cir. 1960) (partially recognizing the defense); Greenville Pub. Co. v. Daily Reflector, Inc., 496 F.2d 391 (4th Cir. 1974) (if defendant is a natural monopoly, then driving rivals out of the market cannot be unlawful under the antitrust laws); City of Cleveland v. Cleveland Elec. Illum. Co., 538 F. Supp. 1306, 1314-1315 (N.D. Ohio 1980) (similar). For a good discussion, rejecting the idea of an automatic natural monopoly defense, see Einer Elhauge, *Defining Better Monopolization Standards*, 56 STAN L. REV. 253, 325-327 (2003). See also Richard A. Posner, *Natural Monopoly and its Regulation*, 21 STAN. L. REV. 548, 586-587 (1969) (discussing natural monopoly as a merger defense).

dominant platforms.[11] Further, antitrust is superior to regulation, because regulation rarely comes close to mimicking competitive behavior. This latter point is particularly important if characterization of a platform as a natural monopoly was incorrect or is undergoing technical change. If the market contains room for competition among multiple incumbent firms, regulation is usually a poor alternative.[12] Regulation usually ends up entrenching existing technologies, making turnover much less likely. For example, the FCC's longstanding willingness to protect AT&T's dominant position from all rivals very likely held back innovation in telecommunications for decades.[13] Of course, proper regulatory design might take this into account. But if viable and robust competitive alternatives are available, regulation usually is not the best answer.

The significance of natural monopoly is that if a firm enjoys natural monopoly status it can keep rivals out indefinitely by simply charging a profitable but sufficiently low price. That will not necessarily happen, however. If it becomes greedy and charges too much, entry may occur. Further, changes in technology or innovation by others may change its natural monopoly position. But under constant conditions it need not engage in exclusionary practices in order to maintain its position.

While we often use the term natural monopoly to describe a firm or a market, natural monopoly status actually applies to particular inputs or technologies. For example, an electric utility is said to be a natural monopoly because it transmits power down a network of wires that are installed and operated most efficiently if a single wire goes to

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[11] *Joint Response to the House Judiciary Committee on the State of Antitrust Law and Implications for Protecting Competition in Digital Markets* 4 (April 30, 2020) (working paper, Center for Equitable Growth), available at https://equitablegrowth.org/wp-content/uploads/2020/04/Joint-Response-to-the-House-Judiciary-Committee-on-the-State-of-Antitrust-Law-and-Implications-for-Protecting-Competition-in-Digital-Markets.pdf; Hanley, *supra* note __.

[12] *See* STEPHEN BREYER, REGULATION AND ITS REFORM 191-197 (1982).

[13] *See* discussion *infra*, text at notes __.

each customer. However, the electric company also generates power, and generation can be structured competitively. It may produce its own fuel through coal mines, oil fields or wind farms, all of which can be produced competitively. Even if a digital platform is determined to be a winner-take-all, or natural monopoly, market, it is important to distinguish the particular assets and operations that are in fact natural monopolies from those that are not. For example, whether or not Amazon.com is a natural monopoly, most of the things that it sells are not. A well-designed policy will limit the monopoly characterization to those particular inputs to which it applies, leaving other portions of production to competition. To a considerable extent deregulation has accomplished that in some markets, but it can also apply to platforms.[14]

The great majority of platforms are not winner-take-all markets, however. Whatever our attitude toward natural monopolies, when markets are not natural monopolies competition is possible and desirable. Further, antitrust is preferable to direct regulation for dealing with competition problems. This paper considers how the antitrust laws can be used effectively to discipline antitcompetitive practices by digital platforms, including very large platforms and even those that are two-sided. One area that may require new legislation or at least a major change in judicial enforcement is platform mergers.[15] Beyond that, there are several things that the courts could do better without new legislation.

II. Digital Platforms as Winner-Take-All Markets

A winner-take-all market, or natural monopoly, has room for only a single firm at a time if that firm is pricing competitively. The great majority of internet platforms are not natural monopolies. This is

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[14] *See* Joseph D. Kearney & Thomas W. Merrill, *The Great Transformation of Regulated Industries Law*, 98 COLUM. L. REV. 1323 (1998).
[15] See discussion infra, text at notes __.

true even if the platform is subject to indirect network effects, which is characteristic of two-sided markets.[16]

Five interrelated factors determine whether a market is a durable natural monopoly, with whatever competition policy characteristics that entails: 1) lack of stable competition among incumbent firms; single-homing; 2) durability of a dominant position; ability to accommodate or resist technological change 3) declining costs or indirect network effects; 4) lack of significant product differentiation; and 5) lack of interoperability.

The principal policy implication is that if a platform is not a natural monopoly, competition should be both feasible and desirable. It will very likely emerge in the absence of exclusionary practices. This could be inter-platform competition or competition between a platform and a more traditional product.[17] On the other hand, so long as a particular platform is a natural monopoly, it will be able to maintain its position simply by charging a lawful price that is above its costs but sufficient to exclude rivals. Even here, however, there are important qualifications. First, competition may exist to be the natural monopolist in a market, and antitrust policy has a role in encouraging such competition. Second, natural monopoly status is not necessarily permanent. Its duration depends on technology and market size.

A. Stable Competition Among Incumbent Firms; Single- vs. Multi-Homing

Most digital platforms have competitors in at least some of the markets in which they operate. Today online sellers of all sizes appear everywhere, ranging from single outlet restaurants to small grocers to online sellers of flowers and to numerous newspapers, magazines, and other periodicals. Online firms such as Carvana.com compete nationally in the sales of used cars with thousands of small local brick-and-mortar dealers, many of whom have an internet presence

[16]For the definition of direct and indirect network effects, *see* discussion *infra*, text at notes ___.

[17] *See* discussion *infra*, text at notes __.

themselves.[18] Among the largest online sellers, a significant majority also have an even larger brick-and-mortar presence, and typically in highly competitive markets. As of 2020 this was true of seven out of the top ten online sellers of merchandise, including Walmart, Home Depot, Best Buy, Target, and Costco.[19]

Competitive markets change all the time and the market shares of individual firms in them fluctuate. Further, markets for new technologies may go through sometimes lengthy periods in which multiple technologies compete with one another until a single winner emerges. One well known example is the case of recordable analog video tape. Sony's Betamax format survived in the market for roughly 25 years until it finally lost a standards battle with VHS tape.[20] The competition among high-definition digital optical formats, HD DVD and Blu-Ray, was much briefer, lasting from 2006 to 2008 until Blu-Ray triumphed.[21] For decades there has been a battle between the dominant architectures of personal computers, Apple Macintosh OS and Microsoft Windows. But both technologies remain profitable and are able to attract both program writers and customers. For several years Apple's iPhone operating system has competed with the Android OS for dominance of the smartphone device market.[22] It is far from obvious that a single winner will ever emerge.

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18 Carvana.com (used cars).

19 See https://www.marketingcharts.com/charts/top-10-e-commerce-retailers-in-the-us-in-2020/attachment/emarketer-top-10-e-commerce-retailers-in-the-us-in-2020-mar2020 listing ten largest e-commerce retailers in the United States in 2020, in descending order, as Amazon, Walmart, eBay, Apple, Home Depot, Wayfair, Best Buy, Target, Costco, and Macy's).

20 DAVE OWEN, THE BETAMAX VS. VHS FORMAT WAR (2005)

21 Ben Drawbaugh, *Two Years of Battle Between HD DVD and Blu-Ray: A Retrospective*, ENDGADGET (Feb. 20, 2008), https://www.engadget.com/2008-02-20-two-years-of-battle-between-hd-dvd-and-blu-ray-a-retrospective.html.

22 *See* Jignesh Padhiyar, *iPhone vs Android: A Look at Competitive Past and Rather Cut-Throat Future*, IGEEKSBLOG (June 25, 2020, 12:07 PM), https://www.igeeksblog.com/iphone-vs-android/. The U.S. market is about

Other markets go from less to more competitive as a result of technological change. One good example is the telephone industry, discussed below.[23] Digital computing hardware is another example. During the heyday of mainframe computers in the 1960s IBM was the acknowledged leader, with dominant market shares that were sufficient to provoke a high profile monopolization case.[24] IBM's market share in the overall computer market fell precipitously, however, and the industry became much more diverse and competitive. That was not the result of an antitrust decree, because the U.S. case against IBM was dropped.[25] Rather it was a consequence of technological changes that IBM itself initiated by adopting an open architecture that involved liberal licensing to others.[26]

Markets that produce a single winner are generally ones where economies of scale, network effects, or the need for interoperability

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evenly split between Android and iOS, but the worldwide market is 87% Android. US Market share: https://www.statista.com/statistics/266572/market-share-held-by-smartphone-platforms-in-the-united-states/. On Worldwide market share, we https://go-gale-com.proxy.library.upenn.edu/ps/i.do?p=ITOF&u=upenn_main&id=GALE%7CA558228231&v=2.1&it=r&sid=summon.

[23] *See* discussion *infra*, text at notes __.

[24]See In re IBM Peripheral EDP Devices Antitrust Litig., 481 F.Supp. 965, 981 (N.D.Cal. 1979) (IBM market share averaged 57% over period from 1969-1975). Cf. Lawrence A. Sullivan, *Monopolization: Corporate Strategy, the IBM Cases, and the Transformation of the Law*, 60 TEX. L. REV. 587, 599 (1982) (75% in 1964 and 70% in 1971)

[25] Edward T. Pound, *Why Baxter Dropped the I.B.M. Suit*, N.Y. TIMES, Jan. 9, 1982.

[26] *See* Christopher S. Yoo, *Modularity Theory and Internet Regulation*, 2016 ILL. L. REV. 1, 59 (2016); Joseph Farrell & Philip J. Weiser, *Modularity, Vertical Integration, and Open Access Policies: Toward A Convergence of Antitrust and Regulation in the Internet Age*, 17 HARV. J. L. & TECH. 85, 93 (2003); Michael Miller, Why the IBM PC Had an Open Architecture, PCMAG UK (9 Aug. 2011, 1:59 AM), https://uk.pcmag.com/opinion/111663/why-the-ibm-pc-had-an-open-architecture.

favor a single format *and* that format is privately controlled by a single entity. That situation is not common. In the video recording standards battles referenced above, a single standard emerged because the costs of maintaining two different formats were too high. However, the technology for those formats came to be widely shared under agreed upon technological standards.[27] The same thing is true of the cellphone market, which is also subject to significant network effects. Most of the technology is produced by competing firms operating under shared technological standards.[28] As a result, we can speak of a single technology or a single market for both traditional and cellular phones, but the markets are controlled by numerous competitors.

One feature that makes the emergence of a single technology winner less likely is interoperability.[29] To a very large extent Android, Apple and other cellular phones interconnect. Owners of devices from multiple systems can engage in a full range of communications with one another, so much that most of the time one user cannot even identify the type of phone that a corresponding user has.[30] The major wireless carriers all sell and support both Apple and Android phones interchangeably, and most retailers who are not owned by or have

[27] See *List of optical disc manufacturers*, WIKIPEDIA, https://en.wikipedia.org/wiki/List_of_optical_disc_manufacturers (last visited June 27, 2020).

[28] See *ETSI.org*; and Hans van der Veer & Anthony Wiles, Achieving Technical Interoperability – the ETSI approach (2008), https://portal.etsi.org/CTI/Downloads/ETSIApproach/IOP%20whitepaper%20Edition%203%20final.pdf.

[29] On using antitrust to compel interoperability, *see* discussion *infra*, text at notes __.

[30] There are a few exceptions. For example, Apple's iMessage functionality is available only on Apple devices, such as iPhones, Macs, and Apple Watches. *See Use Messages with your Mac*, APPLE, INC., https://support.apple.com/en-us/HT202549 (last visited June 25, 2020) ("With Messages for Mac, you can send unlimited messages to any Mac, iPhone, iPad, or iPod touch that uses iMessage, Apple's secure-messaging service").

exclusive dealing agreements with a particular brand sell both.[31] In sum, whether a winner-take-all standard even exists depends on limitations on the ability of market participants to switch back and forth between standards.

Another reason a single victor might emerge in a standards battle is that the market equilibrium favors single-homing. Single-homing occurs when users of a certain technology make one personal choice at a time to the exclusion of others. This occurs because the marginal cost of using two different but competing products is greater than the benefits. For example, at any given time most people carry one cellphone but multiple credit cards. Carrying a second working cellphone is costly and the benefits are minor or perhaps even negative. By contrast, the marginal cost to most people of carrying an additional credit card is close to zero, and different cards provide different benefits or are accepted by different stores. Further, multiple cards enable people to carry more debt or stagger out their payments. That is, the cards function as complements as well as substitutes. They function as complements when someone can enlarge his credit limit by distributing debt over two or more cards. People might also download apps for both Uber and Lyft, competing ride-hailing services. The marginal cost of installing and maintaining an app on one's phone is zero, and at any given time a driver may be more readily available on one of them or may have a more favorable price. Alternatively, some cites may have greater availability of one provider than the other. As long as consumers prefer multi-homing the digital platforms in that market are likely to remain competitively structured.

Some customers engage in multi-homing between a digital platform and a traditional market. For example, many people carry

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[31] *See, e.g.*, *All Smartphones*, VERIZON WIRELESS, https://www.verizon.com/smartphones/?AID=12513015&SID=1ABB64CC-4D2D-48A9-BE34-754AAE75B390&afsrc=1&vendorid=CJM&PUBID=746431&cjevent=4bd08bcab15111ea801501a10a240610 (last visited June 25, 2020) (offering a wide variety of both Apple and Android phones on the same plans).

multiple credit cards, but when they make a purchase may also use cash or write a check. Or their smartphones might contain apps for both Uber and Lyft, but they will also sometimes hail a traditional cab, depending on the circumstances. That is also true of customers who purchase some groceries on the Amazon/Whole Foods digital platform, but other groceries by visiting a traditional grocery store. The Supreme Court's conclusion in *AmEx*, offered with no factual support, that digital platforms and other markets do not compete with one another as a matter of law simply ignored these realities.[32]

VHS in analog video media and Blu-Ray in digital ended up as dominant platforms because most users did not want to deal with two different formats simultaneously. That would make playing and recording as well as inventorying tapes far more cumbersome and costly. So a typical consumer would purchase either an HD DVD player or else a Blu-Ray player, but not both.[33] Importantly, single homing does not dictate that competition cannot work in a market, but only that competitors must vie with one another to be a particular user's exclusive choice. Single-homing can be sequential, as when someone picks a single technology for one time period, but then switches to another later on. For example, when a customer's iPhone wears out she might switch to an Android phone, or vice-versa. However, *within* periods of ownership she is likely to own one at a time.

The existence of durable complementary products that have different lifecycles from the primary product also increases switching costs. For example, someone who has an HD DVD player and a large

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[32] Ohio v. Am. Express, Co., 138 S. Ct. 2274, 2287 (2018) ("Only other two-sided platforms can compete with a two-sided platform for transactions.")

[33] *See Consumers more aware of HD-DVD over Blu-ray Disc*, CHAIN STORE AGE (Sept. 20, 2007), https://chainstoreage.com/news/consumers-more-aware-hd-dvd-over-blu-ray-disc; Ben Drawbaugh, *Two years of battle between HD DVD and Blu-ray: a retrospective*, ENGADGET (Feb. 20, 2008), https://www.engadget.com/2008-02-20-two-years-of-battle-between-hd-dvd-and-blu-ray-a-retrospective.html.

inventory of HD DVD media will be less likely to switch to Blu Ray when the HD DVD player breaks down. Or the customer contemplating switching from an iPhone to Android may have to consider how much data and how many apps she would lose in the process.

B. *Durable Dominant Positions in Digital Platforms: No-Fault Monopoly, Exclusionary Practices, and Barriers to Entry*

There is little empirical support for the proposition that digital platforms as a group are winner-take-all markets. Rather the landscape for digital markets resembles the landscape for markets generally. Some of them are more conducive to single firm dominance than others, and few are true natural monopolies. Some resemble markets with a dominant firm plus a competitive fringe.[34] Others enjoy competition among more evenly sized rivals.

