Evaluating Arguments for Antitrust Action against Tech Companies

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ABSTRACT

Growing concern about large digital platform companies, particularly Google, Facebook, Amazon, and Apple, exercising monopoly power has given rise to antitrust investigations that examine whether they are guilty of exclusionary practices. After defending the consumer welfare standard as the basis for decisions, this paper explores whether the market power and conduct of each company justifies antitrust action. Whether to pursue such action should be based partly on a counterfactual analysis of the consequences of the likely remedies that would be applied if a company is found guilty. Remedies, such as divestiture of acquired firms or structural separation of vertically integrated firms, would likely harm consumers who benefit from lower costs and increased innovation that result from combining complementary products into one ecosystem. This paper argues against a more activist antitrust policy considering the knowledge and incentives of the courts and those who enforce it. It is difficult to accurately assess the effects of firm conduct on consumer welfare, and enforcement agencies' decisions may not be based entirely on objective analysis but on political pressure, sometimes from a firm's competitors. Instead of pursuing more activist antitrust policy, the government should remove barriers that keep firms from entering new markets and competing vigorously.

JEL codes: L1, L4, O3, D72

Keywords: digital platform, antitrust, consumer welfare, exclusionary, competition, monopoly, error cost, public choice

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Antitrust law is concerned with the effect of market power on consumers and the ways that firms abuse the competitive process to maintain and enhance their market power. A chorus of voices from both ends of the political spectrum claims that "current antitrust doctrine is ill-equipped to address the competitive dynamics of the internet age"[1] and needs to be overhauled to deal with big tech companies.

Growing concern about the market power of large digital platform (DP) companies, particularly Google, Facebook, Amazon, and Apple, culminated in the House Committee on the Judiciary (House Judiciary Committee) initiating an investigation in June 2019 to examine the dominance and business practices of these companies. In light of that investigation, attorneys general of almost every state have launched their own investigations of Google and Facebook.[2] The Department of Justice (DOJ) also recently launched an investigation of Google while the Federal Trade Commission (FTC) has been investigating Facebook for possible antitrust violations.

To be guilty of violating antitrust laws, a firm must engage in anticompetitive practices. But many so-called anticompetitive practices of DP companies, including various exclusionary practices, favoring of their own products, and preemptive acquisitions of potential competitors, are consistent with vigorous competition among rivals seeking to provide products and services in a way that better satisfies consumers. A careful analysis of most accusations against DP companies fails to provide a compelling case for pursuing antitrust action. Government policies that hinder competition with large incumbent firms should be a bigger concern than most kinds of anticompetitive conduct that these firms have been accused of.

1. Timothy Muris and Jonathan Neuchterlein, "Antitrust in the Internet Era: The Legacy of *United States v. A&P*," *Review of Industrial Organization* 54, no. 4 (2019): 652.
2. Annie Palmer, "47 Attorneys General Are Investigating Facebook for Antitrust Violations," CNBC, October 22, 2019, accessed August 29, 2020; Tony Ramm, "50 U.S. States and Territories Announce Broad Antitrust Investigation of Google," *Washington Post*, September 9, 2019, accessed June 19, 2020.

The consumer welfare standard is appropriate for deciding antitrust cases. It has guided antitrust policy since the 1970s and was a response to perceived misguided enforcement of antitrust laws and the incoherence of many prior antitrust decisions. The growing size and power of DP companies has led to calls for a broader standard for antitrust policy. This request is partly in response to concerns that if they continue to apply the consumer welfare standard, enforcers will be unable to deal adequately with the problems resulting from how these firms exercise their market power.

Antitrust law has changed significantly over the years. Before the late 1970s, courts and antitrust agencies relied on fundamentally flawed or misapplied economic analysis to intervene in ways that often served the interests of competitors while impairing consumers. Advocates of more vigorous enforcement of antitrust law are similarly critical of DP companies' business strategies, which may, despite appearances to the contrary, contribute to enhanced consumer welfare in the long run.[3] Thus, lessons learned from past mistakes in applying antitrust law are important.

If the antitrust laws were to be more stringently enforced against DP companies, what are the likely consequences of enforcement? As discussed later in this paper, remedies that courts in the past applied to firms found guilty of violating antitrust laws often proved ineffective in making the market more competitive. Many remedies that economists and policy analysts have proposed in response to the conduct of DP companies are likely to be detrimental to consumers.

The growth of DP companies has had a considerable effect on our economy and political system, benefitting many but also imposing some significant costs on others. Research demonstrates that consumers have gained substantial surplus from the goods and services provided by these companies.[4] They might benefit even more if the markets these companies served were more competitive.

The question is whether antitrust action against DP companies is likely to enhance competition. To assess the validity of arguments for more vigorous antitrust enforcement, this paper evaluates alternative views about the purpose of antitrust law, the way the conduct of these companies has interfered with competition, and the consequences of alternative approaches to enforcement.

3. Muris and Neuchterlein, "Antitrust in the Internet Era."
4. Erik Brynjolffson, Avinash Collis, and Felix Eggers, "Using Massive Online Choice Experiments to Measure Changes in Well-Being," *Proceedings of the National Academy of Sciences* 116, no. 15 (2019): 7250–55.

This paper is organized as follows. The next section discusses the role that antitrust laws might be able to play in promoting competition in DP markets, including a discussion of some of the most important accusations against Google, Facebook, Amazon, and Apple. Following that section is a discussion of the consumer welfare standard compared to alternative approaches to antitrust policy. The next section is a discussion of the characteristics of DP companies and the markets they serve, and the following section considers evidence and arguments about whether DP companies have market power and are behaving anticompetitively. After that, the paper considers whether antitrust action should be pursued against DP firms and the possible consequences of doing so. Then the paper discusses the problems and pitfalls associated with pursuing a more activist antitrust policy and compares that aspect with the way antitrust policy has been carried out since the 1970s. The paper concludes by arguing that aggressive antitrust action against any of these companies is likely to do more harm than good.

USE OF ANTITRUST LAW TO PROMOTE COMPETITION

Antitrust law in the United States has its roots in the Sherman Act of 1890, in which Congress prohibits firms from monopolizing or attempting to monopolize a market or contracting, combining, or conspiring to restrain trade unreasonably. The Federal Trade Commission Act (FTC Act) and the Clayton Act were passed in 1914. The FTC Act, which created the Federal Trade Commission, bans "unfair methods of competition" and "unfair or deceptive acts or practices."[5] The Clayton Act was passed to enable the government to pursue anticompetitive practices in their incipiency. It prohibits mergers and acquisitions that lessen competition or tend to create monopoly.[6] It also forbids specific practices deemed to be unfair methods of competition. These practices include some forms of price discrimination, tying, exclusive dealing, intercorporate stockholding, and interlocking directorates.[7]

Although the United States led the way in enacting and applying antitrust laws, other countries eventually developed their own antitrust policies,

5. Federal Trade Commission, "The Antitrust Laws," n.d., accessed February 4, 2021, https://www.ftc.gov/tips-advice/competition-guidance/guide-antitrust-laws/antitrust-laws.
6. John Kwoka and Lawrence White, eds., *The Antitrust Revolution* (Glenview, IL: Scott, Foresman, 1989).
7. William Shepherd, *The Economics of Industrial Organization* (Englewood Cliffs, NJ: Prentice Hall, 1990).

most notably the members of the European Union. Competition policy in the European Union is largely the responsibility of the European Commission, although national competition authorities have been playing a growing role in enforcement.[8]

Case for Taking a Different Approach in Antitrust Policy toward DP Companies

According to one definition, "a [digital] platform is a plug-and-play business model that allows multiple participants (producers and consumers) to connect to it, interact with each other and create and exchange value."[9] The term lacks a consistent definition, and "different companies may be characterized as a platform in different environments."[10]

The markets in which DP companies compete differ from other markets in their combination of a number of characteristics that may favor one large dominant firm controlling all or most of a market. These characteristics include network effects, economies of scale and scope, marginal costs close to zero, high and increasing returns to the use of data, and low distribution costs that enable them to reach the entire world.[11] Because DP companies operate in markets that are especially prone to monopolization, the Stigler Committee on Digital Platforms advocates changes to antitrust policy that would shift the burden of proof to defendants in cases involving internet platform companies. For example, they argue as follows:[12]

- Mergers between a dominant firm and a substantial competitor or a uniquely likely future competitor should be presumptively unlawful.
- Rather than arguing under the assumption that vertical integration enhances efficiency, defendants must prove such efficiency with strong supporting evidence.