Antitrust condemnation of monopoly is appropriate when the consumer benefits from antitrust enforcement exceed the social costs of the monopoly. An important ingredient is duration. The more durable the monopoly, the more costly to society. Most monopolies that last only a year are probably not worth pursuing, because the cost of antitrust enforcement is high and its wheels turn slowly. As a result, most antitrust cases challenging dominance require a showing of entry barriers, which assesses whether monopoly is likely to be dissipated by new entry and, if so, how long that will take.[35]

The same thing is true of merger enforcement. The 2010 Horizontal Merger Guidelines employed by the antitrust enforcement agencies indicate that a facially anticompetitive merger may not be worth pursing if new entry would be sufficiently rapid so as to make anticompetitive effects from the merger unlikely. This would be so "even though those actions would be profitable until entry takes

[34] *See, e.g.*, DON E. WALDMAN AND ELIZABETH JENSEN, INDUSTRIAL ORGANIZATION: THEORY AND PRACTICE 190-210 (5th ed. 2019).
[35] *See* 2B PHILLIP E. AREEDA & HERBERT HOVENKAMP, ANTITRUST LAW ¶¶420-423 (5th ed. 2021).

effect."[36] Alternatively, the evidence must show that new entry would keep prices sufficiently low that consumers would not be significantly harmed by the merger.[37] Older versions of the Merger Guidelines were more explicit about how long this might be. For example, the 1992 Horizontal Merger guidelines concluded that the Agencies would not challenge a merger if new entry sufficient to return prices to pre-merger levels would be likely to occur within two years.[38]

One should not generalize excessively about entry barriers, even in platform markets. The existence, extent, and relevance of entry barriers in an antitrust case has always been a highly factual inquiry.[39] For example, in per se cases such as price fixing, entry barriers are largely irrelevant. At the other extreme, in cases involving unilateral pricing conduct, they are usually central. For digital platforms, several factors point in different directions, making categorical treatment impossible. On the one hand, network effects can be a substantial entry barrier. Particularly in markets where significant product differentiation is impossible, a large base on one or both sides of a platform can be a powerful entry deterrent. The same thing can be said of accumulation of large amounts of consumer data or large intellectual property portfolios. Offsetting this, low consumer switching costs, which are common in platform markets, encourage new entry. Product differentiation is also an avenue for new entry, as is high technological turnover.[40] Which of these various characteristics dominates must be established for each situation.

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[36] U.S. DEP'T OF JUSTICE, FED. TRADE COMM'N, HORIZONTAL MERGER GUIDELINES (2010) ("2010 Guidelines") § 9.1.
[37] *Id*.
[38] U.S. DEP'T OF JUSTICE, FED. TRADE COMM'N, HORIZONTAL MERGER GUIDELINES §3.2 (1992), available at https://www.justice.gov/archives/atr/1992-merger-guidelines.
[39] 2B AREEDA & HOVENKAMP, ANTITRUST LAW, *supra* note __, ¶420-423.
[40] *Cf.* D. Daniel Sokol & Jingyuan (Mary) Ma, *Understanding Online Markets and Antitrust Analysis*, 15 NORTHWESTERN J. TECH. & INTEL. PROP. 43, 48-50 (2017) (arguing that entry barriers are low in most online markets); Daniel L. Rubinfeld & Michal S. Gal, *Access Barriers to Big Data*, 59 ARIZ. L. REV. 339 (2017) (entry barriers into platforms characterized by collection or use of big data are high). In the middle is Marina Lao, *No-Fault Digital Platform Monopolization*, 61 WILLIAM & MARY L. REV. 755, 778 (2020).

In addition to high entry barriers, United States antitrust law refuses to condemn a dominant firm except on proof of one or more exclusionary practices. That is, even in the presence of significant entry barriers we do not condemn monopoly "without fault." Writing in 1978, Areeda and Turner concluded that persistent monopoly was a serious problem. They would have permitted the government (but not private parties) to bring equitable challenges to break up a monopoly without proof of fault, provided that the monopoly had persisted for at least five years.[41]

One explanation for durable monopoly is that the market is winner-take-all, or a natural monopoly, which means that we would naturally expect it to be controlled by a single firm. As a result, a defense that a market is a natural monopoly would be necessary in a regime that condemned monopoly without fault. Otherwise the antitrust laws might needlessly break up dominant firms in markets that are served most efficiently by a single firm. That would lead to costly price wars or collusion, because competition in natural monopoly markets is not sustainable.

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[41]See 3 PHILLIP AREEDA & DONALD F. TURNER, ANTITRUST LAW ¶¶620-623 (1978) (proposing a no fault monopolization rule). I have preserved their proposal intact, but with my own critique. *See* 3 PHILLIP E. AREEDA & HERBERT HOVENKAMP, ANTITRUST LAW ¶¶635-638 (4th ed. 2015). Areeda and Turner relied on Turner's own earlier work, plus work by Oliver E. Williamson. See Donald F. Turner, *The Scope of Antitrust and Other Economic Regulatory Policies*, 82 HARV. L. REV. 1207, 1225 (1969) (Sherman Act §2 should" apply to monopoly power that has been persistently maintained over a substantial period of time, except where based solely on economies of scale or where it arose out of and still depends upon the same unexpired patents."); Oliver E. Williamson, *Dominant Firms and the Monopoly Problem: Market Failure Consideration*, 85 HARV. L. REV. 1512, (1972) (duration should be long enough to suggest that it is not a result of luck or chance; suggesting five years). For commentary, see Robert H. Lande & Richard O. Zerbe, *The Sherman Act is a No-Fault Monopolization Statute: A Textualist Demonstration*, 70 AMER. L. REV. (2020) (forthcoming), available at https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3580841; and Marina Lao, *No-Fault Digital Platform Monopolization*, 61 WM & MARY L. REV. 755 (2020). Likewise, EU law and that of many other jurisdictions require "abuse" of a dominant position.

By contrast, if a market is not a natural monopoly then the emergence of a dominant firm requires exclusionary practices, superior management, good luck (or bad luck for rivals), or collusion. As the Supreme Court put it more than a century ago in *Standard Oil*, "monopoly would be inevitably prevented if no extraneous or sovereign power imposed it and no right to make unlawful contracts having a monopolistic tendency were permitted."[42]

In a stable natural monopoly market a dominant firm need do no more than charge a competitive price in order to exclude rivals, or perhaps occasionally defend itself against an attack from someone else.[43] If no exclusionary practices are proven, then the monopolist will be left alone and the market will determine how many firms the market will contain. As a result, a requirement of exclusionary practices makes it unnecessary to decide whether a market is a natural monopoly.

We could take different approaches to the problem of long-held monopoly, and we might want to pursue some administrative shortcuts. First, we could condemn relatively durable monopoly without proof of fault but then permit a defense that the market is in fact a natural monopoly. Or perhaps we could state a presumption that if monopoly has prevailed in a market for a certain number of years, then it warrants condemnation. The defendant could defeat the presumption by showing natural monopoly or other factors that forced the defendant to be a monopolist.[44] This was the gist of Judge Wyzanski's famous discussion of Judge Hand's position in the *Alcoa* case.[45] Finally, we could take the approach that we actually do, which is to require proof of exclusionary practices and condemn the

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[42] Standard Oil Co. v. United States, 221 U.S. 1, 62 (1911).
[43] Union Leader Corp. v. Newspapers of New England, Inc., 284 F.2d 582, 587 (1st Cir. 1960) ("We do not think the fact that competition is in a natural monopoly climate can limit a defendant's right to defend itself.")
[44] See United States v. Alum. Co. of Am., 148 F.2d 416, 429 (2d Cir. 1945) (monopoly may have been "thrust upon it").
[45] See United States v. United Shoe Machinery Corp., 110 F.Supp. 295, 341-342 (D. Mass. 1953), discussing United States v. Alum. Co. of America, 148 F.2d 416, 427 (2d Cir. 1945).

monopoly without determining whether the market in question contains room for only one efficient firm.

Our insistence on exclusionary practices rests in part on the fact that often we do not know why a particular market has a dominant firm. Perhaps it naturally gravitates toward natural monopoly, or perhaps dominance is a result of exclusionary practices or some fortuity that is likely to go away. In any event, even natural monopoly status does not excuse exclusionary practices.

Historically, most firms eventually lose their dominant status. The federal courts confronted the issue of monopoly duration already in the early history of antitrust in the *American Can* case. The defendant's market share was already rapidly declining by the time of the decision. That decline appears to have been self-inflicted. Having acquired what it thought to be a dominant position, American Can raised its price so much that it induced large scale new entry, even with obsolete technology.[46]

During the great Depression, the monopoly that captured Congress' attention and prompted passage of the Robinson-Patman Act[47] was the Great Atlantic & Pacific Tea Co. (A&P), a large chain store that put many small grocers out of business and provoked the wrath of Louis Brandeis.[48] For decades A&P was the largest grocer in the United States.[49] In 1929 it was by far the largest American retailer of any kind, two and a half times larger than Sears, the second largest.[50] Today the leader is Wal-Mart, followed by Kroger. A&P went

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[46]*See* United States v. American Can Co., 230 F. 859, 879 (1916) ("prices were put up to a point which made it apparently profitable for outsiders to start making cans with any antiquated or crude machinery they could find in old lumber rooms….").

[47] 15 U.S.C. §13.

[48]*E.g*, Louis K. Liggett Co. v. Lee, 288 U.S. 517 (1933) (Brandeis, J., dissenting from the Court's invalidation of a statute that imposed a progressive tax on chain stores).

[49] *See* MARC LEVINSON, THE GREAT A&P AND THE STRUGGLE FOR SMALL BUSINESS IN AMERICA 69, 112-114 (2011).

[50] *Id*. at 113 (ranking the ten largest in 1929, in descending order, as A&P, Sears, F.W. Woolworth, Montgomery Ward, Kroger, Safeway, J.C. Penney, and S.S. Kresge, American Stores, and Gimbel Brothers).

bankrupt in 2015 and sold most of its stores to other grocers. None of the top ten firms in the United States in 1929 is in the top ten today,[51] and many no longer exist.

Why firms lose dominance is a complex question and there is no single answer. Some losses are the result of nothing more complicated than the expiration of market dominating patents. This was largely the story of Xerox, which came into existence by the aggregation of a patent portfolio that covered plain paper copying, and then gradually lost its position when the patents expired.[52] It is also true of many blockbuster pharmaceutical drugs that became generic upon expiration of their patents.[53]

A few losses of dominance were the result of antitrust decrees. Likely examples are Standard Oil, Alcoa, and United Shoe Machinery Corp. The antitrust decree in *Standard Oil* (1911) broke the company up into 34 smaller firms.[54] Alcoa was never broken up, but part of the remedy was that the firm was forbidden from bidding on two very large government owned aluminum plants that were sold after World War II. The winning bidders, Kaiser and Reynolds, emerged as significant competitors.[55] In the prolonged *United Shoe Machinery* litigation, which stretched from the 1910s to the 1960s,[56] the district

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[51] *See Fortune 500* (2019), https://fortune.com/fortune500/2019/ (last visited June 25, 2020).

[52] R. Cross & A. Iqbal, *The Rank Xerox Experience: Benchmarking Ten Years*, *in* BENCHMARKING – THEORY AND PRACTICE (A. Rolstadås, ed. 1995).

[53] Henry G. Grabowski & John M. Vernon, *Brand Loyalty, Entry, and Price Competition in Pharmaceuticals after the 1984 Drug Act*, 35 J.L. & ECON. 331 (1992).

[54] United States v. Standard Oil co. v. United States, 221 U.S. 1 (1911). See *William Kovacic Designing Antitrust Remedies for Dominant Firm Misconduct*, 31 CONN. L. REV. 1285, 1295 n. 46 (1999).

[55] See 2 SIMON N. WHITNEY, ANTITRUST POLICIES: AMERICAN EXPERIENCE IN TWENTY INDUSTRIES 97-98 (1958); Spencer Weber Waller, *The Past, Present, and Future of Monopolization Remedies*, 76 ANTITRUST L.J. 11, 16-17 (2009.

[56] See, e.g., United States v. United Shoe Machinery Co. of N.J., 247 U.S. 32 (1918); United States v. Winslow, 227 U.S. 202 (1913). The earliest decisions were in the state courts. E.g., United Shoe Machinery Co. v.

court initially condemned the defendant for monopolization but refused to break it up, largely because it operated out of a single plant.[57] A decade and a half later, however, the Supreme Court concluded that the conduct remedies that the district court had imposed had not done their job, and ordered a partial divestiture.[58] In 1949 USM held roughly 90% of the market for major shoe making machinery.[59] Later, however, the shoe machinery industry went into sharp decline, and USM lost more than a third of its market share.[60] Whether that decline should be attributed to the antitrust decree is uncertain. The technology of shoe manufacturing was rapidly changing away from stitched leather shoes for which USM provided equipment, to other methods.[61]

Durable monopolies are sometimes brought to an end by technological change. One of the best examples is Kodak, a storied monopolist for nearly a century. First condemned in the 1910s,[62] it was described by the Second Circuit in 1979 as a "titan in its field."[63] For the preceding thirty years its market share in the film market had never

Kimball, 193 Mass. 351 (1907) (enforcing an exclusive dealing contract as a reasonable restraint).

57 United States v. United Shoe Mach. Corp., 110 F. Supp. 295 (D. Mass. 1953), aff'd, 347 U.S. 521 (1954). See CARL KAYSEN, UNITED STATES V. UNITED SHOE MACHINERY CORPORATION: AN ECONOMIC ANALYSIS OF AN ANTI-TRUST CASE 272-75 (1956).

58 United States v. United Shoe Mach. Corp. 391 U.S. 244 (1969); and see United States v. United Shoe Mach. Corp., Civil Action No. 7198, 1969 U.S. Dist. LEXIS 13280, at *1 (D. Mass. Feb. 20, 1969).

59 See CARL KAYSEN, UNITED STATES V. UNITED SHOE MACHINERY CORPORATION: AN ECONOMIC ANALYSIS OF AN ANTI-TRUST CASE 52-53 (1956).

60 See Scott E. Masten & Edward A. Snyder, *United States versus United Shoe Machinery Corporation: On the Merits*, 36 J. L. ECON. 33, 66 (1993).

61 *20th Century*, SHOEPASSION, https://www.shoepassion.com/shoe-encyclopaedia/shoe-history/20-century (last visited June 28, 2020).

62 See Loeb v. Eastman Kodak Co., 183 F. 704 (3d Cir. 1910) (sustaining antitrust complaint); United States v. Eastman Kodak, 226 F. 62 (W.D.N.Y. 1915) (condemning multiple mergers of small firms, as well as quasi-exclusive dealing).

63 Berkey Photo, Inc. v. Eastman Kodak Co., 603 F.2d F.2d 263, 271 (2d Cir. 1979).

been less than 82%.[64] In amateur still cameras its share had ranged from 61% in the 1950s to as high as 90% in the mid-sixties. In 2012, however, it declared bankruptcy, and for reasons that had little to do with antitrust law. Rather, the problem was massive technological change and excessive path dependence. The new technology was digital photography, which was radically different from chemical film technology in nearly every way. Ironically, Kodak had been a pioneer developer of digital photography and developed many of the early patents. However, it had far too much invested in the older technology. As a result it put far too many resources into shoring up film photography and entered the digital era with too little, too late.[65]

The story of Microsoft and the rise of the consumer internet is similar in some respects.[66] Thanks to IBM's open source model, most aspects of the hardware market had become competitive, and software was increasingly competitive as well. In the middle, however, was the operating system. Under Bill Gates, Microsoft had developed a computer architecture in which the operating system, Microsoft Windows, resided on each computer and acted as a gateway through which all applications and traffic had to pass.[67]

Netscape's internet-based approach was a serious threat to this model. As Gates wrote in a famous email to his employees entitled "The Internet Tidal Wave," Netscape was in the process of developing a "multi-platform strategy" of moving the operating system into the diverse applications themselves and thus "commoditize[ing] the underlying operating system."[68] Microsoft then undertook a number of

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[64] *Id*. at 270.
[65]*See* Elliot Brown, et al, *From Camera Obscura to Camera Futura*, 98 J. PAT. & TRADEMARK OFF. SOC'Y 406 (2016).
[66]*See* United States v. Microsoft, 253 F.3d 34 (D.C. Cir. 2001).
[67]For good analysis, *see* ANDREW I GAVIL AND HARRY FIRST, THE MICROSOFT ANTITRUST CASES: COMPETITION POLICY FOR THE TWENTY-FIRST CENTURY (2014); WILLIAM H. PAGE AND JOHN E. LOPATKA, THE MICROSOFT CASE: ANTITRUST, HIGH TECHNOLOGY, AND CONSUMER WELFARE (2009).
[68]Bill Gates, "The Internet Tidal Wave" (email from Bill Gates to Microsoft employees, May 26, 1995). The email was part of the record in United States v. Microsoft, 253 F.3d 34 (D.C. Cir. 2001). The full text is available at https://lettersofnote.com/2011/07/22/the-internet-tidal-wave/.

actions intended to suppress Netscape and perpetuate Windows' dominance.

Gates' purpose was to protect the Windows operating system, and monopoly maintenance of Windows was the core of the government's case. But the real threat came from the browser itself. In fact, it was the browser, not the operating system, that subsequently became commoditized. While Microsoft continues to hold a large share of the OS market, depending on how it is defined, it has largely been relegated to bit player in the browser market.[69] In part that was a result of the *Microsoft* decree, which enjoined several exclusive agreements that favored Internet Explorer over Netscape. In part it was because the dramatic rise of broadband and the emergence of high quality, free alternatives, including Mozilla and later Chrome, that greatly increased competition.

Overall, the history of digital platform monopolies is not distinctive from that of other industries. While the dataset is smaller, the evidence suggests that the life of an internet monopoly is no longer than the life of more traditional manufacturing monopolies and is very likely shorter. Here as in traditional markets the accounts vary from one firm to another. Microsoft, which had been founded in 1975, lost much of a government-brought antitrust challenge to monopoly maintenance in the Windows operating system, where it was dominant.[70] At the time Microsoft's Windows operating system had a market share of approximately 95% for Intel-based ("IBM-compatible") computers.[71] The Apple OS was excluded from that market definition. Today, twenty years later, Microsoft's market share is about 76% in a market that includes the Apple OS.[72] One explanation for the change in market definition was that in 2001 Microsoft Windows ran mainly on Intel processing chips or lookalikes, while Apple machines ran on Motorola chips. In 2006 Apple switched to Intel chips as well, giving the two systems a more similar

[69]*See* discussion *infra*, text at notes __.
[70]United States v. Microsoft Corp., 253 F.3d 34 (D.C. Cir. 2001).
[71]*Id*. at 51.
[72] *See Desktop Operating System Market Share Worldwide*, STATCOUNTER, https://gs.statcounter.com/os-market-share/desktop/worldwide (last visited June 25, 2020).

architecture and more readily enabling software to run on both.[73] If Apple's operating system is subtracted, Microsoft's market share today would be about 97%, roughly the same as it was during the litigation. Microsoft's operating system business must be counted as one of the most durable of platform technologies. Whether it is actually a monopoly is possible. More likely, it is simply one alternative in a product differentiated OS market that includes the Apple OS.

The story for Microsoft's internet browser is very different. Interestingly, the *Microsoft* antitrust litigation was aimed at dominance of the operating system market, and the government won the most important claims. While these claims involved Windows as a fulcrum, many involved conduct that was intended by Microsoft to give commercial advantages to its web browser, Internet Explorer. Microsoft "tied" Windows and Internet Explorer by requiring purchasers of Windows to take IE as well.[74] A little later it commingled internet explorer code into the Windows operating system code, where it resides to this day.[75] It also imposed various restrictions on both OEMs (computer makers) and applications writers requiring them to favor IE or use it exclusively.[76] One result of this conduct was that Microsoft's browser market share during the litigation period rose from about 5% to about 50%, most of it at Netscape's expense.[77] That number was too small to support a monopolization claim, but the government did bring a claim of attempt to monopolize the browser

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[73]*See* Press Release, Apple, Inc., Apple to Use Intel Microprocessors Beginning in 2006 (June 6, 2005) (available at https://www.apple.com/newsroom/2005/06/06Apple-to-Use-Intel-Microprocessors-Beginning-in-2006/).

[74]Herbert Hovenkamp, *IP Ties and* Microsoft's *Rule of Reason*, 47 ANTITRUST BULLETIN 369 (2002).

[75]*Id*. The name of the browser was changed in 2015 to Edge.

[76]Windows 98 launched Internet Explorer in certain situations, even if Netscape Navigator was set as the computer's default browser. Microsoft prohibited OEMs from modifying the Windows boot sequence, thus making it difficult for OEMs to promote Netscape products over the prominent Internet Explorer features. Microsoft also prevented OEMs from removing programs from the Start menu. *See* United States v. Microsoft Corp., 84 F. Supp. 2d 9, 62-64 (D.D.C. 1999).

[77]*See* United States v. Microsoft Corp., 84 F. Supp. 2d 9, 101-102 (D.D.C. 1999).

market. The D.C. Circuit dismissed the attempt claim, however, after finding that the browser market was too ambiguously defined.[78]

Today, usage measurements of browser market share indicate that Google Chrome is the clear leader, with some 62% of the market, followed by Safari (Apple), and then Mozilla Firefox. None of these browsers existed at the time of the Microsoft litigation. Firefox did have some earlier precursors, and inherited some code from Netscape.[79] Microsoft has two browsers in play: Edge, its current browser, and Internet Explorer which runs on some older machines. In the aggregate, however, they account for less than 7% of browser usage.[80]

So ironically, Microsoft very largely retained its market position in the operating system market, where it lost the antitrust litigation, but it has been decimated in the browser market where it won. Part of the reason for Microsoft's browser share loss may have been injunctive relief from the various exclusionary contracts that the *Microsoft* decision condemned. But very likely the bigger reasons were the expanding availability of broadband and the rapid expansion of free open source alternatives Chrome and Mozilla, as well as Apple's own entry with Safari. Very likely the most important explanation for these shifts in market share was consumer preference. Browsers are free and new ones can be installed in a matter of minutes. They are also readily susceptible to multi-homing, enabling users to have multiple browsers installed on both computers and smartphones.

The story for social networking platforms differs in some respects. MySpace had launched in 2003, and by 2007 writers were expressing concern that MySpace was destined to become a permanent natural monopoly. That literature largely ignored Facebook, which had

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[78]*Microsoft*, 253 F.3d at 82-84.
[79]*History of the Mozilla Project*, MOZILLA CORP., https://www.mozilla.org/en-US/about/history/ (last visited June 25, 2020).
[80]*See Usage share of web browsers*, WIKIPEDIA, https://en.wikipedia.org/wiki/Usage_share_of_web_browsers (last visited June 25, 2020); *see also Browser & Platform Market Share May 2020*, W3COUNTER, https://www.w3counter.com/globalstats.php (last visited May 17, 2020).

launched in 2004.[81] By 2008 Facebook overtook MySpace in popularity.[82] Today Facebook occupies some 60% of a highly differentiated and poorly defined market for social media sites.[83] MySpace is no longer counted among the top ten.[84]

The digital search engine story is similar. AltaVista was established in 1995 and became a leading search engine until it began losing ground to Google Search. As of 2000, however, AltaVista had a 17.7% market share to Google's 7%.[85] In 2003 Yahoo purchased AlaVista and incorporated parts of its technology into its own search engine. AlaVista was shut down as an independent search engine in 2013.[86]

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[81]Victor Keegan, *Will MySpace ever Lose its Monopoly?*, THE GUARDIAN (Feb. 8, 2007, 7:41 EST), https://www.theguardian.com/technology/2007/feb/08/business.comment (never even referring to Facebook). *See also* John Barrett, *MySpace is a Natural Monopoly*, TECHNEWSWORLD (Jan. 17, 2007, 4:00 AM PT), https://www.technewsworld.com/story/55185.html.

[82]*See* Evan Tarver, *3 Social Media Networks Before Facebook,* INVESTOPEDIA (Apr. 3, 2020), https://www.investopedia.com/articles/markets/081315/3-social-media-networks-facebook.asp.

[83]*See Social Media Stats Worldwide,* STATCOUNTER, https://gs.statcounter.com/social-media-stats (last visited May 22, 2020). Other sites indicate that Facebook has been losing market share as the market for social media websites has become more numerous and diverse. Priit Kallas, *Top 10 Social Networking Sites by Market Share Statistics [2020]*, DREAMGROW (Jan. 2, 2020), https://www.dreamgrow.com/top-10-social-networking-sites-market-share-of-visits/.

[84]J. Clement, *U.S. market share of leading social media websites 2020,* STATISTA (June 18, 2020), https://www.statista.com/statistics/265773/market-share-of-the-most-popular-social-media-websites-in-the-us/.

[85]*See Don't Count AltaVista Out Yet,* FORBES (Oct. 20, 2000), https://www.forbes.com/2000/10/20/1020alta.html#5846d3a79f3b.

[86]*See* John M. Newman, *Antitrust in Digital Markets*, 72 Vand. L. Rev. 1497 (2019); *see also* Danny Sullivan, *A Eulogy for AltaVista, the Google of its Time*, SEARCH ENGINE LAND (June 28, 2013, 6:53 PM), https://searchengineland.com/altavista-eulogy-165366.

While these data give only a partial picture of a complex history, there does not seem to be any evidence that durability of a dominant position is a more prominent feature of digital platform markets than for markets generally. Even among digital markets, entry and exit continuously occur, shares change, and dominance comes and goes.[87] While large IP portfolios can make entry more difficult, widespread licensing can actually facilitate new entry. Both IBM and AT7T started out with extraordinarily large patent portfolios, but both of those industries are now much more competitive. Further, markets subject to widespread multi-homing are very likely easier to enter than markets in which everyone single homes.[88]

C. Declining Costs, Network Effects, and the Extent of the Market

If a natural monopolist is charging a competitive price no rival with the same costs and technology will be able to compete successfully, even if the monopolist does not engage in any exclusionary practices. This natural monopoly position occurs when a firm's costs decline continuously to the point that sales are at least one half of the market at the competitive price. At that point this firm would have lower costs than any rival making the same product with the same technology and costs. The usual explanation for this phenomenon is

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[87]For good writing on the durability of monopoly, from a variety of perspectives, see YALE BROZEN & GEORGE BITTLINGMEYER, CONCENTRATION, MERGERS AND PUBLIC POLICY (1982) (concentration neither as bad nor as harmful as predicted); Timothy Bresnahan, *Empirical Studies of Industries with Market Power*, in 2 HANDBOOK OF INDUSTRIAL ORGANIZATION 1011, 1051-53 (1989); Paul Geroski and Alexis Jacquemin, Dominant Firms and their Alleged Decline, 2 Int'l J. Ind. Org. 1 (1984); Encaoua, Geroski & Jacquemin, *Strategic Competition and the Persistence of Dominant Firms: A Survey*, in NEW DEVELOPMENTS IN THE ANALYSIS OF MARKET STRUCTURE 55 (J. Stiglitz & G. Mathewson eds. 1986) (describing effect of strategic investments on market structure). On the comparative durability of platforms, *see* Jonathan Knee, *Why some Platforms Are Better than Others*, 59 MIT SLOAN MGM'T REV. 18 (2018).

[88] On the significance of multi-homing, *see supra*, text at notes __.

very high fixed costs, coupled with plant capacity to serve the entire market.

For example, suppose a firm with high fixed costs produces a commodity and experiences declining costs as it increases output. The decline bottoms out at an output level of 1000 units per time period. If it sells that output at the competitive price, which we assume is $1, the market will clear at 1800 units. As a result, any rival would be producing 800 units or less, so its costs would be higher and it would not be able to earn a profit at the $1.00 price.[89] Assuming that the natural monopolist's costs do not start going back up, the *socially* optimal outcome would be for it to satisfy the entire market by producing 1800 units and selling them at $1.00 per unit. However, as an unregulated monopolist it will maximize its profits, which could occur at a price significantly higher than $1.00.

Three qualifiers are important. First, if the firm charges more than its costs there might be room for other firms in the market. Second, the firm must have the capacity to satisfy the entire market. Third, a rival with lower costs might survive and even displace the original firm. For now we ignore the possibility of product differentiation, which throws the entire model into disarray.[90]

First, when a firm charges more than its costs it creates a price umbrella under which rival firms may be able to profit. Historically this has given dominant firms with declining costs a strategic choice: either charge a very low price now, which will keep rivals out; or else charge a higher price which will earn greater immediate profits but enable rivals to enter the market. Which strategy a firm chooses depends on several factors, including the degree of uncertainty about rivals, the need for short-run profits, or fear of antitrust litigation. For example, United States Steel Corp. followed the latter strategy for

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[89] *See* HERBERT HOVENKAMP, FEDERAL ANTITRUST POLICY: THE LAW OF COMPETITION AND ITS PRACTICE §1.4b (6th ed. 2020).
[90] *See* discussion *infra*, text at notes _.

many years, setting a price that permitted a fringe of firms to operate but limiting their growth.[91]

Second, a firm with continuously declining costs must also be able to meet market demand at its chosen price. The classic situation where this is not true is the passenger airplane flying a designated route. A single plane's per passenger costs decline as it fills the plane, all the way up to capacity. Most of the costs are fixed over that range. The airplane itself is a fixed cost that does not change with the number of passengers. Even the pilot does not cost more money as the plane fills. While fuel costs might be higher as a passenger is added, the amount is small.

Nevertheless, the plane will not be a natural monopolist if the number of people who want to fly a particular route at a certain time is greater than the plane's capacity. In that case a second plane will be necessary, and it could be provided by either the same firm or a different firm.[92] In the latter case we would have competition. Large capacity suggests why many public utilities such as electric companies are natural monopolies, at least at retail. Once the line is in place the incremental cost of additional usage is very small, and a given set of lines is usually adequate to take care of all demand. The story for airline routes is more variable. For large routes such as Chicago to Los Angeles many planes will be needed to meet each day's demand and there will be room for multiple carriers. However, a much smaller route, such as Kalamazoo, Michigan to South Bend, Indiana, is likely to have room for only one plane.

Third, and finally, even a natural monopoly can be displaced by a different technology or a firm with lower costs. For example,

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[91]Thomas K. McCraw and Forest Reinhardt, *Losing to Win: U.S. Steel's Pricing, Investment Decisions, and Market Share, 1901-1938*, 49 J. ECON. HIST. 593 (1989).

[92] The market might still be a natural monopoly if there are economies of scale to the operation of multiple planes. That is, the incumbent firm might be able to provide a second flight at a lower cost than a different firm could provide it.

railroads had a natural monopoly advantage in many markets for years, but were displaced by long distance trucking.[93] The AT&T telephone system was very likely a natural monopoly during the many decades in which all calls were hard wired between the calling parties. The rise of wireless communication and the emergence of firms that took advantage of these technologies, such as Sprint and MCI, changed that. Now most parts of the industry are competitively structured.[94] Newspapers that were thought to be dominant in their service areas had to fight off emergent radio stations for advertising revenue,[95] and today they are battling against the internet. In sum, the question whether a market is a natural monopoly is technology dependent. In digital markets in particular, technology can change quickly.

Further, the fact that a platform is digital does not mean that all of its output is digital. At one extreme, platforms such as Facebook, Spotify, or Netflix produce digital content almost exclusively. Facebook transacts in messages, digital photos and videos, all of which are digital. Spotify licenses streamed music, podcasts, or other programming which is entirely digital. Netflix does the same thing with movies and TV shows, although it retains a small but shrinking portion of its business for the rental of physical DVD or Blu-Ray discs.[96]

Amazon, Uber, and Airbnb are all very different. They sell physical and decidedly non-digital products and services. For most of these, each sale encounters additional variable costs. Further, the goods or services in question are rivalrous, which means that a

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[93]*See* Eastern Railroad Presidents Conf. v. Noerr Motor Freight, Inc., 365 U.S. 127 (1961) (recounting the conflict). See also L. Barry Costilo, *Antitrust's Newest Quagmire: the Noerr-Pennington Defense*, 66 MICH. L. REV. 333 (1967).

[94]*See* discussion *infra*, text at notes __.

[95]E.g., Lorain Journal Co. v. United States, 342 U.S. 143 (1951) (condemning newspaper for refusing to deal with anyone who was purchasing advertising on a competing radio station).

[96] Netflix, Inc., Annual Report 20 (Form 10-K) (Jan. 29, 2020) (showing DVD subscription revenues declining since 2017).

purchase of one unit does in fact deplete what is left over and there can be limitations on the number that any firm can produce.