8. Damien Neven,"Competition Economics and Antitrust in Europe," *Economic Policy* 21, no. 48 (2006): 741–91.
9. Stephane Castellani, "Everything You Need to Know about Digital Platforms," *Stephane Castellani,* September 22, 2016.
10. Luigi Zingales and Filippo Maria Lancieri, "Policy Brief," in *Final Report,* Stigler Committee on Digital Platforms (Chicago, IL: George J. Stigler Center for the Study of the Economy and the State, Booth School of Business, University of Chicago, 2019), 7.
11. Market Structure and Antitrust Subcommittee, "Market Structure and Antitrust Subcommittee Report," in *Final Report,* Stigler Committee on Digital Platforms (Chicago, IL: George J. Stigler Center for the Study of the Economy and the State, Booth School of Business, University of Chicago, 2019) .
12. Market Structure and Antitrust Subcommittee, "Market Structure."

- Courts should permit plaintiffs to prove harm to competition by circumstantial evidence.

These recommendations assume that technology as embodied in digital platforms has contributed to fundamental changes in the way the competitive process works, necessitating new or revised approaches to policy to account for the changes.

Arguments for more stringent enforcement of antitrust laws in DP markets are often based on concerns about the markets tipping. Such markets tend to be dominated by a single firm. Once those firms grow large enough to dominate the market, potential competitors are unlikely to overcome barriers to entry resulting from economies of scale and data control.[13] The advantages of an incumbent firm owing to its control of a large amount of data make the success of even a well-capitalized potential competitor especially difficult.

Large DP companies such as Google, Facebook, Amazon, and Apple exert their market power in at least three ways.[14] First, they are gatekeepers to a large network of consumers with whom many other firms would like to do business, and they can set the terms by which those firms can reach these consumers through their networks. Second, they are vertically integrated, giving them major cost and quality advantages over more specialized competitors that serve a single purpose or are less integrated. Finally, because of the enormous amounts of information they can collect from those who use their platforms, they benefit from information asymmetries, sometimes knowing more about their consumers' choices than those consumers themselves may know.

DP companies benefit by establishing relationships with firms that provide complementary services, such as app providers. The platform providers, by virtue of their size and broad networks, have a negotiating advantage in dealing with these complementary service providers. Without access to the platforms, the suppliers of complementary services might be unable to remain in business. Thus, if a complementary service provider becomes a competitive threat, the platform provider has leverage because it can either merge with that firm and foreclose potential competition or deny the firm the use of its platform.

Accusations against Google, Facebook, Amazon, and Apple

Policymakers and policy analysts have made assertions that various actions of big tech companies violate the antitrust laws. Some concerns about anticompetitive

13. Market Structure and Antitrust Subcommittee, "Market Structure."
14. Market Structure and Antitrust Subcommittee, "Market Structure."

conduct of DP companies are related to the distinctive features of the markets in which those firms operate. But some accusations against them are not very different from those that were central to prior antitrust cases involving more traditional companies.

Google. The DOJ accused Google of entering into exclusionary agreements and engaging in "anticompetitive conduct to lock up distribution channels and block rivals."[15] Google has sought to advantage its own products through tying arrangements with distributors. In the case of Android phones, it has required firms to make its browser and search engine the defaults in order for users of those phones to have access to its app store. It also "pays billions of dollars each year to distributors," including Apple and other device manufacturers, to make Google Search the default search engine.[16] Part of the government's case against Google involves Google's efforts "to foreclose search distribution in the new avenues being created by internet-enabled consumer products like wearables (e.g., smart watches), voice assistants, smart TVs."[17] This approach would likely involve revenue sharing in exchange for search default status on these smart devices. These arrangements hamper competing search engines in their challenge of Google's dominance in search, thereby enabling Google to serve a large share of the lucrative market for search advertising.

Facebook. The FTC and state attorneys general allege "that Facebook has engaged in a systematic strategy—including its 2012 acquisition of up-and-coming rival Instagram, its 2014 acquisition of the mobile messaging app WhatsApp, and the imposition of anticompetitive conditions on software developers—to eliminate threats to its monopoly."[18] The FTC alleges that Instagram and WhatsApp were nascent competitors and that Facebook bought them to prevent potential competition and strengthen its market position. The FTC is seeking a permanent injunction that could "require divestitures of assets, including Instagram and WhatsApp."[19]

15. United States v. Google LLC, Case 1:20-cv-03010, Doc. 1 at 3 (D.D.C. filed Oct. 20, 2020).
16. *Google LLC*, Case 1:20-cv-03010, Doc. 1 at 3.
17. Thom Lambert, "Why the Federal Government's Antitrust Case against Google Should—and Likely Will—Fail," *Truth on the Market,* December 18, 2020.
18. Federal Trade Commission, "FTC Sues Facebook for Illegal Monopolization," press release, December 9, 2020, https://www.ftc.gov/news-events/press-releases/2020/12/ftc-sues-facebook-illegal-monopolization.
19. Federal Trade Commission, "FTC Sues Facebook."

The FTC "alleges that Facebook, over many years, has imposed anti-competitive conditions on third-party software developers' access to valuable interconnections to its platform." It "has made key" application programming interfaces "available to third-party applications only on the condition that they refrain from developing competing functionalities, and from connecting with or promoting other social networking services."[20]

Amazon. The FTC has been investigating Amazon based on a report that "it secretly used its data on third-party sellers and startups to launch competing products."[21] Amazon competes with its third-party sellers, sometimes imitating their products after the products become popular. According to Jeff Bezos, Amazon has an official policy of not using data it collects on third-party sellers to help its private label business. Critics allege that its employees have violated this policy, deceiving competing sellers.[22] It has also developed products similar to those of companies it has invested in through its venture capital fund, taking advantage of financial data and other confidential information about those firms.[23]

Apple. The federal government and the states have not given as much attention to possible antitrust violations by Apple as they have to other big tech companies, but that approach may be changing. The DOJ and a coalition of state attorneys general have recently taken steps toward launching an antitrust probe of Apple. Accusations against Apple have generally focused on how it controls its App Store. App developers complain that Apple "unfairly ties access to its App Store . . . with its in-app payment system."[24] They also say that its rules are applied inconsistently, favoring Apple's own products. The company does not permit developers to tell customers that they can pay less for some apps if they sign up directly.

In *Apple v. Pepper*, Apple has been accused in a private antitrust case of charging too high a commission for the apps it sells from its App Store.[25] Apple

20. Federal Trade Commission, "FTC Sues Facebook."
21. Tyler Sonnemaker, "Amazon Is Reportedly Facing a New Antitrust Investigation into Its Online Marketplace Led by the FTC and Attorneys General in New York and California," *Insider,* August 3, 2020.
22. Dana Mattioli, "Amazon Scooped Up Data from Its Own Sellers to Launch Competing Products," *Wall Street Journal*, April 23, 2020.
23. Dana Mattioli and Cara Lambardo, "Amazon Met with Startups about Investing, Then Launched Competing Products," *Wall Street Journal*, July 23, 2020.
24. Leah Nylen, "Apple's Easy Ride from U.S. Authorities May Be Over," *Politico,* June 24, 2020.
25. Apple, Inc. v. Pepper, 139 S. Ct. 1514, 1520–21 (2019); Kif Leswing, "Apple Fails to Close Off a Big Antitrust Threat, but It Probably Won't Feel the Harm for Years," CNBC, May 13, 2019.

charges a 30 percent commission for in-app purchases. This case is now moving through the courts. To win the case, the plaintiffs will probably need to demonstrate that Apple's behavior is anticompetitive. Demonstrating that Apple charges a high commission may not be sufficient for Apple to be found guilty.