For example, Amazon is a very large digital platform. Among its product offerings are some purely digital content, including Amazon Music, Prime Video, ebooks, and computer software. But the bulk of Amazon's sales are for things like toasters, power tools, luggage, food, and so on. Each sale of a Samsonite bag on Amazon displaces a bag, whether made by Samsonite or someone else, that could have been purchased from a different venue. Further, those venues could include other digital platforms, as well as traditional brick and mortar stores of various kinds. A *Consumer Reports* article from late 2019 found that luggage was being sold by a wide array of both online digital platforms and traditional brick-and-mortar stores, and some sellers who owned both. As of that date two-thirds of buyers purchased their luggage from a physical store rather than online. Among the highest rated online sellers were Luggage Pros, Away, and Amazon. The brick-and-mortar stores included Walmart, Sears, Target, and Costco.[97] For a product such as a Samsonsite bag, it is not clear that Amazon has a significant advantage over rivals.

Networked technologies such as 4G & 5G cellphones raise other issues. These networks are characterized by very considerable economies of scale in intellectual property rights and digital elements such as operating systems, but more conventional economies in the manufacture and distribution of devices. Here, an important factor making natural monopoly less likely is the high degree and quality of interoperability. This is simply a later version of the story of AT&T, where changes in technology facilitated the emergence of competition, but an antitrust consent decree and later federal legislation were needed to further and protect interoperability. In the case of cellular

[97] *Best Luggage Stores: Online or Walk-In?*, CONSUMER REPORTS (Dec. 17, 2019), https://www.consumerreports.org/luggage-stores/best-luggage-stores-online-or-walk-in/.

phones, although the Apple iPhone system is different from the technology used by the numerous Android manufacturers, interconnection is relatively seamless. Indeed, in spite of the need to coordinate many manufacturers, the Android system has grown more rapidly than the unitary Apple system and is now dominant in many parts of the world.[98]

Both declining costs on the production side and increasing value on the demand side can favor larger firms. This is where network effects come in. Network effects occur when customer value increases as volume increases. For example, the telephone system is worth more to each user as the number of users increase, whether or not costs decline. As a result, all else equal, a larger network will be more desirable than a smaller one. Indeed, the optimal phone system would be one in which every person can talk to everyone else. In a population of 1000, a single system covering all 1000 would be more valuable than two systems that each served 500 but were unable to interconnect. Standard setting often reflects the force of direct network effects, helping to explain such things as why markets tend to coalesce around a single fuel for automobiles, a single digital format for video discs, and so on.[99] By contrast, low cost high quality interconnection tends to mitigate these effects.[100] The reason standards battles over analog or digital video technologies such as VHS or Blu-Ray led to single winners was because the two technologies were not able to interconnect seamlessly.

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[98] On relative growth rates since 2007, see Vlad Savov, *The entire history of iPhone vs. Android summed up in two charts*, THE VERGE (June 1, 2016, 11:18 PM EDT), https://www.theverge.com/2016/6/1/11836816/iphone-vs-android-history-charts; see also Mark McDonald, *iOS 10 vs Android Nougat: What Should you pick?*, MEDIUM (June 5, 2017), https://medium.com/swlh/ios-10-vs-android-nougat-what-should-you-pick-45fe80d319cf.
[99] Such markets are sometimes described as experiencing economies in consumption. *See* Giacomo de Giorgi & Luigi Pistaferri, *Consumption Network Effects*, 87 Rev. Econ. Stud. 130 (2020).
[100] See discussion infra, text at notes __.

Network effects can be either "direct" or "indirect." A direct network effect occurs when a network becomes more valuable as the number of users or volume of usage on a single side increases, as in the example of the telephone. By contrast, an "indirect" network effect typically applies to complements that operate on the other side of the platform. For example, an increasing number of riders on the Uber App will make it more valuable to drivers, increasing their number as well.[101] Typically these markets are simultaneously subject to both direct and indirect network effects. For example, as the number of users of a particular credit card increases, that card becomes more valuable to merchants. At the same time, as the number of merchants who take a card increases, the card becomes more valuable to cardholders. [102]

In a two-sided market, the platform or venue intermediates between the two distinct but interdependent groups of participants in order to yield the optimal mixture of participation and price. In equilibrium this will be the mixture that maximizes the profits of the market's operator. For example, a printed periodical may deal with subscribers on one side and advertisers on the other side, obtaining revenue from both. Higher revenue from advertisers permits the magazine to charge lower subscription prices, and vice-versa. However, revenue will decline if one side gets out of kilter. Excessive advertising might make the periodical less attractive to customers, thus reducing the value that they place on it. As a result some will cancel their subscriptions, making the platform less valuable to advertisers. On the other side, too little advertising revenue will force the publisher to hike subscription prices. The trick for the publisher is to find not only the right price level for each side, but also to find the correct "participation level," or balance between subscribers and advertisers.

[101] See Jeffrey Church and Neil Gandal, *Network Effects, Software Provision, and Standardization*, 40 J. INDUS. ECON. 85 (1992) (making the same argument for computers and software); Matthew T. Clements, *Direct and Indirect Network Effects: Are They Equivalent*?, 22 INT'L J. INDUS. ORG. 633 (2004) (discussing many examples).
[102] Clements, *id.*,

A direct transaction two-sided market such as Uber, where the platform acts as broker or deal maker between the two sides, provides another good example. Higher fares will encourage more drivers but discourage riders; lower fares do the opposite. Further, the relative availability and demand changes throughout the day. The trick for the operator of the platform is to find the price that will optimize participation between the two at any given moment.

Notwithstanding both direct and indirect network effects, a two-sided platform is not necessarily a natural monopoly, and most probably are not. If competition is possible between two-sided platforms, then antitrust has a role to play in maintaining it. Further, two-sided platforms may also compete with more traditional one sided markets. For example, Uber, which operates on a two-sided platform, competes with Lyft, another two-sided platform; but it also competes with traditional taxicab companies,[103] and perhaps even with other modes of transportation.

A natural monopoly requires not only a plant that is big enough to serve the market, as the airplane example above illustrates.[104] It also requires a market that is sufficiently limited in the range of competitive choices. For example, when Amazon sells AmazonBasics carry-on luggage[105] it presumably does so in competition with other luggage manufacturers, such as Samsonite or TravelPro, and these sell at least some of their bags through traditional stores. In its *AmEx* decision the

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[103]As evidence, *see* Phila. Taxi Ass'n, Inc. v. Uber Tech., Inc., 886 F.3d 332 (3rd Cir. 2018), cert. denied, 139 S. Ct. 211 (2018).

[104]*See* discussion *supra*, text at notes __.

[105]*E.g.*, https://smile.amazon.com/AmazonBasics-Hardside-Spinner-Luggage-24-Inch/dp/B071VG5HKQ/ref=sr_1_1_sspa?dchild=1&keywords=amazonbasics+suitcase&qid=1587933491&sr=8-1-spons&psc=1&spLa=ZW5jcnlwdGVkUXVhbGlmaWVyPUExTExTODg5NTk0MldDJmVuY3J5cHRlZElkPUEwMjE2ODY3WDlORktDVjlYRTdXJmVuY3J5cHRlZEFkSWQ9QTAwNzQ1ODUyWThYNzJIMk9FUFZYJndpZGdldE5hbWU9c3BfYXRmJmFjdGlvbj1jbGlja1JlZGlyZWN0JmRvTm90TG9nQ2xpY2s9dHJ1ZQ== (last visited Apr 26 2020).

Supreme Court incorrectly concluded as a matter of law that "Only other two-sided platforms can compete with a two-sided platform for transactions."[106] That statement represented a triumph of ideology over science. The question of which firms compete with which other firms is one of market behavior and distinctly a question of fact.[107]

In any event, the Supreme Court's statement about lack of competition between two-sided and more traditional markets was dicta. The only relevant competing entities in *AmEx* (Visa, MasterCard, and Discover) were all two-sided markets.[108] In the *AmEx* case no one denied that AmEx and other two-sided credit card platforms competed with one another. Indeed, there would not have been any point to AmEx's antisteering rule if they did not compete. The rule was intended to forbid merchants from steering the user of a high priced AmEx card to a less costly credit card rival.

In any event, the *AmEx* Court was unclear about what it meant to say that two-sided platforms and traditional markets cannot compete. Certainly it is not the case that a two-sided platform such as Uber cannot take sales away from a traditional taxicab company, or vice-versa,[109] or that cash transactions cannot compete with credit card transactions. People switch back and forth between these things all the time.

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[106] *Amex*, 138 S.Ct. at 2287. *See also* United States v. Sabre Corp., ___ F.Supp.3d __, 2020 WL 1855433 (D.Del. Apr. 7, 2020), which relied on this statement to conclude that a merger between two computerized airline reservation systems could not be a merger of competitors because one was two-side and the other was not.

[107] Herbert Hovenkamp, *The Looming Crisis in Antitrust Economics*, BOSTON UNIV. L. REV. 2020 (forthcoming), available at https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3508832.

[108] See *Amex*, 138 S.Ct. at 2283 (indicating there was no issue of competition between Amex and alternatives such as cash because the anti-steering rule did not apply to them).

[109] *See generally* Phila. Taxi Ass'n, Inc. v. Uber Tech., Inc., 886 F.3d 332 (3rd Cir. 2018), cert. denied, 139 S. Ct. 211 (2018).

More technically, we would say that the two compete if one is in a position to force the other's prices down to a level close to its cost. That would be the proper question for market definition under the antitrust laws. For example, a traditional taxicab company would be regarded as a competitor with Uber if competition from the cab company was sufficiently robust to prevent Uber from charging a price significantly higher than its costs.[110] That is, in the process of setting its price Uber must consider not only demand and participation balancing as between its own drivers and riders, it must also consider competition with Lyft, as well as conventional taxicab companies. Further, all participants engage in multi-homing. Customers can switch between Uber, Lyft, and taxicabs, taking whichever is most favorable at the moment. Some drivers do the same thing.[111] This makes the competition question intensely factual, and with the likelihood of different outcomes for different situations.

Finally, it is no answer that in a long run equilibrium only the platform will dominate. It may or may not be the case that eventually Uber and Lyft will drive traditional taxis out of the market. More likely, the latter will adopt technologies that makes them into more able competitors. But antitrust policy necessarily looks at shorter or middle runs, so what counts is the substitution now and in the near term. In all cases, however, the question whether a particular two-sided platform competes with a more traditional market is one of fact, not of law.

D. Product Differentiation and Winner-Take-All

Even if costs decline continuously as volume increases or there are significant network effects, a digital platform is still not necessarily a natural monopoly. Another reason for inter-platform competition is

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[110]*See* 2B ANTITRUST LAW, *supra* note __, ¶¶530-531, 536,-538.
[111]*See* Jason Laughlin, *From Cab to Uber to Cab, Drivers Try to Find a Way to Make a Living*, PHILADELPHIA INQUIRER (May 17, 2018), https://www.inquirer.com/philly/business/transportation/uber-lyft-cab-drivers-competition-philadelphia-20180517.html (profiling drivers who drive for both Uber and a Philadelphia taxicab company).

product differentiation. While a natural monopoly can exclude a rival with an identical product simply by charging a competitive price, the differentiated entrant faces a different demand curve. As a result there can be room for new entry even against a much larger firm. Often the inroads into monopoly come from entrants whose product was different than those of the incumbent. For example, the railroads encountered significant competition from trucking,[112] and AT&T's competition came from wireless technology.[113] Facebook displaced MySpace, not by simply going head-to-head with a substantially identical product, but rather by offering a set of inter-member communication services that MySpace lacked.[114]

Consider internet dating platforms, which are two-sided markets that have significant indirect network effects and almost exclusively digital output. Dating sites match people who want to pair up with a complementary partner. They become more valuable to one set of participants (say, men on a more traditional platform) as the number of a complementary set of participants (women) is larger; or vice-versa. That logic would lead to the conclusion that the market for dating sites is a natural monopoly, because a site with more participants would always have an advantage over a smaller site. Seekers would always prefer sites with a larger number of sought, and vice-versa, until the full population of dating site users was exhausted.

So why don't we have a single dating site that collects all the seekers and the sought into one place? One possibility of course is that the market for dating sites has not yet reached an equilibrium and eventually this will happen. However, online dating platforms have

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[112]*See* discussion *supra*, text at notes __.
[113]*See* discussion *supra*, text at notes __.
[114] *See* Adam Hartung, *How Facebook Beat MySpace*, FORBES, (Jan. 14, 2011), available at https://www.forbes.com/sites/adamhartung/2011/01/14/why-facebook-beat-myspace/#18ccc0f7147e.

been around for some twenty-five years and their number and revenues are still growing.[115]

The industry has also been subject to a fair amount of consolidation, mainly by merger. Today the industry is best described as a having a dominant firm (Match Group) with a competitive fringe.[116] Significantly, when large sites such as Match acquire sites such as Tinder or OKCupid they generally do not blend them all into the same site but maintain them with separate identifies and membership. That also indicates that the sites are not natural monopolies. If they were, then as they came under the control of a single owner they would be blended into one. For example, if the same firm came to acquire two substantially identical telephone networks with five hundred subscribers on each, merging the two would create very considerable value. The firm would profit by merging them.

Product differentiation in dating sites results mainly from reduced search costs in a world of diverse user preferences. Dating sites range from the fairly staid and traditional, such as Match.com; to the much more risqué, such as AdultFriendFinder.com, to more focused sites such as Grindr for gays and lesbians, OurTime for older adults, J-Date for Jewish people, Christian Mingle for Christian evangelicals, Shaadi for Indians, EliteSingles for people with higher education levels, PURRsonals for cat lovers, Hotsaucepassions, for lovers of spicy food,

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[115]*See* Wikipedia, Timeline of Online Dating Services (last visited June 7, 2020), which notes that Kiss.com, founded in 1994 was a digital predecessor to Match.com, which launched in 1995. Since that time the industry has grown steadily. As of May 2020 there were 2430 firms, some of whom owned multiple sites, and continuing growth. See Dating Services Industry in the U.S. – Market Research Report (Ibisworld, May 2020), available at https://www.ibisworld.com/united-states/market-research-reports/dating-services-industry/.

[116] Match Group owns Match, Tinder (acquired in 2018), OKCupid (acquired in 2011), and Hinge (acquired in 2018), and was estimated in 2019 to have a market share of 66%. eHarmony, which own some smaller sites, has 10.8%. No other firm exceeds an 8% Market share. *See* Evan M. Gilbert, *Antitrust and Commitment Issues: Monopolization of the Dating App Industry*, 94 NYU L. REV. 862, 876 (2019).

and many more. As long as this product differentiation is both durable and desired, dating sites will not be winner-take-all platforms.

The same thing is true of a variety of other two-sided platforms that have significant network externalities. For example, many, many periodicals that depend on advertising have both readership and advertising rates that become more attractive as numbers rise. But they are also significantly differentiated from one another. *Teen Vogue* (#74 nationally by circulation) and *Field & Stream* (#73 nationally) are unlikely to merge into one. Nor is one likely to drive the other out of existence and become dominant.[117] Even if the two came to be owned by the same parent, it is unlikely that the owner would blend the two into one. They appeal to very different audiences. This is why any claim that two-sided markets are "winner take all" or even "winner take most" markets are simply wrong. That statement is very likely true only of undifferentiated products that sellers are unable to distinguish from their competitors.

For other products, such as internet search engines, product differentiation has been less successful. There are in fact differences among search engines in page formats, the way results are displayed, the amount and nature of the information that they preserve, and the algorithms used to display results. However, none of these differences has significantly balanced out the competition. Worldwide search data from 2020 shows Google with a market share in the neighborhood of 92%, Bing (Microsoft) with 2.5%, and no one else with greater than 2%.[118] As a result, this market falls closer to the standard IO model of a dominant firm with a competitive fringe. Eventually it may be a monopoly.

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[117] *See* Wikipedia "list of magazines by Circulation, United States"

[118] *See Search Engine Market Share Worldwide*, STATCOUNTER, https://gs.statcounter.com/search-engine-market-share (last visited June 28, 2020). The share in the United States is a bit lower – about 88%. *See Search Engine Market Share in 2020*, OBERLO, https://www.oberlo.com/statistics/search-engine-market-share (last visited June 28, 2020).

What accounts for these lopsided numbers in the search engine market is not entirely clear. Decisions such as the EU case against Google Search are based on the premise that Google biases search results to favor its own assets, such as YouTube, or else paid supporters.[119] While search biases might increase Google's *revenue*, however, they should serve to decrease rather than increase its share of the search market. As long as switching among search engines is easy, biased results should lead users to substitute away.

A more plausible possibility is that Google obtains an advantage because it is "tied" in some way to other programs. For example, Google search has traditionally been the default search engine on Android smartphones, at least until an EU decision in 2018.[120] However, the user of an Android device can readily add apps for alternative search engines.[121]

To the extent searchers are disappointed by search bias they can as a general matter easily switch to a different search engine. Switching costs range from nil to very low. Today anyone with a desktop, laptop, or handheld can have multiple search engines and switch among them costlessly. While search is subject to economies of scale, users do not pay the cost, so there are no *cost* advantages associated with doing a search on Google or switching to an alternative. Of course, cost advantages might also show up in better results.[122] Overall, the most

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[119]*See* Commission Decision of June 27, 2017, relating to AT.39740 – Google Search (Shopping), https://ec.europa.eu/competition/elojade/isef/case_details.cfm?proc_code=1_39740.

[120]*See* discussion *infra*, text at notes __.

[121]Other possibilities are explored in Fiona M. Scott Morton & David C. Dinielli, *Roadmap for a Digital Advertising Monopolization Case Against Google* (Omidyar Network, May 17, 2020), https://www.omidyar.com/insights/roadmap-digital-advertising-monopolization-case-against-google.

[122]*See* David R. Keith & Hazhir Rahmandad, *Are On-Demand Platforms Winner-Take-All Markets?*, PROC., ACAD. MGMT (1 Aug 2019), https://journals.aom.org/doi/pdf/10.5465/AMBPP.2019.150.

compelling explanation for the market share of Google Search is consumer preference.

Finally, the ability of firms to differentiate their products or services at least partly accounts for the dominant platform strategy of buying up nascent digital firms, discussed later.[123] Most of these acquisitions are not purely vertical but rather fall into the category of "product extension" mergers,[124] or acquisitions intended to broaden the range of products or services that the acquiring firm offers. They may be an effort either to obtain product differentiation, or more likely, to cut off efforts by others to develop differentiated alternatives. Here, antitrust policy concerning startup acquisitions becomes relevant. Large platforms such as Facebook, Amazon, or Google may have been able to maintain their positions by buying up all of the prospective challengers before they can ripen into more formidable rivals.[125]

III. ANTITRUST POLICY AND DIGITAL PLATFORM DOMINANCE

A. Against Platform Exceptionalism

In its *AmEx* decision the Supreme Court majority did a great deal of violence to the antitrust economics of markets.[126] *First*, it disregarded the most basic of all properties of markets, which is that they consist of close substitutes. Instead, it lumped production complements into the same market, in the process making coherent economic analysis of the problem impossible. *Second* it ignored an important distinction between fact and law: questions about markets, including identifying who competes with whom, are questions of fact. Rather, the majority held as a matter of law that two-sided platforms compete only with other two-sided platforms, but not with more traditional markets. This holding, which was not essential to the

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[123] *See* discussion *infra*, text at notes __.
[124] On product extension mergers, see 5 PHILLIP E. AREEDA & HERBERT HOVENKAMP, ANTITRUST LAW, Ch. 11 (4th ed. 2017). *See also* C. Scott Hemphill and Tim Wu, *Nascent Competitors*, __ UNIV. PA. L. REV. __ (2020) (forthcoming), available at https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3624058.
[125] *See* discussion *infra*, text at notes __.;
[126] *See* Hovenkamp, *Looming Crisis, supra* note __.

outcome, has already produced serious mischief in lower court decisions. It led one court to conclude that a merger between a two-sided online airline reservation system and a more traditional system could not be a merger of competitors.[127] *Third*, without argument or evidence it required that market power be shown indirectly in a vertical restraints case, by reference to a relevant market, even though superior techniques are available. This is particularly true in digital markets such as this one where data can readily be obtained. This was another confusion between fact and law. *Fourth*, the Court's majority completely butchered the economics of free riding – largely a Chicago School development – by ignoring the fact that when a firm is able to recover the full value of its investments through its own transactions free riding is not a problem. *Fifth*, it failed to perform the kind of transaction-specific factual analysis that has become critical to economically responsible antitrust law. Rather, it simply assumed that in a two-sided market losses on one side are inherently offset by gains on the other side, but without examining the actual transactions before it.[128] AmEx's anti-steering rule produced immediate losses for *both* the affected cardholder and the affected merchant. The only beneficiary was the operator of a platform able to shelter itself from competition that would have benefitted both cardholders and merchants.

Markets differ from one another.[129] This is why we apply mainly antitrust law to some, regulation to others, and some mixture of the two to others. It is also why antitrust is so fact intensive, particularly on issues pertaining to market power or competitive effects. Indeed, the biggest advantage that antitrust has over legislative regulation is its fact sensitive nature. Antitrust courts do and should avoid speaking categorically about market situations that are not immediately before them. Within this framework there is no reason for thinking that digital platforms are a unicorn that should be treated differently from other firms. Every market has its distinct features, but the ordinary rules of antitrust analysis are adequate to consider them.

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[127]United States v. Sabre Corp., 2020 WL 1855433 (D.Del Apr. 7 2020) ("Only other two-sided platforms can compete with a two-sided platform for transactions," quoting *AmEx*, 138 S.Ct. at 2287).

[128] See Erik Hovenkamp, *Platform Antitrust*, 44 J. Corp. L. 713 (2019).

[129] See Herbert Hovenkamp, *Regulation and the Marginalist Revolution*, 71 Fla. L. Rev. 455, 492-495 (2019).

The *AmEx* decision is a cautionary tale about what can happen when a Court is so overwhelmed by a market's idiosyncrasies that it abandons well established rules for analyzing markets.

Contrary to some opinion,[130] most digital platforms are not structural winner-take-all markets. In most cases dominant platforms cannot maintain a dominant position simply by setting a price at or a little above the competitive level. Just as other dominant firms, if they wish to maintain their power they must behave strategically. Further, the general case for regulating them is weak, at least if the goal of the regulation is the ordinary neoclassical one of approximating competitive rates of output.[131] The rationales for regulation are much broader, however, than the range of rationales for antitrust policy.[132] To the extent that the goal of regulation is something other than maintaining competitive levels of output, it will have to be implemented by means other than the antitrust laws. For example, there could be exceptions dictated by telecommunications policy, privacy, decency, political balance, or other concerns.

Not only do markets generally differ from one another, digital platforms differ among themselves. One of most important difference lies in the nature of the products. Some platforms have inputs and outputs that are composed primarily of intellectual property rights that are both nonrivalrous and inexhaustible. Others deal in traditional and more tactile goods and services where the power to exclude varies from one situation to another. For some technologies, product differentiation serves to make natural monopoly highly unlikely.[133] Some platforms compete intensely with more traditional markets, while others do not. The "pure information" platform, such as Facebook, presents the greatest threat for durable firm dominance, although even here product differentiation or innovation by rivals can blunt its edge.[134]

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[130] *See* citations supra, note __.
[131] *See* ALFRED E. KAHN, THE ECONOMICS OF REGULATION: PRINCIPLES AND INSTITUTIONS (rev. ed. 1988).
[132] *See* STEPHEN BREYER, REGULATION AND ITS REFORM 15-25 (1982).
[133] *See* discussion *supra*, text at notes __.
[134] *See* discussion *supra*, text at notes __.

Overly categorical approaches to the control of platform competition are unlikely to work. Rather, antitrust litigation against them will require individualized fact finding, an assessment of competitive harms, and relief appropriately tailored for the circumstances. Under the antitrust laws a properly defined exclusionary practice is one that unreasonably creates or *maintains* monopoly status. The courts often speak of "monopoly maintenance" as the offense.[135] If such a practice succeeds, it will serve to prolong the duration of the monopoly as market forces might otherwise operate to weaken or destroy it.[136]

B. Appropriate Antitrust Remedies

This subsection offers some thoughts on how antitrust tribunals can further digital platform competition without become excessively involved in the ongoing supervision of business conduct. This means that antitrust decision makers must seek to recognize and enjoin practices that reduce overall output and result in higher consumer prices or reduced quality or innovation. Concerns for privacy or political power are of course relevant to legal policy generally, but they are not antitrust problems unless they threaten to reduce output, raise price, or restrain innovation.

1. Structural Relief v. Prohibitory Injunctions

For most antitrust problems that do not involve recent acquisitions, structural breakup is not a promising remedy, even if dominance has been established. The history of structural relief in American

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[135] *E.g.*, United States v. Grinnell Corp., 384 U.S. 563, 571 (1966) ("willful acquisition or maintenance" of monopoly power); Comcast Corp. v. Behrend, 569 U.S. 27, 43 (2013) (same); Christianson v. Colt Indus., 486 U.S. 800, 811 (1988) (same); McWane, Inc. v. FTC, 783 F.3d 814, 832 (11th Cir. 2015) (recognizing exclusive dealing as a monopoly maintenance offense). Westlaw identifies 1393 judicial decisions employing this formulation (last visited June 16, 2020).

[136] 2B PHILLIP E. AREEDA. ET AL, ANTITRUST LAW ¶ 501, at 111 (3d ed. 2007)¶ 501 (5th ed. 2021) (noting importance of durability).

monopolization cases is not pretty.[137] Requiring integrated firms to spin off specific plants or products will simply make them less attractive to consumers but will not obviously dissipate market power in any particular product or service.

This problem is if anything more severe for digital firms. To be sure, a multi-divisional firm such as Alphabet, Inc. (Google's parent) can probably be broken into separate parts that follow its corporate lines – perhaps one firm for the Android operating system for small telecommunications devices, another for Google Search, another for application services such as Gmail, another for Google Nest home products, and yet another for Waymo autonomous driving technology.

But breaking apart noncompeting units does not increase the amount of competition. For example, if a manufacturer makes 80% of the world's toasters and 75% of the world's blenders, compelling divestiture of one will yield one firm that makes 80% of the world's toasters, and another firm that makes 75% of the world's blenders. Because the two divisions are not competitors to begin with, we have done nothing to increase the amount of competition. In order to do that we need to break *into* each product. We could do that by forcing divestiture of half of the firm's toaster business and half of its blender business, spinning them off to other firms. Depending on the nature of production, this can be a much more difficult thing to accomplish. The more integrated the primary company, the greater the difficulties. For example, if the firm makes its toasters in one plant with an integrated production line and toasters in a different, similar plant, a divesture that actually increases competition would require dismantling or restructuring the plants themselves.

To be sure, a divestiture might eliminate synergies or leverage that operate between different non-competing divisions. For example, the Android operating system has incorporated biases in favor of Google Search (GS).[138] GS has generally been preinstalled on Android

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[137] William E. Kovacic, *The Troubled Past and Uncertain Future of the Sherman Act as a Tool for Deconcentration*, 74 IOWA L. REV. 1105 (1989).
[138] *See* Alexandre de Corniere & Greg Taylor, *On the Economics of the Google Android Case*, VOX (Aug. 15, 2018), https://voxeu.org/article/economics-google-android-case.

devices.[139] While users are free to add additional search engines, GS has whatever advantages accrue from being the default. These might be eliminated if Android and Search were owned by different firms.

Or we might divest Amazon's eBook business and give it to a different firm. Currently a user can call up a book title on Amazon and select from available formats, whether hardback, paperback, Kindle (ebook), or audio. Forcing a divestiture of Kindle might require a customer who wanted the ebook version to go to a different firm's website. The impact on output and prices is uncertain. Currently ebooks are sold by a variety of resellers, including the publishers themselves. The principal impact of such a divestiture might be simply to make it less convenient for readers to select a book format. That would not be a consumer welfare improvement.

Yet another proposal, which received some discussion during the 2019-2020 Presidential campaign, is to force Amazon to separate its third party products from its platform. Under the proposal, Amazon "would be prohibited from owning both the platform utility and any participants on that platform."[140] Underlying the proposal is the argument that Amazon sometimes copies third party products that it is selling and develops its own in house version, which it sells cheaper. A frequently given example is a laptop stand that Amazon sold for a small third party seller, Rain Design, at a price of around $40.[141] Amazon subsequently designed its own competing stand which it sold for about half that price.[142]

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[139] Benjamin Edelman & Damien Gerardin, *Android and Competition Law: Exploring and Assessing Google's Practices in Mobile*, 12 EUR. COMP. J. 159 (2016).

[140] Elizabeth Warren, *Here's how we can break up Big Tech*, MEDIUM (Mar. 8, 2019), https://medium.com/@teamwarren/heres-how-we-can-break-up-big-tech-9ad9e0da324c.

[141] *See Rain Design 10032 Stand Laptop Stand, Silver (Patented),* AMAZON.COM, INC., https://smile.amazon.com/Rain-Design-mStand-Laptop-Patented/dp/B000OOYECC/ref=sr_1_1?keywords=rain+design+laptop+stand&qid=1577046924&sr=8-1 (last visited June 13, 2020).

[142] *See AmazonBasics Laptop Desk Stand for PC and Macbook – Silver*, AMAZON.COM, INC., https://smile.amazon.com/AmazonBasics-DSN-01750-SL-Laptop-Stand-

Both the problem and the antitrust remedy raise troublesome issues. Even if the rival stand had been sold on someone else's website, Amazon or some other seller still might have copied and sold it. The story indicates that the Rain Design stand was not effectively protected by intellectual property rights. Otherwise Amazon would have been guilty of infringement. Further, the margins on the Rain Design product were so high that Amazon was able to make and sell a similar product at half the price.[143] In fact, a large number of sellers sold competing stands on Amazon. Most but not all were at prices lower than Rain Design's.[144] This particular antitrust remedy appears to be a naked choice preferring a smaller vendor's wish for high margins over consumers' desires for low prices.

The biggest impact of Amazon's sales of its own brands in competition with third party Amazon sellers, however, does not come from sales of things like laptop stands. Rather, Amazon has developed house brands that compete with well-established labels sold by large manufacturers at high margins. For example, AmazonBasics batteries compete with Duracell (owned by Berkshire-Hathaway), Energizer, and Ray-O-Vac. Its AmazonBasics small appliances compete with those produced by Black & Decker, and its AmazonBasic travel luggage competes with Samsonite.[145] The main thing this proposal would accomplish is to segregate aggressively priced low margin house brands from high margin premium brands, and customers would end up paying more. The underlying problem is no different than the one that has caused many larger retailers such as grocers to begin offering house brands, sold in the same stores but at lower margins than the premium brands charge.[146]

Silver/dp/B00WRDS0AU/ref=sr_1_11?keywords=rain+design+laptop+stand&qid=1577047065&sr=8-11 (last visited June 18, 2020).

[143]Or alternatively, that Rain Design had extremely high costs.

[144]An Amazon search for "laptop stand" (June 18, 2020), reveals more than thirty stands of various designs. *See* Search results, AMAZON, https://amazon.com.

[145]Hovenkamp, *Looming Crisis, supra,* note __.

[146] *See* NIRMALYA KUMAR & JAN-BENEDICT E.M. STEENKAMP, PRIVATE LABEL STRATEGY: HOW TO MEET THE STORE BRAND CHALLENGE (2007).

Prima facie, determining harms and benefits from judicially mandated restructuring of firms is difficult. The point is not that structural remedies are categorically bad, but that no divestiture should be compelled without a relatively clear understanding of the likely effects. As with all antitrust remedies, the goal should be to create a situation in which post-divestiture output is higher than it was before. Higher output will be the source of consumer benefit. Far too often well-intended divestitures or structural separations end up doing precisely the opposite.

The 1911 *Standard Oil* decree divided that company into 34 firms, many of which sold petroleum products in distinct geographic areas. In addition, however, were at least two pipeline companies, a tank car company, a mining company, and several refining and natural gas companies.[147] Shortly thereafter the price of gasoline went up sharply, forcing the FTC to write a lengthy report explaining why.[148] Whether the price increase was caused by the Standard breakup is hard to say, but the facts give us some pause. One troublesome possibility is that the breakup along regional lines simply left a group of regional monopolies in place. However, the breakup also interrupted production and supply networks, thus increasing input costs. That would not be a favorable outcome. Divestiture that actually benefits consumers is more easily said than done.

A properly designed injunction against unreasonably exclusionary contract provisions can have more predictable procompetitive effects and sometimes can accomplish more than divestiture would. For example, a remedy against Google's practice of preinstalling Google Search on Android need not require divesting one of the firms from the other. It could as effectively be remedied by an injunction that simply halted the practice and gave purchasers of new Android devices a startup menu to select from competing search engines.[149] This was the result of the EU's July, 2018, *Android*

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[147]*See* United States v. Standard Oil Co. of New Jersey, 173 F.177, 198-199 (E.D.Mo. 1909). *See also* Standard Oil co. of New Jersey, 221 U.S. 1, 35 n. 1 (1911) (listing Standard's assets).