The European Commission has been pursuing a case against Apple for requirements that app developers use Apple's proprietary in-app purchase system. It is also contesting Apple's restrictions on the ability of developers to inform iPhone and iPad users of alternative ways to purchase the same goods and services for less outside of the app.[26]

ALTERNATIVE VIEWS OF ANTITRUST POLICY AND ENFORCEMENT

Whether DP companies are violating antitrust laws and whether antitrust enforcers should change the way they enforce those laws depends on the nature and purpose of antitrust laws. Since Congress passed the Sherman Act, the purpose of antitrust enforcement has faced considerable disagreement. Some observers see the Sherman Act as intended to limit the power and size of firms and view improving market structure as a goal of antitrust policy.[27] The House Judiciary Subcommittee on Antitrust, Commercial, and Administrative Law (House Judiciary Subcommittee) advocates pursuing a wide range of objectives. These include protecting workers, entrepreneurs, independent businesses, open markets, a fair economy, and democratic ideals, as well as a variety of other normative goals.[28] This outlook is not, however, the dominant view that has come to govern antitrust policy, particularly during the past 40-plus years.

Antitrust policy in the United States has always focused on more than just market structure. Although reducing market power has not, by itself, been the goal of contemporary antitrust policy, one popular view is that powerful firms must be held to a higher standard in order to promote opportunities for competitors. That view was reflected in early application of the Sherman Act. According to Duhigg, in early cases, government prosecutors argued that if a firm was more powerful than most other firms, it should not be permitted to behave like

26. Natasha Lomas, "Apple Pay and IOS App Store under Formal Antitrust Probe in Europe," *TechCrunch*, June 16, 2020.
27. Lina Kahn, "Amazon's Antitrust Paradox," *Yale Law Journal* 126, no. 3 (2017): 710–43.
28. US House of Representatives, Subcommittee on Antitrust, Commercial, and Administrative Law of the Committee on the Judiciary, "Investigation of Competition in Digital Markets, Majority Staff Report and Recommendations," *US House Committee on the Judiciary*, 2020, https://judiciary.house.gov/uploadedfiles/competition_in_digital_markets.pdf.

those other firms but instead must "live by a special set of rules, so that other companies get a fair shot."[29] European Union competition law has taken this approach toward firms with market power.[30] Appointed as the European Union Commissioner for Competition in 2014, Margrethe Vestager has emphasized the importance of giving everyone a chance to succeed.[31]

By contrast, since the late 1970s, US courts have tended to focus on actions that undermine consumer welfare as the goal of antitrust policy rather than on fair competition and other goals. They have sought to determine the relationship between specific market arrangements and consumer welfare. Antitrust policy that is based on consumer welfare considers whether specific behaviors by dominant firms restrict competition in a way that reduces welfare. Generally, consumer welfare is enhanced when prices are lower, quality is higher, or firms develop more innovative products and services.

In early antitrust cases, a finding of antitrust violation required specific actions deemed to be anticompetitive, such as pricing or other aggressive behavior directed at gaining market share from competitors or potential competitors. In addition to predatory pricing, other actions, such as resale price maintenance, price discrimination, and tying, were found to be anticompetitive in various court cases. Early decisions often did not include careful economic analysis to determine whether or how those actions might have reduced competition or the consequences of the alleged reduced competition for consumer welfare.[32]

The Consumer Welfare Standard

The way courts and antitrust agencies interpret and apply the Sherman Act has evolved over time. The consumer welfare approach was first articulated by economists associated with the University of Chicago in the 1950s and 1960s.[33] During this period, antitrust policy seemed to focus on protecting the interests of small business rather than consumers. Many economists and antitrust analysts were critical of antitrust policy, and some argued for making economic efficiency the principal objective of antitrust analysis. Starting in the late 1960s, economists were appointed to prominent positions in the Antitrust Division of the DOJ and

29. Charles Duhigg, "The Case against Google," *New York Times Magazine*, February 20, 2018.
30. Case 322/81, Michelin v. Comm'n, 1983 E.C.R. 3461, para. 57.
31. Duhigg, "Case against Google."
32. Dominick Armentano, *Antitrust and Monopoly: Anatomy of a Policy Failure* (Oakland, CA: Independent Institute, 1990).
33. Herbert Hovenkamp, *The Antitrust Enterprise: Principle and Execution* (Cambridge, MA: Harvard University Press, 2008).

in the FTC. As a result, economic analysis came to play a growing role in antitrust cases, both determining the kinds of cases the government pursues and the central issues for adjudication, and deciding cases on the basis of inferences about the competitive effects of antitrust violations.[34]

This new approach to antitrust policy, which came to be associated with the University of Chicago, emphasized theoretical and empirical evidence that certain kinds of practices for which firms have been accused of antitrust violations, such as vertical mergers and predatory pricing, may enhance consumer welfare more often than they reduce it.[35] Using this approach, critics of past antitrust decisions emphasized error cost analysis: courts should weigh the expected cost of a false positive against the cost of a false negative.[36] A false positive is a finding of guilty for a firm's anticompetitive practices when the sanctioned practice actually enhances competition, and a false negative is a failure to prosecute a firm whose behavior reduces competition. One reason to be more concerned about avoiding false positives than false negatives is that the harmful effects of anticompetitive behavior can be offset by entry or competition on other margins, whereas fear of being charged with an antitrust violation can dampen innovation across the economy.[37]

Since the late 1970s, court decisions have emphasized consumer welfare as the goal of antitrust policy and also have incorporated this concern about avoiding false positives. This approach has been especially true of cases involving vertical mergers, exclusionary practices such as tying, resale price maintenance, and predatory pricing.

Careful economic analysis has demonstrated that vertical mergers can be highly beneficial not only to firms, but also to consumers via reduced prices or improved quality.[38] This practice includes mergers between firms supplying complementary products. Vertical mergers often reduce transaction costs among those involved in upstream and downstream production.

Many practices that courts and antitrust agencies often deemed anticompetitive in the past are beneficial to consumers. So-called predatory pricing, price discrimination, resale price maintenance, and exclusive dealing are practices that often enhance competition and consumer welfare. To the extent

34. Kwoka and White, *Antitrust Revolution*, 1.
35. Robert Bork, *The Antitrust Paradox: A Policy at War with Itself* (New York: Basic Books, 1978).
36. Frank Easterbrook, "Limits of Antitrust," *Texas Law Review* 63, no. 1 (1984): 1–40.
37. Geoffrey Manne and Joshua Wright, "Google and the Limits of Antitrust: The Case against the Case against Google," *Harvard Journal of Law and Public Policy* 34, no. 1 (2011): 171–244.
38. Francine Lafontaine and Margaret Slade, "Vertical Integration and Firm Boundaries: The Evidence," *Journal of Economic Literature* 45, no. 3 (2007): 629–85.

that courts penalized or enjoined firms from engaging in predatory pricing, they may have discouraged vigorous price competition. Price discrimination results in some consumers being able to buy products and services for prices lower than available otherwise.[39] If antitrust policy forbids it, then firms will be less inclined to offer lower prices that benefit a subset of their consumers.

The very terminology used in antitrust cases can be misleading; terms such as *predatory*, *exclusive dealing,* and *foreclosure* imply that behavior is anticompetitive when it may be consistent with the competitive market process. For example, when a firm ties the purchase of one good it sells to another and does not permit retailers to combine complementary goods from different sources, it is sometimes accused of unfair foreclosure or exclusive dealing. But "all successful methods of doing business foreclose competitors from some customers."[40] The foreclosure may be partial or complete, temporary, short term, or long term, but consumers effectively decide whether and how much to exclude other sellers when they choose to buy something from a particular seller. Sellers adjust their offers, improving quality and lowering prices—including making long-term commitments and bundling their products—in order to persuade each consumer to do more business with them and less with their competitors.

The courts have refined their views of exclusive dealing to recognize that it often serves a legitimate competitive purpose. This dealing includes tying, where dealers who sell one good or service acquired from a given firm are required to purchase all the complementary goods or services they sell from the same company. Firms that use this practice have been accused of leveraging their monopoly power in one market to gain a monopoly in another. Tying could benefit consumers in several ways, however, such as by reducing prices when complementary products can be produced for a lower cost if produced jointly.[41]

Areeda argues that exclusive dealing should be permitted as a general rule and viewed as a violation only in a very limited range of cases, such as when a group of firms is involved in a joint venture to provide and use an "essential facility" but denies use of the facility to firms that compete with one or more

39. Big data analytics has enabled firms to more precisely divide their customers into categories based on willingness to pay. This action could lead to a reduction in consumer surplus and an increase in producer surplus. But some evidence suggests that digital markets have more price dispersion and lower average prices, implying that the most important effect of increased price discrimination is lower prices for consumers with a low willingness to pay. Massimiliano Nuccio and Marco Guerzoni, "Big Data: Hell or Heaven? Digital Platforms and Market Power in the Data-Driven Economy," *Competition and Change* 23, no. 3 (2018): 312–28.
40. Robert H. Bork, "Contrasts in Antitrust Theory: I," *Columbia Law Review* 65, no. 3 (1965): 401–16.
41. Erik Hovenkamp and Herbert Hovenkamp, "Tying Arrangements and Antitrust Harm," *Arizona Law Review* 52 (2010): 925–76.

incumbent firms.[42] He acknowledges that an individual firm's exclusion of a competitor from using a facility that the firm owns is not usually an antitrust law violation. Control of facilities is an important part of how firms gain a competitive advantage, and their incentive to invest in facilities depends on their freedom to decide who may use them and on what terms.

Areeda acknowledges that in rare cases, an individual firm may be considered to have a duty to deal.[43] In particular, a firm may have this duty if such dealing is necessary for the existence and viability of competition in the marketplace. But he also notes that a court should not impose a duty to deal that it cannot "adequately and reasonably supervise."[44] One cannot reasonably expect a court to assume the kind of day-to-day control of a firm that is characteristic of a regulatory agency. Oversight of pricing decisions, for example, is more than should be expected of courts. The Supreme Court has affirmed that firms generally do not have a duty to deal in *Verizon Communic'ns, Inc. v. Law Offices of Curtis V. Trinko*.[45]

Critique of Application of the Consumer Welfare Standard to Antitrust Policy

Two kinds of critiques of the consumer welfare standard are applied to antitrust enforcement. One approach accepts the consumer welfare standard but argues that maximizing consumer welfare requires a more activist antitrust policy than has been pursued in recent years. The other approach argues that antitrust policy should be pursuing goals other than consumer welfare. First, consider the argument that the goal of maximizing consumer welfare requires an increase in antitrust enforcement.

A number of economists argue that error cost analysis has placed too much weight on false positives compared with false negatives, resulting in few firms being successfully prosecuted for antitrust violations.[46] The alleged result is too many false negatives—firms whose practices harm consumers, but who are not formally accused of violating antitrust laws. According to this view, current econometric tools can more easily avoid error by empirically testing how specific

42. Phillip Areeda, "Essential Facilities: An Epithet in Need of Limiting Principles," *Antitrust Law Journal* 58, no. 3 (1989): 841–53.
43. Areeda, "Essential Facilities."
44. Areeda, 853.
45. Verizon Communic'ns, Inc. v. Law Offices of Curtis V. Trinko, LLP, 540 U.S. 398 (2004).
46. Market Structure and Antitrust Subcommittee, "Market Structure."

firms' practices, such as vertical mergers, predatory pricing, and refusals to deal, affect market competition.

Proponents of the consumer welfare standard are critical of most antitrust actions against vertical integration, price discrimination, loyalty discounts, and tying because these kinds of conduct are prevalent in competitive markets. The fact that practices are commonly used in competitive markets, however, does not mean that firms cannot use them to harm competition. Thus, Baker argues that even if many or most instances of a practice will benefit competition or are competitively neutral, the subset of instances challenged in court are most likely to be those in which competitive harm occurs, and thus one cannot appropriately infer that in those cases the practices will benefit competition.[47]

Baker also notes that substantive antitrust rules prohibiting anticompetitive instances of certain practices, such as tying, also shape firm conduct.[48] So even if evidence shows that in the current environment those practices usually promote competition, the same practices would more likely be used in a way that harms competition if the rules against them were relaxed. Low incidence of competitive harm from certain practices, such as vertical restraints, would lead one to argue against randomly targeting a firm that uses vertical restraints, but it would not justify ignoring a firm selected on the basis of additional evidence that suggests its actions harmed competition.[49] He notes that a low incidence of competitive harm from a practice could be due to one of two factors: the practice cannot be readily used to harm competition, or the practice is "rare because antitrust rules have deterred firms from using"[50] it to harm competition.

To demonstrate the consumer benefits of stricter antitrust enforcement, Baker cites an unpublished study that compares states with per se rules against resale price maintenance with others where the practice is reviewed under a rule of reason.[51] In the states where resale price maintenance is not illegal per se, prices that changed were usually higher and output usually lower than in the nine states where it was illegal per se.

Baker is also critical of the argument against enforcement that is based on the assertion that antitrust institutions are manipulated by complaining competitors.[52] He argues that there is no reason to expect that agencies or courts are

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47. Jonathan Baker, "Taking the Error Cost out of 'Error Cost' Analysis: What's Wrong with Antitrust's Right," *Antitrust Law Journal* 80, no. 1 (2015): 1–38.
48. Baker, "Taking the Error."
49. Baker, "Taking the Error."
50. Baker, 19.
51. Baker, 20n79.
52. Baker, "Taking the Error."

less able to understand the possible biases of rivals that may be accusing a firm of violating antitrust laws, and to discount their testimony appropriately, than they are able to understand the possible biases of other interested parties, such as defendants accused of excluding those firms.

Baker also raises questions about evidence used in academic studies to assess the effects of firm behavior on consumer welfare.[53] The available evidence may be biased. Firms may be more inclined to share data about their practices with academic researchers when they are using the practices procompetitively.[54] Also, procompetitive consequences may be more visible because firms can take steps to disguise anticompetitive consequences.[55]

Many of those who argue for stricter antitrust scrutiny directed toward DP companies assert that certain kinds of actions can on balance reduce competition and harm consumer welfare, even if those actions could be procompetitive in other contexts.[56] They view false negatives as a bigger danger than false positives, and they argue that the FTC, the courts, and the DOJ have been too lax in their enforcement of the antitrust laws. Furthermore, they argue that the longer that such enforcement is delayed, the more powerful such firms will become, and restoration of competition to the markets in which they are dominant will be more difficult.