[148] FTC, *Report on the Price of Gasoline in 1915* (1917) (3 volumes).

[149]The proposal was made in Herbert Hovenkamp, *Antitrust and Information Technologies*, 68 FLA. L. REV. 419, 436-437 (2016).

decision.[150] Under that remedy, upon initial startup of a new device the Android screen lists a number of alternative general search engines, and the customer can select one. Placement on the list is determined by competitive bid. Android's own information page on this process shows a screen giving new users a choice among four search engines: Yahoo, DuckDuckGo, Google, and Bing.[151]

The mandatory injunction in this case may actually be more effective than divestiture, which in and of itself does not guarantee the desired result but only structural separation of the components. For example, Apple and Google Android are distinct and competing firms. Nevertheless, Google Search has also been the preinstalled default search engine on most Apple devices as well.[152] In contrast to divestiture, the injunctive remedy can go straight to the practice and give the default choice directly to consumers.

A firm or subsidiary is economically a bundle of contracts operating under the state-imposed structural rules of corporate law.[153]

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[150]*See* Commission Decision of July 18, 2018, relating to AT.40099 – Google Android, https://ec.europa.eu/competition/elojade/isef/case_details.cfm?proc_code=1_40099. In particular, see ¶1214, p. 274, noting that pre-installation of competing search engines would have created more competition in search traffic. See also id., noting testimony that installing a single search engine as a default increased that search engine's traffic by a factor of 2-3, and also that Google was willing to pay large sums in order to be the default search engine on some devices. See Katie Collins, *Google Won't be Default Search Engine for Android Users in EU Next Year*, CNET (Aug. 2, 2019), https://www.cnet.com/news/google-to-prompt-eu-android-users-to-choose-a-search-engine-within-chrome/.

[151]*See About the choice screen*, ANDROID (June 1, 2020), https://www.android.com/choicescreen/.

[152]*See* Pinar Akman, *A Preliminary Assessment of the European Commission's Google Android Decision*, CPI ANTITRUST CHRONICLE (Dec. 2018), available at https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3310223.

[153]*See, e.g.*, Ronald H. Coase, *The Nature of the Firm*, 4 Economica 386 (1937); OLIVER E. WILLIAMSON, THE ECONOMIC INSTITUTIONS OF CAPITALISM: FIRMS, MARKETS, AND RELATIONAL CONTRACTING (1985); Michael C. Jensen & William H. Meckling, *Theory of the Firm:*

One problem with divestiture along firm lines is that it defers to corporate forms to upset the entire bundle, even though only one or a few contracts in the bundle might be harmful and the rest might be beneficial. As the EU remedy in the Android/search case suggests, one can accomplish the segregation of the operating system and search in different ways. Divesture is the bluntest way because it segregates all attributes of the two entities, both the harmful and the beneficial. By contrast, the contract solution is much more focused on the competitive problem at hand.

Antitrust's rule of reason enables courts to avoid sledgehammer remedies such as breakup and go straight to the practice that is harming competition. Consider the *NCAA* case, which was a challenge to an NCAA rule that limited the number of nationally televised games that any single team could have.[154] Once the Supreme Court found that limitation unlawful, it could have dissolved the NCAA. It did exactly that a century earlier in the *Trans-Missouri* case, breaking up a largely efficient joint venture in order to control its price-fixing.[155] But a breakup of the NCAA would also have brought to an end all of the good things that the NCAA was able to accomplish through joint action. Indeed, the market for intercollegiate sports requires someone to organize it. In this case the harm was much more effectively addressed by a focused decree enjoining the limitation on games. After that, the member schools could compete for televised game contracts. The number of annually televised games immediately more than doubled, from 89 to more than 200.[156]

Managerial Behavior, Agency Costs, and Ownership Structure, 3 J. FIN. ECON. 205 (1976).

[154]National College Athletic Ass'n v. Board of Regents of Univ. of Oklahoma, 468 U.S. 85 (1984).

[155]United States v. Trans-Missouri Freight Ass'n., 166 U.S. 290 (1897) (granting government's request to dissolve a joint venture because it fixed freight rates). On the efficiency of the Trans-Missouri venture, which lead both the Interstate Commerce Commission and the Eighth Circuit below to approve it. *See* HERBERT HOVENKAMP, FEDERAL ANTITRUST POLICY: THE LAW OF COMPETITION AND ITS PRACTICE §5.2a1 (6th ed. 2020).

[156]*See College Football on Television*, WIKIPEDIA, https://en.wikipedia.org/wiki/College_football_on_television (last visited June 27, 2020). For more detail about the decree's effects see BRIAN PORTO, THE SUPREME COURT AND THE NCAA: THE CASE FOR LESS

An advantage traditionally asserted for structural remedies is that they permit competition to emerge without the need for ongoing judicial administration. By contrast, one of the downsides of nonstructural remedies such as injunctions is that they may require ongoing court supervision, and this should be avoided. While this critique is valid for some injunctive remedies, it is not for others. The task for the court is to design injunctive remedies that will permit the market rather than judicial supervision to determine post-relief competition. In a case such as *NCAA*, this is relatively easy. Given a very large number of colleges in the NCAA plus the fact that televised games can readily be observed (making a surreptitious agreement impossible), a simple injunction should be sufficient to let competition do its work. Each school can then decide for itself how many games to broadcast.

By contrast, injunctive remedies for single firm conduct are much more difficult to devise. For example, a court might attempt to remedy an unlawful refusal to deal by issuing an injunction compelling dealing. However, it would then have to determine the scope and terms of any forced dealing and almost certainly be called on later when disputes arose. The court would effectively become a regulator. In that case a stronger argument can be made for a structural decree that makes the market more competitive.

In other cases an effective mechanism may already be in place for administering duties to deal. The *Trinko* decision provides one example. An antitrust dealing order was deemed unnecessary in part because dealing orders were already being enforced by regulatory agencies acting under the Telecommunications Act.[157] Or in cases involving violations of prior commitments to license patents out on fair, reasonable, and non-discriminatory (FRAND) terms, tribunals

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COMMERCIALISM AND MORE DUE PROCESS IN COLLEGE SPORTS 75-77 (2012).

[157] Verizon Communications Inc. v. Law Offices of Curtis v. Trinko, LLP, 540 U.S. 398, 413 (2004) (declaring the New York Public Service commission and the FCC to be "effective steward of the antitrust function").

have already been set up for that purpose.[158] In sum, while injunctions have the capacity to be more effective and precise antitrust remedies, they must be used with some appreciation of what the post-remedy market is going to look like. In general, a court should avoid an injunction that will require it to be an ongoing regulator of business conduct.

2. Other Ways to Induce Competition Within and Among Digital Platforms

The approaches discussed briefly in this section do not necessarily require the divestiture of assets or spinoffs of independent firms. Rather, they alter the nature of ownership, contracts, intellectual property licenses, or control. While the current antitrust statutes would permit all of them, they also have novel attributes that could provoke resistance.

The traditional way that antitrust law applies structural relief is to break up firms' various physical assets, through such devices as forcing divestiture of plants or subsidiaries. To the extent these breakups interfere with the firm's production and distribution they can produce harmful results such as increased costs or loss of coordination. An alternative, however, is to leave the firm's physical assets intact but change the structure of ownership or management. One of the most important achievements of the law and economics movement was the realization that anything that can specified and managed within a firm can also be specified and managed through a properly designed contract. One legal difference, however, is that entities united by contract can still be separate profit centers. With the proper structure, individual owner/managers can be incentivized to compete in some parts of their business while they coordinate other parts. Further, such arrangements are subject to the more aggressive "restraint of trade" standard of §1 of the Sherman Act rather than §2's monopolization

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[158] *See* FTC v. Qualcomm, Inc., 411 F. Supp. 3d 658 (N.D. Cal. 2019); Herbert Hovenkamp, *FRAND and Antitrust*, __ Corn. L. Rev. ___ (2020) (forthcoming), available at https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3420925.

standard. This can have important consequences for antitrust remedies. There is plenty of precedent. The history of antitrust law is replete with organizations, often organized as corporations, that are owned and managed by competing entities. For the most part the courts have applied §1, even to practices that from a corporate perspective appeared to be those of a single firm. The result in many instances has been to force firms within the same incorporated organization to behave competitively vis-à-vis one another.

a. Enabling Competitive Ownership and Management of Large Digital Platforms

The fact that a firm or market operates most efficiently when a single decision maker controls it does not necessarily entail that the controlling entity must be a single firm. It could as easily be a joint venture whose members coordinate some activities while competing on others. Such mixed management of productive assets has a long and storied history that goes back to the Middle Ages. Farmers, ranchers, and fishermen produced cattle, sheep, and fish on various "commons," or facilities that were shared among a large number of actors and subjected to management rules.[159] Many of these operated on a mixed model that involved individual production for stationary products such as crops, but a commons for grazing cattle or other livestock. The economies of scale for growing crops were different from the economies to raising cattle. Production of grains or vegetables functioned very well on small individual plots but cattle or fish required a much larger piece of land. The result was that these medieval farmers grew their crops unilaterally but grazed their cattle collaboratively. That is, rather than merging, which is a common approach to achieving scale economies, they collaborated. However, their collaboration was limited to those parts of their business to which these economies applied.

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[159]*See* ELINOR OSTROM, GOVERNING THE COMMONS: THE EVOLUTION OF INSTITUTIONS FOR COLLECTIVE ACTION 61–65 (1990).

For products such as cattle or fish, the costs of creating or maintaining boundaries among individual parcels was greater than the costs of shared management. That was not the case for radishes or wheat. So rather than cutting a large pasture or bay into 100 fenced off plots, participating property owners operated it as a single economic unit, substituting management costs for fencing costs. Just as for any firm, size and shape are determined by comparing the costs and payoffs of alternative forms of organization.[160] Commons emerged when the administrative costs of operating them as a commons were less than the cost of subdivision.[161]

So while a commons can be a very large firm, it is operated by a collaboration of entities rather than a single one. Output reductions and price-setting by a single firm are almost always out of reach of the federal antitrust laws. On the other hand, if a market is operated by a joint venture of active business participants their pricing is subject to the laws against price fixing. Their exclusions also operate under the more aggressive standards that antitrust applies to concerted rather than unilateral refusals to deal.[162]

The classic antitrust example is the 1918 *Chicago Board of Trade* case.[163] As Justice Holmes had described the Board thirteen years earlier,[164] it was a state chartered corporation whose members were

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[160] *See generally* Ronald H. Coase, *The Nature of the Firm*, 4 ECONOMIA 386 (1937)

[161]For competitive analysis, see CHRISTINA BOHANNAN & HERBERT HOVENKAMP, CREATION WITHOUT RESTRAINT: PROMOTING LIBERTY AND RIVALRY IN INNOVATION 328-338 (2014)

[162]13 PHILLIP E. AREEDA & HERBERT HOVENKAMP, ANTITRUST LAW ¶¶2220-2224 (4th ed. 2018).

[163]Board of Trade of the City of Chicago v. United States, 246 U.S. 231 (1918).

[164]Board of Trade of the City of Chicago v. Christie Grain & Stock Co, 198 U.S. 236, 247 (1905) (describing the Board as "a great market, where, through its eighteen hundred members, is transacted a large part of the grain and provision business of the world."). In the 1918 decision Justice Brandeis relied on this decision to describe the Board's corporate structure and operations. *Chicago Board*, 246 U.S. at 235.

themselves traders with an exclusive right to do business on the Board's trading floor.[165] The "call rule,' which prevented collaborative price-making among the members except during exchange hours, could not have been challenged under the antitrust laws as unilateral conduct. Rather, the members were regarded as independent actors for the purposes of trading.[166] So too with the NCAA, whose members were independent actors for purposes of deciding how many collegiate football games should be televised.

Not only is the substantive law against such collaborative activity more aggressive than it is against unilateral actions, the remedial problems are typically less formidable. If a firm acting unilaterally should set an unlawful price the court would have to order it to charge a different price, placing it in the position of a utility regulator. On the other hand, price fixing by multiple independent actors operating in concert is remedied by a simple injunction against price-fixing, requiring each participant to set its price individually. In *Chicago Board* the court ultimately found the call rule price agreement to be lawful. If it had not, the remedy would have been a simple injunction against enforcement of the rule, leaving the members free to set their own price. In fact, the United States' requested relief was precisely that.[167]

The same thing applies to refusals to deal. If a firm is acting unilaterally, its refusal to deal is governed by a strict standard under which liability is difficult to establish, certainly if there has not been

[165] *Id*. at 235.
[166] *See Chicago Board* (1918), 246 U.S. at 237 (noting that under the call rule "members were prohibited from purchasing or offering to purchase" during period when the market was closed at any price other than the closing price).
[167] *Chicago Board* (1918), 246 U.S. at 237 (describing the suit "to enjoin the enforcement of the call rule, alleging it to be in violation of the Anti-Trust law….").

an established history of dealing.[168] Further, in many circumstances the court could enforce a dealing order only by setting the price and other terms. By contrast, if the entity that refuses to deal is operated by a group of active business participants, its collective refusal to deal is governed by §1 of the Sherman Act and the court usually need do no more than issue an injunction against the agreement not to deal. This is true even if the actors have incorporated themselves into a single business entity for most corporate purposes.

The modern business world has many analogies to this structural situation. To return to a previous example, each of the 1200 member schools of the NCAA operate as a single entity in the management of education, student discipline, or financing of its own athletic departments. By contrast, the administration of team sports, including the scheduling and operation of games, is controlled through rule making by the group collectively.[169] These schools and their teams compete with one another in recruiting athletes, in obtaining television audiences, or in hiring of coaches. A decision by the NCAA to restrict the number of televised games[170] or to limit the compensation of either coaches[171] or players[172] is reachable as a contract in restraint of trade under §1 of the Sherman Act. By contrast, if the NCAA were a single entity owning all of its various teams its decisions about how many

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[168]*See* Verizon Com's, Inc. Law Offices of Curtis V. Trinko, LLP, 540 U.S. 398, 409 (2004); 3B PHILLIP E. AREEDA & HERBERT HOVENKAMP, ANTITRUST LAW ¶¶771-774 (4th ed. 2015).
[169]*Membership*, NAT'L COLLEGIATE ATHLETIC ASS'N, http://www.ncaa.org/about/who-we-are/membership (last visited June 27, 2020).
[170]National College Athletic Ass'n v. Board of Regents of Univ. of Oklahoma, 468 U.S. 85 (1984).
[171]Law vs. National Collegiate Athletic Ass'n, 5 F. Supp. 2d 921 (D. Kan. 1998).
[172]O'Bannon v. National Collegiate Athletic Ass'n, 802 F.3d 1049 (9th Cir. 2015), cert. denied, 137 S. Ct. 277 (2016); Alston v. National Collegiate Athletic Ass'n, 958 F.3d 1239 (9th Cir. 2020).

games to televise or how much to pay its coaches or athletes would be purely unilateral and lawful as far as antitrust is concerned.[173]

The same analysis drove the *American Needle* litigation, which involved the National Football League.[174] The NFL is an unincorporated association controlled by the thirty-two individual NFL football teams, each of which is separately owned. NFL properties (NFLP) is a separate, incorporated LLC in New York, controlled by the NFL. The individual teams are shareholders in NFLP, and they also collectively control the licensing of the teams' substantial intellectual property rights. In this case the team members voted to authorize NFLP to grant an exclusive license to Reebok to sell NFL logoed headwear (helmets and caps) for all thirty-two teams.[175] The plaintiff, American Needle, was a competing manufacturer whom the agreement excluded.