Use of a Standard Other Than Consumer Welfare

The consumer welfare standard is not universally accepted as a goal to guide antitrust policy. An important alternative approach is exemplified by the New Brandeis movement, named for Justice Louis Brandeis, who served on the Supreme Court from 1916 to 1939. The movement includes lawyers, scholars, journalists, and organizers, many of whom have done research and written articles raising concerns about "extreme and growing concentration in most sectors of the American economy."[57]

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53. Baker, "Taking the Error."
54. Fiona Scott Morton, "Where Do We Go from Here? Open Questions and Policy Considerations" (Roundtable Discussion at the Federal Trade Commission and US Department of Justice Workshop on Conditional Pricing Practices, Segment 8, Washington, DC, June 23, 2014).
55. Stephen Davies and Peter Ormosi, "The Impact of Competition Policy: What Are the Known Unknowns?" (CCP Working Paper 13-7, Centre for Competition Policy, University of East Anglia, Norwich, UK, June 2013).
56. Market Structure and Antitrust Subcommittee, "Market Structure," 97–99.
57. Lina Kahn, "The New Brandeis Movement: America's Antimonopoly Debate," *Journal of European Competition Law and Practice* 9, no. 3 (2018): 131–32.

The core tenets of the New Brandeis movement include the following:[58]

- Antimonopoly is a key tool and philosophical underpinning for structuring society on a democratic foundation.
- Antitrust is one of several tools that should be used to counter monopoly power.
- Antimonopoly does not mean "big is bad," but antitrust law together with other kinds of regulation can be used to regulate the behavior of natural monopolists.
- Antimonopoly should focus on structures and processes of competition, not outcomes. Markets should promote openness and competition.
- The way markets function depends on law and policy, which should be designed to "ensure that the fruits of innovation are not used to capture private control over markets."[59]

Its proponents believe that citizens should have the ability to control and limit private concentrations of economic power. Private concentrations of economic power contribute to concentrations of political power. Efforts to control concentrated private economic power should involve relying on bureaucratic agencies, such as the FTC and the DOJ, to intervene by pursuing antitrust cases and other regulatory actions against firms identified by those agencies as possessing too much economic power.

Many critics of the consumer welfare standard emphasize protecting competition or the competitive process.[60] In practice, this approach differs from the way the consumer welfare standard is applied because it focuses on bad conduct or on market power, but not both.[61]

Focusing on market power suggests a *no fault* approach so that market structure becomes the basis for deciding whether a firm is violating antitrust law. In the case of DP firms, this approach implies that the goal of antitrust intervention would be the promotion of interplatform and intraplatform rivalry. This promotion could be accomplished by imposing "must-carry

58. Kahn, "New Brandeis Movement."
59. Kahn, 132.
60. The term *competitive process* had previously been synonymous with the consumer welfare standard, because the process of market competition typically involves firms setting prices and improving the quality of their products and services in order to increase their market share, which improves consumer welfare. See also Gregory Werden, "Antitrust's Rule of Reason: Only Competition Matters," *Antitrust Law Journal* 79, no. 2 (2014): 713–59.
61. A. Douglas Melamed and Nicolas Petit, "The Misguided Assault on the Consumer Welfare Standard in the Age of Platform Markets," *Review of Industrial Organization* 54, no. 4 (2019): 741–74.

requirements, mandatory API [application programming interfaces] sharing, [or] data portability measures" on DP firms.[62] It would also involve restricting mergers and acquisitions and requiring divestitures of firms whose market share is too large.

A market power standard, without consideration of firm conduct, is likely to have harmful consequences for society. Limiting market power could require more firms competing with each other in a given market, which would result in higher fixed costs. If firms could not expand to fully exploit economies of scale, then they might charge higher prices or provide lower-quality services to offset their higher costs.

Antitrust policy that emphasizes limiting market power would also affect dynamic efficiency. Limiting a dominant firm's ability to increase its profits by increasing its market share would reduce its incentives to compete vigorously through means such as innovation. Reducing competition from dominant firms could also reduce smaller rivals' incentives to innovate or offer lower prices.[63]

Most contemporary US antitrust law has been proscriptive rather than prescriptive. If it were based on market structure, it would be prescriptive, working more like traditional regulation. US antitrust law "punishes and seeks to deter what it regards as bad conduct."[64] It reflects normative judgments in favor of a limited role for the state and the advantages of market competition and of markets over central planners.

Proponents of the New Brandeis movement have raised legitimate concerns about the political power of big tech companies, but they have also exaggerated the problems of growing concentration in the US economy. Although aggregate concentration has increased, it has not changed much in the more disaggregated markets with which antitrust policy is concerned.[65] As the share of output produced by DP firms has grown, economies of scale have become more important, favoring larger firms. However, even if online markets are more concentrated than traditional sectors of the economy, competition is not necessarily less robust in those sectors than in others, especially if barriers to entry are low.

In contrast to the consumer welfare standard and the New Brandeis movement, a libertarian approach to antitrust policy emphasizes property rights. In

62. Melamed and Petit, "Misguided Assault," 765.
63. Melamed and Petit, "Misguided Assault."
64. Melamed and Petit, 767.
65. Seth Sacher and John Yun, "Twelve Fallacies of the 'Neo-Antitrust' Movement," *George Mason Law Review* 26, no. 5 (2019): 1491–530.

this view, owners of firms and consumers should have the freedom to arrive at mutually beneficial contractual arrangements and the government should not interfere with those arrangements through antitrust policy. Practices such as price discrimination, exclusive dealing, merging, and predatory pricing do not violate anyone's property rights insofar as they do not involve "force, fraud, or misrepresentation."[66] An institutional property rights framework and open market process "continuously create powerful incentives to discover and utilize the best information available in order to coordinate plans and correct those that fall short of objectives."[67] Antitrust action of any kind would likely interfere with the process by which voluntary agreements facilitate coordination of the respective plans of the various market participants. Advocates of this approach generally support abolishment of antitrust laws.

The US government is not going to abolish antitrust laws and take a libertarian approach to market competition, but pursuing a consumer welfare standard at least places limits on how much antitrust agencies will interfere with the property rights of firms and consumers. If antitrust policy were to pursue goals broader than consumer welfare as recommended by the House Judiciary Subcommittee on Antitrust, Commercial, and Administrative Law in its majority report, the DOJ, the FTC, and the courts would need to decide how to prioritize the competing interests involved.[68] Replacing the consumer welfare standard with "an ill-defined multi-factor approach would spawn private sector confusion and promote arbitrariness in enforcement decisions, undermining the rule of law."[69]

The next section explores the characteristics of DP companies and markets. Following that is a discussion of the relationship between their market power and conduct and consumer welfare.[70]

66. Dominick Armentano, *Antitrust: The Case for Repeal*. Rev. 2nd ed. (Auburn, AL: Ludvig von Mises Institute, 1999), 100.
67. Armentano, *Antitrust: The Case,* 104.
68. US House of Representatives, Subcommittee on Antitrust, Commercial, and Administrative Law of the Committee on the Judiciary, "Investigation of Competition in Digital Markets, Majority Staff Report and Recommendations," *US House Committee on the Judiciary,* 2020, https://judiciary.house.gov/uploadedfiles/competition_in_digital_markets.pdf.
69. Alden Abbott, "Competition Policy Challenges for a New U.S. Administration: Is the Past Prologue?," *Concurrences*, February 2021.
70. There is some debate about whether the consumer welfare standard should focus on consumer surplus only or should consider the combined welfare of consumers and producers, as advocated by Robert Bork. Although this distinction may be important in assessing specific cases, it is beyond the scope of this paper, which is concerned with general principles rather than a detailed case-by-case review.

CHARACTERISTICS OF DP COMPANIES AND THE MARKETS THEY SERVE

As noted earlier, some have raised questions about the ability of current antitrust doctrine to respond to the competitive dynamics of the internet age. The question to consider next is what is different about the competitive dynamics of digital platform markets? In particular, what are the markets that are served by Google, Facebook, Amazon, and Apple like?

Limitations of the Traditional Model of Monopoly and Competition for Understanding DP Markets

The traditional monopoly model may be a poor framework for discussing DP markets where network effects are important. In their growth stages, some DP companies do not act like monopolists operating on the downward sloping portion of a demand curve. If price and output are close to the monopoly equilibrium, then increases in output result in falling marginal revenue (MR) and falling marginal profit (MP). In this context, monopolies reduce welfare by limiting the output they produce. But for some large tech companies, evidence suggests that MR and MP rise with output, indicating their markets are not at or near short run equilibrium.[71] Network externalities are positive externalities that enhance the benefits of using a digital platform for existing and newly attracted consumers. They can result in a willingness to pay rising with the number of users, which can offset the declining marginal benefits from consuming additional units of a good or service.

Firms for which willingness to pay rises with output pursue disequilibrium strategies. Strategies such as "cross platform integration of complements" through mergers and acquisitions, preferential treatment, bundling, imitation, or exclusive dealing are "difficult to categorize as pro or anticompetitive."[72] Firms may be pursuing any one of these strategies to expand their networks or offer new and improved services in a way that enhances the welfare of consumers. Such strategies, however, may also increase switching costs and contribute to lock-in, both to the disadvantage of competing firms.[73]

71. Nicolas Petit, "Are 'Fangs' Monopolies? A Theory of Disequilibrium Competition with Uncertainty" (Working Paper No. 19004, University of Liege, Belgium, and Hoover Institution, Stanford, CA, April 16, 2019).
72. Petit, "Are 'Fangs' Monopolies?," 30.
73. Petit, "Are 'Fangs' Monopolies?"

Given the characteristics of markets with network externalities, problems arise if dominant firms take steps to reduce the uncertainty they might experience owing to competition from rivals. They may be able to accomplish this goal by insulation, which increases consumers' difficulty in switching platforms; imitation of competitors' successful strategies; and rent-seeking, which supports government regulation that raises potential rivals' costs.[74] This insulation, imitation, and rent-seeking could reduce consumer welfare. Thus, antitrust agencies may be able to improve welfare by penalizing firms for behavior that impairs the rivals' ability to compete with them and to persuade consumers to migrate to a different platform. However, the challenge is to distinguish firms' actions that enhance the benefits of users of their platform from those that are designed primarily to increase users' difficulty in switching to a competitor.

Markets Served by Google, Facebook, Amazon, and Apple

Google and Facebook earn most of their revenue from advertising. Advertising is also an important and growing source of revenue for Amazon.[75] Apple is a device company, earning revenue from iPhones, computers, and associated apps. Amazon is an e-commerce company, earning much of its revenue from online sales of goods and services.

Google and Facebook are two-sided attention platforms.[76] They lower transaction costs for information exchanges by inducing consumers of information to spend time on their platforms in exchange for advertisers paying for the opportunity to advertise products and services to those consumers. The earliest attention platforms were newspapers funded largely by advertisers competing for the attention of readers seeking information about important events in their communities.

Amazon is also a two-sided platform. For multisided platforms, any analysis of how conduct affects competition and welfare must consider its effect on each side of the market.

Attention platform companies can charge more to advertisers if they can provide information that enables the advertisers to target messages to consumers

74. Petit, 36.

75. Megan Graham, "Amazon Is Eating into Google's Most Important Business: Search Advertising," CNBC, October 15, 2019.

76. David Evans, "Attention Platforms, the Value of Content, and Public Policy," *Review of Industrial Organization* 54 (2019): 775–92.

based on the specific preferences of those consumers. Information collected by DP firms allows the firms to tailor ads to groups of consumers using what the consumers have revealed about themselves. The more comprehensive the information about each consumer, the better the platform can tailor the ads, and the higher the price it can charge for them.

The answer to the question of whether DP companies should be treated differently depends on a careful analysis of the effects of their behavior on market competition and consumer welfare and the circumstances that determine whether antitrust action against them is likely to enhance consumer welfare. The next section explores some of the important arguments for antitrust action against big tech companies in light of an analysis of the effect of their behavior and market power on market competition and consumers.

EVIDENCE AND ARGUMENTS CONCERNING THE MARKET POWER AND CONDUCT OF DP COMPANIES

In determining whether to investigate a firm for violating antitrust law, the DOJ and the FTC often base the decision on the firm's level of market power and whether it has been engaging in specific anticompetitive practices. This section addresses the question of the degree of market power held by Google, Facebook, Amazon, and Apple and whether they are guilty of such practices.

Measuring Market Power

Antitrust agencies and courts have traditionally used market power as one consideration in deciding whether firms are violating antitrust laws. This approach requires defining the relevant market.

The European Commission narrowly defined the market in its case against Google Android as licensable smartphone operating systems, thereby excluding Apple's proprietary operating system.[77] Many of those who view Facebook as a monopoly define its market as private social networks so that LinkedIn and Xing are excluded as competitors.

For two-sided platforms, a determination that a firm has market power may depend on which side of the market one views. Google has a very large share of the market for search engines, but less than a 50 percent share of the market

77. Nicolas Petit, "EU Engaged in Antitrust Gerrymandering against Google," *The Hill,* July 13, 2018.

for advertising.[78] Likewise, Facebook has a very large share of the social media market, but a smaller share of the market for advertising.

In evaluating firms that operate in two-sided markets, one must note that price changes to one side of the market do not necessarily reveal anything about the firm's market power. Revenue earned on one side of the market may be used to cover costs on the other side, and changes in demand elasticities may give firms reasons to change prices on one side relative to the other. Market power is better measured by comparing quantity or quality to what it would be under competition.[79]

Identifying the relevant market should involve considering both the demand side and the supply side.[80] Market power depends not only on firms that are actual competitors, but also on potential competitors and the extent to which marginal consumers would switch to buying from other firms in response to a price increase or quality decrease. Measurement of a firm's market power is particularly difficult because that power may depend in part on the productive capacity of firms that do not currently offer a close substitute good or service for sale but have the potential to do so in the event of a price increase or decline in quality.

There is less evidence that Google or Facebook has monopoly power in advertising than either does in search or social media. In the digital advertising market, Google's market share has declined and is estimated to have been about 35 percent in 2020. Facebook's estimated share was 23 percent, and Amazon's was 10 percent.[81] Some commentators argue that search advertising should be considered separately from the market for other kinds of advertising. According to recent data, Google held a 73.1 percent share of the search advertising market.[82] If this is the relevant market, then Google appears to have monopoly power. Newman[83] argues that the market should be defined narrowly as the market where advertisers pay for clicks on their ads, which are displayed in commercial search results. The implication is that other forms of advertising, such as banner

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78. Audrey Schomer, "How Amazon Advertising Is Eating into the Digital Ad Market Currently Dominated by Google and Facebook in 2020," *Insider,* December 18, 2020.
79. Joshua Wright and John Yun, "Burdens and Balancing in Multisided Markets: The First Principles Approach of *Ohio v. American Express*," *Review of Industrial Organization* 54, no. 4 (2019): 717–40.
80. Geoffrey Manne and Marcellus Williamson, "Hot Docs vs. Cold Economics: The Use and Misuse of Business Documents in Antitrust Enforcement and Adjudication," *Arizona Law Review* 47, no. 3 (2005): 609–54.
81. Graham, "Amazon."
82. Graham, "Amazon."
83. Nathan Newman, "Search, Antitrust, and the Economics of the Control of User Data," *Yale Journal on Regulation* 31, no. 2 (2014): 401–54.

ads on websites or print and television advertising, are not close substitutes for search advertising.

Even if an antitrust agency considers the relevant market to be limited to search advertising, it is still important to acknowledge that competition with other kinds of advertising firms places important constraints on Google's behavior. If the price is too high or the quality is unsatisfactory for search advertising offered by Google, and if there is no other viable platform where they can purchase a search ad, then some firms will substitute other kinds of advertising for purchasing search advertising from Google. The larger the share of firms that would switch, the lower is Google's market power.