The issue for the Supreme Court was whether NFLP's grant of an exclusive license should be addressed as a "unilateral" act of NFLP or as a concerted act by the thirty-two teams acting together, and the Court unanimously decided the latter. As a matter of corporate law, the refusal to deal appeared to be unilateral, in particular because NFLP was an incorporated single entity. The lower court had relied on earlier Seventh Circuit decisions holding that professional sports leagues should be treated as single entities.[176] The Supreme Court's decision to the contrary was consistent with earlier cases concerning Sealy[177] and Topco,[178] which held that even if an entity is incorporated it can

[173]*Cf*. Fraser v. Major League Soccer, 284 F.3d 47 (1st Cir. 2002) (Major League Soccer is owned centrally by a single firm, and its shareholders are merely investors; thus it acts as a single entity for purposes of employee compensation).
[174] American Needle, Inc. v. NFL, 560 U.S. 183 (2010).
[175] *Id*. at 187-188.
[176] Chicago Professional Sports, Ltd. v. National Basketball Ass'n, 95 F.3d 593 (7th Cir. 1996).
[177] United States v. Sealy, Inc., 388 U.S. 350 (1967).
[178] United States v. Topco Assocs., Inc., 405 U.S. 596 (1972).

be addressed as a collaboration of competitors under the antitrust laws if it is managed by collaboration of its shareholders.

While a corporation is a single entity for most antitrust purposes,[179] if it is managed by shareholders for their own individual businesses the conduct is reachable under §1 of the Sherman Act. The antitrust fix in a case such as *American Needle* would then be an injunction forbidding the firms from agreeing with one another to refuse to license their IP rights, leaving each firm free to make that decision for itself. That need not require the dissolution of the NFL as an entity. Nor would we expect it to require ongoing regulation by the court.

Even a natural monopoly can be controlled by multiple entities, and will then be subject to §1 of the Sherman Act. That issue arose already in the 1912 *Terminal Railroad* decision.[180] The railroad bridge across the Mississippi and adjoining terminal were very likely a natural monopoly, in this case a bottleneck through which all traffic across the river had to pass.[181] However, the facility was owned by a joint venture

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[179] *See* Copperweld Corp. v. Independence Tube Corp., 467 U.S. 752 (1984); and 7 PHILLIP E. AREEDA & HERBERT HOVENKAMP, ANTITRUST LAW, Ch. 14E (4th ed. 2018).

[180] United States v. Terminal R.R. Ass'n of St. Louis, 224 U.S. 383 (1912). For a fuller statement of the facts see the district court's opinion, 148 F. 486 (E.D. Mo. 1906).

[181] As the Court stated the facts:

> Though twenty-four lines of railway converge at St. Louis, not one of them passes through. About one half of these lines have their termini on the Illinois side of the river. The others, coming from the west and north, have their termini either in the city or on its northern edge. To the river the city owes its origin, and for a century and more its river commerce was predominant. It is now the great obstacle to connection between the termini of lines on opposite sides of the river and any entry into the city by eastern lines. The cost of construction and maintenance of railroad bridges over so great a river makes it impracticable for every road desiring to enter or pass through the city to have its own bridge. The obvious solution is the maintenance of toll bridges open to the use of any and all lines, upon identical terms.

of thirty-eight firms organized by railroad financier Jay Gould.[182] The venture was a single corporation under Missouri law, but it was actively managed by its participants, who were mainly individual railroads, a ferry company, the Merchants' bridge, and a "system of terminals."[183] The venture thus controlled an extensive collection of railroad transportation, transfer and storage facilities at a point at which all east-west traffic in that part of the country had to cross the Mississippi River.

A better way to remedy anticompetitive behavior by large digital platforms such as Amazon or Google is not by the disintegration of productive assets, but rather by altering their ownership and management. For example, it is extremely efficient and beneficial to consumers for Amazon to be selling its own house brands and the brands of third party merchants on the same website. This is how a seller of house brands can break down the power of large name brand sellers.[184] The problem is not that selling them on the same site is inherently anticompetitive, because it is not. Rather, it is that Amazon's ownership and management makes it profitable for Amazon to discriminate in favor of its own products and against those of third party sellers. Breaking up Amazon or forcing a physical separation of own-product and third party sales gives up a great deal of brand rivalry that benefits consumers.

The most promising first response is injunctive relief against the anticompetitive practices. That would permit remedying the practices without undermining a valuable business structure. But if a simple prohibitory injunction were deemed inadequate we could consider changing the firm's ownership and management structure. For example, a court might reorganize Amazon in a way that places a controlling interest among a number of individually nondominant

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224 U.S. at 395.
[182] *Id*. at 391.
[183] *Id*. at 391-391.
[184] *See* discussion *supra*, text at notes __

active sellers who operated Amazon as a competitive market, more akin to the NFL or the Terminal Railroad Association.

Amazon's current organization is top down, with Amazon controlling its own in house production through agreements with third party suppliers, as well as thousands of independent merchants. These agree with Amazon to sell their products on the Amazon website, using Amazon to display them, to process transactions, and in many cases even to inventory and deliver them. If Amazon were reorganized as a joint venture owned and operated by a group of its active merchants it could readily be subjected to more aggressive antitrust scrutiny. Significantly, Amazon would still be very big and it would likely retain all of the efficiencies that flow from its size and scope. It still might be in a position to undersell smaller businesses or to exclude products of which it does not approve. However, its policies with respect to third party merchants would be governed by antitrust's more aggressive restraint-of-trade standard.

b. Compelled interoperability

Forcing interoperability is another way to weaken dominant positions without giving up the economies that can accrue to a single firm. One good example is the United States telephone system. Structurally the system has very strong direct and indirect network effects. Prior to the advent of wireless technology it was regarded as a natural monopoly, in distinction from over-the-air broadcasting, which was not.[185] Indeed, the system was operated as a regulated monopoly

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[185] *See, e.g.*, General Tel. Co. of Southwest v. United States, 449 F.2d 846, 856, 859 (5th Cir. 1971) (noting AT&T's argument that it was a natural monopoly, and also the government position that over-the-air broadcasting was not a natural monopoly); GTE Serv. Corp. v. FCC, 474 F.2d 724, 735 (2d Cir. 1973) (noting FCC's conclusion that the telephone system is a natural monopoly) Nat'l Assn. of Theatre Owners v. FCC, 420 F.2d 194, 203 (D.C. Cir. 1969) (telephone system a natural monopoly but not commercial broadcasting). *See also* Stephen R. Barnett, *Cable Television and Media Concentration*, 22 STAN. L. REV. 221, 240 (1970) (making the

for many decades before an antitrust consent order that imposed a massive structural breakup.[186]

Even though the United States telephone system is now owned and operated by hundreds of firms, the telephone network is still unitary. It continues to have the same network externalities favoring a single network. The system achieves the result that it does through statutory interoperability requirements that are enforced by either the Federal Communications Commission or state regulators.[187] In addition, private standard setting organizations have developed technical standards for telecommunications infrastructure and operations, including the FRAND system, which facilitates the sharing of patented technology.[188] FRAND is a system of private ordering, operating under rules that encourage members to share technology but forbidding price fixing or other anticompetitive practices.[189]

The 2019 *Report* on Digital Platforms produced by the Stigler Center, a University of Chicago think tank, briefly discusses forced interoperability as a solution to the network externalities problem that could preserve competitive outcomes.[190] The *Report* cites social networking platforms and particularly Facebook as situations in which such remedies might work, noting that Facebook has litigated against at least one firm that was trying to compel interoperability in data sharing networks.[191] The *Report* also mentions internet messaging as

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same distinction, except concluding that cable television, unlike over-the-air broadcasting, is a natural monopoly).

[186]United States v. American Tel. & Tel. Co., 552 F. Supp. 131, 226 (D.D.C. 1982).

[187]The system is described in *Trinko*, 540 U.S. at 405-406.

[188] *See* Hovenkamp, *FRAND and Antitrust*, supra note __.

[189] *Id*.

[190]See *Final Report*, Stigler Committee on Digital Platforms (Chicago Booth: Stigler Center for the Study of the Economy and the State, 2019), available at https://research.chicagobooth.edu/-/media/research/stigler/pdfs/digital-platforms---committee-report---stigler-center.pdf.

[191] *See Id*. at 16; and see Facebook, Inc. v. Power Ventures, Inc., 2009 WL 1299698 (N.D. Cal. May 11, 2009); and Facebook, Inc. v. Power Ventures,

a market in which compelled interoperability could improve social value by creating global interoperability standards that would unite texting and messaging technologies. Today the system for voice call permits virtually any device to contact any other device. By contrast, even though the technology is available, text messaging is still tied to multiple incompatible formats.[192]

Both direct and indirect network effects are valuable features of platforms, which are a specialized type of productive asset. Breaking up the assets themselves has the potential to interfere significantly with performance. On the other hand, forcing interoperability can preserve these efficiencies while inducing a significant measure of market competition into the operation of the platform itself. Indeed, under the right circumstances forced interoperability can make a platform more appealing by enabling positive externalities to be experienced across a wider range.

The difficult question is how to get there. The AT&T breakup was facilitated by an antitrust consent decree upon a threatened finding that AT&T, to that point a unitary firm, was guilty of unlawful monopolization.[193] Compelled interoperability under that decree was then actively managed by a district judge (the late Harold Greene) for a period of nearly fifteen years.[194] Eventually that system was replaced by the 1996 Telecommunications Act, which broadly compelled interconnection and enforced it through a combination of FCC and

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Inc., 844 F.3d 1058 (9th Cir. 2016) (finding violations of Computer Fraud and Abuse Act).

[192] *See* Tejas N. Narechania, *The Secret Life of a Text Message*, ___ COL. L. REV. Forum 2020 (forthcoming), available at https://papers.ssrn.com/sol3/Papers.cfm?abstract_id=3526997.

[193] United States v. American Tel. & Tel. Co., 552 F. Supp. 131, (D.D.C. 1982).

[194] *See generally* Joseph D. Kearney, *From the Fall of the Bell System to the Telecommunications Act: Regulation of Telecommunications under Judge Greene*, 50 HASTINGS L.J. 1395 (1999).

state agency supervision.[195] That resolution was driven in substantial part by the fact that AT&T was an unquestioned monopolist, having both statutory exclusive rights and a long history of litigating against any firm that wanted to invade its network.

By contrast, the cellular phone market, which was wireless from the onset, evolved much more competitively, although with a few dominant firms such as Motorola and Nokia. The participants recognized that interconnectivity was essential, and they achieved it through voluntary standard setting and cross licensing systems that have led up to the FRAND system we have today and the current 4G and 5G cellular networks.[196] The result is a network that takes full advantage of direct and indirect network effects, but that is operated by a large number of firms of varying sizes.

Antitrust litigation in order to compel interoperability in social networking sites is unlikely to go as smoothly. "Social networking" is a highly amorphous grouping of sales. While Facebook is certainly very large, significant competitors exist for most of the individual services that it offers, including posting and sharing of messages, photographs, and videos. What Facebook offers is a network that functions much like the phone system. Its value only grows as it encompasses more subscribers.

A somewhat similar candidate largely within the cellular phone and tablet market is Google Android. Here, however, there is already a great deal of competitive interoperability among multiple firms, although much of it is on Google's terms. The EU's approach in the

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[195]Telecommunications Act of 1996, Pub. L. No. 104-104, 110 Stat. 56; *Trinko*, 540 U.S. at 402.

[196]*See* JON AGAR, CONSTANT TOUCH: A GLOBAL HISTORY OF THE MOBILE PHONE (2004); Joseph A. Alfred, *Licensing Standard Essential Patents*, 52 Les Nouvelles 223 (2017); S. M. Tondare, et al., *Evolutionary Steps from 1G to 4.5G*, 3 INT'L J. ADV. RES. COMPUTER AND COMMUNICATION ENG'G 6163 (Apr. 2014), available at https://www.ijarcce.com/upload/2014/april/IJARCCE1C%20%20%20a%20%20Sachin%20Panchal%20%20Evolutionary%20steps.pdf.

Android/Google Search case seems to be a step in the right direction. While Android is a highly interoperable system, one limitation on competition is the preference for Google Search, discussed above.[197] Giving purchasers of new devices a neutral list from which to choose a default search engine is a promising solution that is far less damaging to consumer welfare than a mandatory breakup of Android's inputs. If future remedies are necessary they should focus on loosening Google's control while yet permitting it to monetize its own substantial investment.

c. *Conclusion: Compelling Network Competition Without Sacrificing Structural Efficiency*

Historically, the reason divestiture has performed so poorly as an antitrust remedy is that it has been overly focused on assets and insufficiently attentive to questions about managerial decision making. Divesting physical assets inevitably has multiple effects, only a few of which are beneficial, and which are often difficult to foresee. We should be paying more attention to remedies that revise ownership and management, while leaving productive assets intact.

C. *Platform Acquisitions*

1. *Acquisitions of Nascent Firms Generally*

Given that most digital platforms are not natural monopolies, the principal antitrust concern is to control exclusionary practices intended to perpetuate market dominance. One of the biggest threats to the major digital platforms is from small firms that resemble the dominant platforms themselves in their earlier years. At one time all were small internet companies with a good idea and significant but underdeveloped growth potential. An all-too-common phenomenon today is that the dominant platform acquires young startups before they have a chance to emerge as competitors.[198] One area that may require

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[197] *See* discussion *supra*, text at notes __.

[198] Wikipedia maintains list of acquisitions by the dominant platforms. E.g., List of mergers and acquisitions by Amazon, etc.

new legislation is the development of more aggressive rules governing platform acquisitions, even if these are very small and even if they do not sell competing products.

I say that the area "may" require new legislation because the need for new legislation is not clear from the statutory language. The language of §7 of the Clayton Act is very broad, reaching all acquisitions whose effect may be substantially to lessen competition.[199] Its coverage is not limited to firms of any particular size or with any particular competitive relationship. It reaches horizontal, vertical, and conglomerate acquisitions. Nor does the statute itself restrict the mechanisms by which competition might be lessened. All can be unlawful if they meet the statute's requirements that their effect may be substantially to lessen competition. Finally, the courts have repeatedly observed that §7 has a "prophylactic" purpose, which is to police acquisitions when their competitive threat is still in their "incipiency."[200] However, years of restrictive interpretation have added a judicial gloss that reads the statute much more narrowly.

The principal problem is that most dominant platform acquisitions of nascent firms do not easily fit the rationales that antitrust policy currently uses to identify competitively harmful mergers. Agency merger enforcement under the Merger Guidelines is directed almost exclusively at the threat of higher prices or reduced innovation in the relatively short run. Of course, these concerns may sometimes emerge in platform acquisitions, warranting challenge on more traditional grounds. One possibility that was eventually approved was Amazon's acquisition of Whole Foods, with its chain of just under 500 physical stores. If that acquisition had been challenged it would almost certainly have been on conventional, price-increasing theories of merger harm. That is, it seems unlikely that a well-established organic grocer such

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[199] 15 U.S.C. §18.

[200] *See* Brunswick Crop. v. Pueblo Bowl-O-Mat, Inc. 429 U.S. 477, 485 (1977); United States v. E.I. du Pont de Nemours & Co., 353 U.S. 586, 597 (1957); *see also* Herbert Hovenkamp, *Prophylactic Merger Policy*, 70 HASTINGS L.J. 45 (2018).

as Whole Foods would have merged into a full fledged internet merchandise seller in competition with Amazon. Other possible acquisitions that might be challenged on ordinary price increase grounds might be a merger between Google Search and another significant search engine, or between Google Android's OS and Apple's OS for handhelds. One would expect that either would quickly be challenged.

In contrast, the threat raised by systematic platform acquisitions of tech startups is akin to an exclusionary practice. Most of these acquisitions are not reasonably calculated to produce price increases or innovation reductions in the short run, but rather to prevent the emergence of substantial rivals. There is legal authority for treating mergers as exclusionary practices, but very little recent history.[201]

Further, most of the threat from nascent firms is *not* from head-to-head competitors. Given the significant scale and network economies that the large platforms enjoy, a startup who simply offers the same thing is unlikely to be a significant threat. The more likely threat is from the firm that offers a complement or some novel innovation that differs from the principal firm's offering and can appeal to customers in a slightly different way. As a result, a large portion of these acquisitions do not fall into the category of "horizontal" at all. Merger law today is heavily focused on horizontal mergers, which get its closest scrutiny. Vertical mergers, between buys and sellers, are challenged far less frequently. So called "conglomerate" mergers, which are between pairs of firms that are neither horizontal nor vertical, are almost never challenged. Unfortunately, this is where the startup acquisition threat is most pronounced.

Small tech firms with good ideas and management can grow very quickly. Indeed, Microsoft, Apple, Google, Facebook, and Amazon all started out this way. Nevertheless, antitrust pursuit of acquisitions on these grounds raises formidable obstacles. First, causation as to any

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[201] See 3 PHILLIP E. AREEDA & HERBERT HOVENKAMP, ANTITRUST LAW ¶¶701-702 (4th ed. 2015).

particular transaction is difficult to prove. While a nascent digital firm with a promising technology might turn into a platform juggernaut, at the time of these acquisitions few show more than promise. In fact, many of them have market shares that are zero or at least very modest. Predicting at the time of a contemplated transaction which ones would yield such a threat could be impossible. As a result, a more categorical approach is required.