Because of its two-sided business model, Google's relationship to advertisers is sometimes referred to using an expression from European Union competition law—an "unavoidable trading partner."[84] This is the case only if Google has monopoly power in search, which appears to be true, based on its market share.

Google's market share among search engines, however, overstates the degree of its monopoly power. Regardless of how narrowly one defines the market, Google is constrained by competition from vertical search engines.[85] Depending on the product or service that people are searching for, Google may be competing with vertical search engines such as Amazon, eBay, Expedia, or TripAdvisor. Thus, its 88 percent market share understates the extent to which it is constrained by competition.[86] Regarding a general search or a search for information not offered by vertical search engines, Google's market share likely understates how competition constrains its treatment of its users. This is the case because of the process of an internet search. Unlike in brick-and-mortar markets, a firm with a small search market share could quickly accommodate additional users because the marginal cost of an additional user is so close to zero. So the situation could be that Google is constrained by its competitors and its market share is the result of the superior quality of its products because "the high transparency on the World Wide Web" leads consumers to choose the best product.[87]

If it had monopoly power in search, Google would be able to behave independently of consumers and competitors, which does not appear to be the

84. Florian Wagner–von Papp, "Should Google's Secret Sauce Be Organic?," *Melbourne Journal of International Law* 16, no. 2 (2015): 627.
85. Wagner–von Papp, "Should Google's Secret."
86. "Search Engine Market Share United States of America, Aug 2019–Aug 2020," *StatCounter,* accessed July 2020, https://gs.statcounter.com/search-engine-market-share/all/united-states-of-america.
87.Wagner–von Papp, "Should Google's Secret," 626.

case.[88] Some competitors, such as Bing and Yahoo, handle enough search queries that their cost per search should not be much more than Google's cost, even for long-tail searches (using keywords or phrases that occur infrequently).[89] A switch of search engines is relatively easy, because doing so does not even require a download. However, Google's broader scope of data, including what it collects from Gmail and YouTube users together with the tendency of users to persist with defaults, possibly, though unlikely, gives it an advantage that is almost unassailable. Stucke and Ezrachi argue that Google can and does degrade the quality of its search results, without provoking a response from its consumers, suggesting that it does have monopoly power.[90] They do not offer direct evidence to support this claim and instead note that Google can significantly lower the quality of its search results, but those results will still be as good or better than its rivals' results because of the advantages associated with its much larger size.

Apple's iOS had a 59.33 percent share of mobile operating systems in the United States as of August 2020. The only other mobile operating system with a significant share in the United States was Android with 40.46 percent of the market.[91] On all platforms, the combined share of Apple's iOS and OS X operating systems was 43.37 percent of the US market, and Windows, the second-most popular operating system, had a 32.73 percent share.[92] Apple faces at least one major rival in most of the markets it serves.

Amazon's estimated share of US retail e-commerce sales in 2020 was 38.7 percent.[93] Online sales, however, compete with sales in brick-and-mortar stores, and Amazon's share of all retail sales is much lower than its share of e-commerce sales, suggesting that its market power is limited at best. Evidence of monopoly power is less for Amazon and Apple than for Google and Facebook.

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88. The notion of a monopolist being independent is limited by the demand curve of the product the monopolist sells, which determines how much less the monopolist will sell if it sets the price higher. Nevertheless, because a monopolist that raises the price it charges will experience a smaller reduction in quantity and may be able to increase profit, it is independent compared to a firm with a close competitor, which will experience a large decline in sales in response to a small price increase.
89. Wagner–von Papp, "Should Google's Secret."
90. Maurice Stucke and Ariel Ezrachi, "When Competition Fails to Optimize Quality: A Look at Search Engines," *Yale Journal of Law and Technology* 18, no. 1 (2017): 70–110.
91. "Mobile Operating System Market Share United States of America, Aug 2019–Aug 2020," *StatCounter,* accessed September 24, 2020, https://gs.statcounter.com/os-market-share/mobile/united-states-of-america.
92. "Operating System Market Share United States of America, Aug 2019–Aug 2020," *StatCounter,* accessed September 24, 2020, https://gs.statcounter.com/os-market-share/all/united-states-of-america.
93. Andrew Lipsman, "Top 10 US Ecommerce Companies 2020," *eMarketer*, March 10, 2020.

Nevertheless, their size and conduct in particular markets have given rise to accusations that have been taken seriously by the European Commission, the DOJ, and the FTC.[94]

Competitive Consequences of Market Behavior of DP Companies

If agencies charged with enforcing antitrust laws are convinced that a firm has enough market power to monopolize a particular market, then they consider evidence about whether its behavior is anticompetitive. That term is problematic, however, because behavior that benefits consumers usually harms competing firms. One of the best ways of attaining a large market share and reducing the market share of competitors is to provide high-quality goods or services for a price as low as or lower than that offered by competitors.

As noted earlier, certain economists and policymakers accuse Google, Facebook, Amazon, and Apple of anticompetitive conduct. All four firms have been criticized for how they control distribution, surveil competitors, and abuse their control over technology.

DP companies are accused of foreclosing competition using methods such as paying original equipment manufacturers (OEMs) and other partner firms to give priority to their products and services or tying access to one product to the use of another one. In addition to Google's tying practices, Apple ties access to its App Store to the use of Apple Pay, and Amazon ties the increased visibility in search results made possible by access to its Buy Box with the use of its order fulfillment services.[95] Tying, however, can have a number of procompetitive effects. Tying is a way for a company to cover the cost of providing or investing in a product or service if the company makes it available to users for a zero or below-cost price. The profit the firm earns on the tied product gives it an incentive to invest in the complementary product or service.

Google chose to make Android software available as free and open source instead of collecting license fees from OEMs that use an Android operating system. Nevertheless, Google has an incentive to invest in improving Android software because it can earn advertising revenue from the data it collects from users

94. Malcolm Owen, "Apple's International Antitrust Battles—the Story So Far," *Appleinsider,* August 15, 2020.
95. Hal Singer, "The Top 10 Admissions from Tech CEOs Secured at the Antitrust Hearing, *Promarket,* July 31, 2020.

of Google Search. This is because it has tied access to the Google Play store to the installation of its search engine on Android phones.

Large ecosystems develop around most DPs, which include numerous firms providing complementary goods and services. Attempts by a DP firm to grow its user base can have profound effects on firms that operate in its ecosystem. To meet consumer demands in a dynamic market, the firm will occasionally make changes in its ecosystem that leave some firms stranded, imposing losses on developers who made sunk investments.[96] Critics sometimes mistake this approach for anticompetitive behavior toward those firms, when in fact it was the result of those firms' products no longer being relevant to the ecosystem. This aspect may explain some of the complaints by vertical search providers about Google behaving anticompetitively.

As described earlier, Amazon has been accused of misappropriating data from third parties that use its services. Google was accused of doing the same thing with data from vertical search sites. If Amazon is just using its superior bargaining power to pressure partners to permit it to use their content, then this action would likely not be considered a violation of US antitrust law. If Amazon is obtaining third-party data without permission, however, then the practice could be considered unfair and deceptive. The FTC has a separate division, the Bureau of Consumer Protection, that is responsible for protecting consumers from firms that engage in such practices.