In general, monopoly maintenance actions fall under §2 of the Sherman Act, which requires proof of dominance. Under current doctrine this requires a large market share of a properly defined relevant market. For large internet platforms such as Facebook or Alphabet (Google), market definition can often be particularly untrustworthy. For example, it requires the answer to questions such as whether online product sales or advertising competes with more traditional alternatives, or whether customer ability to switch undermines any inference of market power drawn from market share. In a few markets, such as search, the answer seems clear. For example, Alphabet has had a relatively stable market share for search that has exceeded 85% for at least ten years. Under the conventional theory that would certainly be sufficient to condemn a horizontal Alphabet acquisition in the search market, but not in many of the other markets where it has made acquisitions. If "digital advertising" is a relevant market, Alphabet (around 36-38%) and Facebook (around 19%) have significant but not monopolistic market shares. But digital advertising accounts for only about half of all advertising, although its share is growing. While Amazon is very large, in most product markets other than eBooks it lacks a dominant market share. It does control roughly 67% of the eBook market, but eBooks themselves account for a declining or at best level market share of about 20% of the overall book market. In sum, under traditional doctrine few of the large platform acquisitions of nascent firms would constitute a §2 violation.

New entry ordinarily undermines monopoly. Consumers benefit because the shared returns of the dominant firm plus the new entrant will be less than the monopoly returns of the dominant firm prior to the new entrant's appearance. In fact, once the new entrant becomes a competitive force, we expect that it will gradually push prices down toward the competitive level. In the case of systematic platform acquisitions, however, the opposite can be true. New firms form and are then acquired at high prices, in the process entrenching the dominant firms who buy them out. Systematic acquisitions of nascent firms thus serve to undermine the traditional argument that new entry breaks down monopoly and thereby promotes competition.[202]

The dominant firm will be willing to pay the expected value of its threatened monopoly position, which could be far greater than the value of the acquired firm as an independent competitor. Ironically, the prospect of acquisition by the large platforms itself acts as an inducement to new entry – not for the purpose of establishing oneself in a more competitive market, but rather in order to profit by selling out to a dominant platform at a price that is much greater than the firm's value as a competitive presence. Two firms in a bargaining relationship will move toward their joint maximizing position. In this case the dominant firm's willingness to pay is driven by the sum of the production value of the acquired assets and their exclusion value to the acquirer. These two values can be quite independent of one another. Indeed, often the acquired firm is valuable to the acquirer even if does not intend to use the acquired assets at all.[203]

Suppose that a young firm with a valuable new technology has emerged. We assume that the new firm is not a competitor but rather offers a complementary product. Speaking generally, an acquisition offers the dominant firm the value of integration and improvement of its own product offerings, but also of exclusion because after an acquisition the small firm can neither be acquired by someone else nor grow into a formidable competitor.

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[202] *See* Kevin A. Bryan and Erik Hovenkamp, *Startup acquisitions, Error Costs, and Antitrust Policy*, 87 U. CHI. L. REV. 331, 334-338 (2020).
[203] On "killer acquisitions," *see* discussion *infra*, text at notes __.

Considered by itself the integration value is almost always a social good, assuming that the acquiring firm actually employs and integrates the acquired firm's technology. Further, if the firms are not competitors no competition between them is being eliminated. The exclusion value is another story. The threats to the larger firm are, first, that someone else might acquire the young firm; and second, that the young firm would expand into a formidable rival. Both of these are probabilistic but they could be extremely large, particularly the second one.

The task for policy makers is to find ways to manage acquisitions in order to encourage their integration value but not their exclusion value. The most important acquired assets in most platform merger cases involving nascent digital firms are intellectual property rights. The more typical acquisition is of a relatively young tech firm whose principal assets are intellectual property rights and perhaps some human capital. Growth for these firms could go in many different directions.

One promising remedy is to permit the dominant platform to acquire the integration value of the acquired firm but not its exclusion value. One way to do this is by limiting the acquisition to a nonexclusive license. Another way is to permit the acquisition only on the condition that the acquiring firm license the acquired technology to others on fair and reasonable terms.[204] The difference is that the first alternative leaves the smaller firm as a viable alternative on the market. By contrast, requiring compulsory licensing preserves the IP assets to the public but not the firm itself.[205] Any growth potential contained in the acquired firm's IP rights will be available to others.

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[204] *See* Kevin Bryan and Erik Hovenkamp, *Antitrust Limits on Startup Acquisitions*, 56 REV. INDUS. ORG. 615 (2020); Kevin Bryan and Erik Hovenkamp, *Startup Acquisitions, Error Costs, and Antitrust Policy*, 87 U. CHI. L. REV. 331 (2020).

[205] Bryan & Hovenkamp, id., argue for the compulsory licensing alternative.

An important attribute of intellectual property rights is that they can readily be shared in ways that hard assets typically cannot be. For example, it would be unwieldy to say the least to condition permission for a firm to acquire a production plant on its leasing part of the plant's space to a third-party competitor. Plants are tangible assets, typically not readily subdivided, and a judicially managed sharing agreement would confront a host of practical problems. Not so, however, with most intellectual property rights. For example, if a firm is permitted to acquire no more than a nonexclusive right in a patent, other firms may be able to practice that patent as well, and generally without any need to integrate output with the primary owner. No coordination is required and one person's use of a patent does not diminish what is left over for others. Indeed, coordination among licensees of the same patent is usually regarded as a suspicious practice unless the licensees are engaged in a common enterprise such as a joint venture.[206]

These limitations will reduce the value of the acquired firm, perhaps considerably. The acquiring firm is obtaining the right to integrate, or use, but not the power to exclude. Depending on the circumstances, these two rights can have very different values. At one extreme, consider the firm that purchases a firm with a competing patent and then simply shuts that technology down. In that case the value of the integration right is zero. The thing that makes the asset valuable to the acquiring firm is the exclusion right. This was the case in both the Supreme Court's *Paper Bag* decision in 1908[207] and the Federal Circuit's much more recent *Trebro* decision.[208] Neither decision raised antitrust issues. As a matter of competition policy, however, both reached the wrong result by approving transactions that facilitated competitor exclusion while doing nothing to promote

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[206] See Herbert Hovenkamp, *Antitrust and the Patent System: a Reexamination*, 76 OHIO ST. L.J. 467, 524, 540 (2015).
[207] Continental Paper Bag Co. v. Eastern Paper Bag Co., 210 U.S. 405 (1908).
[208] Trebro Mfr., Inc. v. FireFly Equip., LLC, 748 F.3d 1159 (Fed. Cir. 2014). *See* Erik Hovenkamp and Thomas F. Cotter, *Anticompetitive Patent Injunctions*, 100 MINN. L. REV. 871 (2016).

innovation, and nothing to improve the productive capacity or efficiency of the acquirer. Indeed, this is one particular use of a patent that actually deters rather than promotes innovation. If no patent had ever issued, others would still be able to develop the technology for themselves. By buying up a patent, shutting it down, and bringing infringement suits against others, however, the acquiring firm is not only obtaining no integration value from the patent, but it is also denying others the right to develop that technology, even if independently.

Limiting the dominant firm's acquisition to a nonexclusive license or else requiring post-acquisition licensing essentially permits the firm to acquire the integration value of the target, but not the exclusion value. If the acquiring firm actually intends to use the acquired technology the nonexclusive license gives it everything that it needs. What it does not grant, however, is the power to shut the technology down or prohibit others from acquiring it. For example, if Facebook wishes to acquire WhatsApp, as it actually did in 2014, it would be permitted to acquire a non-exclusive license in WhatsApp's technology. This would give Facebook everything it needs to make the contemplated improvements in its own messaging technology. WhatsApp would then be free to continue to use its technology or to grant nonexclusive rights to others. Alternatively, if Facebook were permitted to acquire WhatsApp but compelled to license out any acquired technology it would also be able to capture the full value of any integration that the acquisition facilitated, but not the right to exclude others from the technology.

Both the integration value of a platform acquisition and the exclusion value provide private gains to the nascent firm that is acquired. The social value, however, is very different. The integration value is in almost every case a social gain that shows up in increased capability or output. By contrast, the exclusion value represents a social loss, for it equals the value to the dominant firm of being able to exclude rivals from a technology that it has not developed itself.

2. Killer Acquisitions

A killer acquisition occurs when a firm buys another firm in order to remove its productive assets from the market, rather than using them itself.[209] The problem is hardly a new one. Already in 1916 American Can was condemned of monopolization for buying up rival can making firms and promptly dismantling their assets in order to keep them off the market.[210] Today the problem is more likely to arise in tech or pharmaceuticals. A variation of the same problem is when a firm acquires exclusive rights in a patent and declines to practice it but then sues rivals for infringement.[211] In other cases, a firm acquires a small research firm in an area such as pharmaceuticals with promising research projects in the works, and then shuts them down. Often the acquired firm has a market share of zero because the acquired research projects have not yet been marketed.[212] For example, the assets of an acquired pharmaceutical research firm may include drugs that are in development but not yet tested and brought to market.[213]

Legally, the problem of killer acquisitions should be easy. Any failure of the legal system to take a more aggressive position is largely

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[209]Colleen Cunningham, Florian Ederer, & Song Ma, *Killer Acquisitions*, 2018 ACAD. MGMT. PROC. 11001 (giving several examples, mostly from the pharmaceutical industry). See, e.g., FTC v. Mallinckrodt, No. 1:17-cv-00120 (D.D.C. Jan. 25, 2017), available at https://www.ftc.gov/system/files/documents/cases/170118mallinckrodt_complaint_public.pdf.

[210] United States v. American Can Co., 230 F. 859, 875-876 (D. Md. 1916) (noting defendant's practice of shutting down rivals' plants almost immediately after acquisition; "two thirds of the plants bought were abandoned within two years of their purchase. Many of them were never operated by the defendant at all….").

[211]*See* discussion *supra*, text at notes __.

[212]Cunningham, et al., *supra* note __ at 2 (discussing assets that are still under development and where project success is uncertain).

[213]*See* Nils Behnke & Norbert Hültenschmidt, *New Paths to Profits in Biotech: Taking the Acquisition exit*, 13 J. COM. BIOTECHNOLOGY 78 (2007).

a result of classification myopia. Rather than treating them like mergers were should be treating them more like cartels.

The reason that we permit most mergers rather than making them unlawful per se is because of their potential to generate efficiencies.[214] But a killer acquisition does not yield efficiencies because the acquiring firm never puts the acquired assets to any use. Economically a merger-plus-shutdown is very little different from the output reduction that attends a cartel. Indeed, the only reason these acquisitions occur is because the alternative of agreeing with a firm to shut down a plant in exchange for a payment of money would very likely be unlawful per se.[215] If a firm purchases a rival for $1m and then shuts it down the transaction is treated as a merger. However, if the firm pays a rival $1m to shut down its own plant, the transaction would be treated as a cartel.

Two qualifiers are important. One has to do with the acquiring firm's intentions at the time of the acquisition. The easy case is the one like *American Can*, where the purchasing firm acquired rivals for the purpose of removing their productive assets from the market and

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[214]*See* 4A PHILLIP E. AREEDA & HERBERT HOVENKAMP, ANTITRUST LAW ¶¶970=976 (4th ed. 2016); Hovenkamp, *Appraising Merger Efficiencies*, supra note __.

[215]Siee United States v. Socony-Vacuum Oil co., 310 U.S. 150 (1940) (agreement to reduce output unlawful per se). *See* Shubha Ghosh, *Relaxing Antitrust During Economic Downturns: A Real Options Analysis of Appalachian Coals and the Filing Firm Defense*, 68 ANTITRUST L.J. 111 (2000). In Europe, *see* Andre Fiebig, *Crisis Cartels and the Triumph of Industrial Policy over Competition Law in Europe*, 25 BROOKLYN J. INT'L L. 607 (1999) (speaking of "crisis cartels," including horizontal agreements to reduce output or even to shut down). Contrast National Ass'n of Window Glass Manufacturers v. United States, 263 U.S. 403 (1923) (upholding agreement to shut down in alternate periods negotiated with labor). The agreements were also unenforceable at common law. *See*, e.g., Clemons v. Meadows, 123 Ky. 178 (1906) (agreement between two hoteliers that one would shut down).

closed them immediately without even operating them.[216] But other cases are harder to classify. Not all mergers work out. An acquiring firm may make its best efforts to employ an acquired firm's assets but later determine that they will not work out. Antitrust policy should not have a per se rule against such shutdowns.

Another qualifier is the possibility of partial shut downs. For example, a firm may acquire another firm in order to integrate and use some of its assets but shut down other assets. Such cases require an inquiry into relative substantiality under the rule of reason.[217] The assets that are kept in production may be small or may be complements to the acquiring firm's production, indicating that the merger would not be challengeable if one looked only at those. However, the assets that are shut down may have posed a significant competitive threat if they were brought to production. Here the usual admonition applies for merger cases that significant threatened harms in one market cannot be offset by benefits in a different market[218] – and certainly not in cases where the threat is substantial and the efficiencies in the integrated market are not merger specific. Further, enforcers and courts should consider whether a spinoff of the threatening assets is a plausible solution. While research projects typically include a significant intellectual property component they also include employee talent and perhaps other assets.[219] As a result a viable transfer may be difficult.

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[216] United States v. American Can Co., 230 F. 859 (D. Md. 1916). *See* discussion *supra*, text at notes __.

[217]For example, after it acquired Fox Film Enterprises in 2019 Disney closed down Fox 2000, one of the acquired studios, while retaining 20th Century Fox and Fox Searchlight. See https://variety.com/2019/film/news/disney-retiring-fox-2000-label-1203169597/.

[218] *See* 4A AREEDA & HOVENKAMP, *supra* note __, ¶972.

[219] In fact, sometimes such acquisitions occur in order to obtain the acquired firm's employees rather than other productive assets. *See* John F. Coyle and Gregg D. Polsky, *Acqui-Hiring*, 63 DUKE L.J. 281 (2013). See also Peter Lee, *Innovation and the Firm: A New Synthesis*, 70 STAN. L. REV. 1431

The externally acquired but later unpracticed patent is a variation on the killer acquisition story, which dates back to the Supreme Court's 1908 *Paper Bag* decision.[220] The dominant firm purchased a patent on technology that was somewhat different from its own, and then shelved the technology rather than practicing it. Subsequently it brought a successful infringement suit against a rival who entered the market with technology that wrote on the unused patent. The resolution in that decision, as well as the Federal Circuit's *Trebro* case effectively restrained rather than furthered innovation.[221]

Once again, limiting the dominant firm to a nonexclusive license solves the killer acquisition problem to the extent that the acquired assets are intellectual property rights. Indeed, if the acquirer does not intend to use the acquired assets at all, then acquisition of a nonexclusive right has no value.

IV. CONCLUSION

When analyzing platform market competition we should avoid the temptation to lump all digital platforms together and treat them alike. It becomes too easy to speak categorically of these markets as dominated by network externalities, as winner-take-all, as having high barriers to entry, or as requiring aggressive breakup remedies. This assumption undermines rather than furthers reasonable competitive analysis of digital platform markets.

Competition problems in digital platforms present some novel challenges, but most are within the reach of antitrust law's capacity to handle them. The courts and other antitrust policy makers should treat digital platforms for what they are, which is business firms that have

(2018) (arguing that many such acquisitions are efforts to obtain both talented workers and the acquired technologies).

[220]Continental Paper Bag Co. v. Eastern Paper Bag Co., 210 U.S. 405 (1908).

[221]Trebro Mfr., Inc. v. FireFly Equip., LLC, 748 F.3d 1159 (Fed. Cir. 2014). *See* Erik Hovenkamp and Thomas F. Cotter, *Anticompetitive Patent Injunctions*, 100 MINN. L. REV. 871 (2016).

some unique features but not very much that requires us to abandon what we know about competition in high technology, product differentiated markets. Here, much of the two-sided platform literature has done more harm than good by treating two-sided markets as a special set of creatures for whom the ordinary rules of competition do not apply. Finally for antitrust cases involving platforms just as for all others, there is no substitute for careful fact finding.