Most data collected by DP firms are collected with the implicit or explicit permission of their users. Some economists have argued that an important reason that DP markets tip and one large firm becomes dominant is the enormous amounts of data that these firms collect. Proponents of this view assume that these companies gain a competitive advantage by collecting data from a large base of users in order to offer valuable services. A large base of users enables them to take advantage of economies of scale and attract even more users.[97] Their resulting "entrenched knowledge of consumers' personal information" serves as an effective barrier to entry against potential rivals.[98]

The assertion that collection of user data leads to significant returns to scale and monopoly power is not well supported by economic theory or evidence. Incumbent firms do not have exclusive access to data because data are

96. I am thankful to an anonymous reviewer for bringing this to my attention.
97. Andres Lerner, "The Role of 'Big Data' in Online Platform Competition," unpublished paper, August 27, 2014, https://ssrn.com/abstract=2482780.
98. Nathan Newman, "Search, Antitrust, and the Economics of the Control of User Data," *Yale Journal on Regulation* 31, no. 2 (2014): 407.

nonrivalrous. A dominant firm cannot keep its competitors from collecting and using the same kind of data from a user that it collects and uses.[99] Consumer data often become outdated quickly, so that in many cases, entrants rather swiftly accumulate enough data to compete with established firms.

Data alone do not drive the success of DP firms. Engineering resources and technological innovations play a more important role than data. In fact, innovation and clever engineering—not data—enabled Google to earn its current competitive position. Google's PageRank algorithm was one of the key factors that helped it succeed after entering the market that had several established search engines.[100] DP firms can use data sources other than users and can provide high-quality services and attract more users by increasing their use of other inputs and innovative approaches. By using other investments rather than data to improve quality and distribution, DP firms can attain scale and the cost advantages associated with scale. Once they attain a large enough scale, they have the option of relying more heavily on data from their own users to improve the quality of the goods and services they offer.

In addition to the alleged anticompetitive conduct discussed earlier, what about the specific accusations made by the DOJ or the FTC and state attorneys general against Google and Facebook?

Google. The effect of tying arrangements and other agreements with distributors to give preferential treatment to Google's search engine does not necessarily worsen users' position. Google's alleged anticompetitive conduct could enhance consumer welfare in several ways. If most users prefer Google over competing search engines, then they are better situated if it is set as the default. The DOJ's claim that Google has foreclosed competition for internet search by its exclusionary agreements ignores the ease with which a user of any computer or mobile device can download and switch to an alternate search engine. Although a small amount of effort is needed to switch if Google Search is the default, other search engines are accessible from any device. Thus, the small market shares of Google's rivals likely reflect users' preferences for Google's search engine.

Evidence that consumers would choose Google over competing search engines even if it did not engage in anticompetitive conduct is seen in users' response to a recent European Commission ruling against Google. Part of the European Commission's remedy in its case against Google required that Google

99. Lerner, "Role of 'Big Data.'"
100. Lerner, "Role of 'Big Data.'"

give OEMs access to the Google Play Store without requiring them to favor Google's search engine and its Chrome browser app. Android phone users in Europe are now presented with a choice between search engines, rather than having Google preselected as the default. Nevertheless, few consumers seem to have increased their use of alternative search engines in response to this ruling. The market share of Google's search engine in Europe is still more than 90 percent.[101]

By paying royalties to independent web browsers such as Opera and Firefox for making its search engine the default, Google is providing the producers of those browsers a large share of their total revenues.[102] This practice likely increases the number of viable browsers that are competing with each other. The search revenue that Google shares with Apple is likely passed along to consumers through lower phone and tablet prices. Any revenue-sharing agreements Google enters into with developers of internet-enabled smart devices would likely create an incentive for improving their quality and developing them more quickly.

Facebook. Requiring Facebook to divest itself of Instagram and WhatsApp, which the FTC is considering, would likely harm innovation and put consumers in a worse position. The problems associated with required functional or structural separation of DP companies are discussed in more detail later in this paper. There are better ways to encourage competition in social network markets.

The FTC presents some credible evidence to support its claims against Facebook.[103] Part of its complaint rests on the assertions that Instagram and WhatsApp were potential competitors to Facebook and that one or both of those companies could have developed into strong competitors to Facebook in social media markets. At the time they were acquired, neither company was profitable.[104] Instagram had only 13 employees and no revenue,[105] but it had a plan to "'develop a complete social networking service.'"[106]

The fact that Facebook was concerned that these two companies were potential competitors that could have threatened its dominant position in social networking does not mean that its acquisition of these two companies harmed

101. Natasha Lomas, "Google's EU Android Choice Screen Isn't Working Say Search Rivals, Calling for a Joint Process to Devise a Fair Remedy," *TechCrunch*, October 27, 2020.
102. Lambert, "Why."
103. *Facebook, Inc.*, Case 1:20-cv-03590-JEB.
104. Mark Jamison, "The Antitrust Cases against Facebook Are Weak on Evidence and Logic," *American Enterprise Institute*, December 15, 2020.
105. *Wall Street Journal*, "Breaking Up Facebook," Eastern edition, December 11, 2020, A14.
106. *Facebook, Inc.*, Case 1:20-cv-03590-JEB, Doc. 51 at 30.

competition on balance. By acquiring them, Facebook likely hastened the incorporation of the services provided by these two companies into Facebook's ecosystem, benefitting its users. Whether the court evaluates welfare in terms of the counterfactual of what would have happened had Facebook not acquired these companies or in terms of the effect of divestment in the future, in deciding the case against Facebook the court should carefully consider the tradeoff between (a) the consumer benefit from improved quality of services provided by Facebook as a result of the acquisition and (b) the benefit from the increased competition that might result if these companies were independent.

One must consider the other part of the FTC's complaint, that Facebook has "enforced anticompetitive conditions on access to its valuable platform interconnections," such as its APIs.[107] This practice deters app developers that rely on the Facebook ecosystem from including features that might compete with Facebook or from working with other firms that compete with Facebook. Because US courts have generally not maintained that firms have a duty to deal, whether this conduct would be found in violation of antitrust laws is questionable.

Facebook's incentive to invest in its platform is likely enhanced by its ability to control access to and to impose conditions on third parties that access its platform interconnections. The result may be a tradeoff between increased innovation and a reduction in static competition.

One way to promote competition in social media markets is to require interoperability, which would mean making Facebook's APIs available to third parties. This approach could possibly allow for several comparably sized firms to compete in the market, which would keep prices down and quality up. To preserve competition in the face of network externalities, the US government forced phone companies to make their networks interoperable, so that each phone company is obligated to connect calls to their users even if the call was initiated by a consumer whose service is provided by a competing phone company.[108]

Facebook has cited privacy concerns as a reason for not making its APIs available to third parties in the future. By "offering extremely powerful APIs to third-party apps," Facebook made collection of data about users and their friends too easy, which gave rise to the Cambridge Analytica scandal.[109] However, Facebook could protect the security of its users' data while selectively making its APIs

107. *Facebook, Inc.*, Case 1:20-cv-03590-JEB, Doc. 51 at 7.
108. Market Structure and Antitrust Subcommittee, "Market Structure."
109. Bennett Cyphers and Danny O'Brien, "Facing Facebook: Data Portability and Interoperability Are Anti-monopoly Medicine," *Electronic Frontier Foundation,* July 24, 2018.

accessible to third parties so that Facebook could interoperate with a network of firms providing independent social media services.

Interoperability could possibly be achieved without the government requiring it. Private companies have devised interoperability solutions, but Facebook has used legal means to prevent them from implementing those solutions. Facebook used a federal law, the Computer Fraud and Abuse Act, to stop a young startup firm, Power Ventures, from connecting different social media platforms.[110]

If Facebook is not forced to interoperate as part of an antitrust settlement and chooses not to do so on its own, then a competing firm or coalition of firms that integrate smaller interoperable social networks might one day arise to compete against Facebook. If they could interconnect with friends on other networks, users might prefer being part of smaller social networks of people with shared values, because such networks could tailor their content moderation policies to the values of their users. Such a coalition could pool its data, if necessary, in order to earn sufficient advertising revenue to fund each network.

Do Behavioral Biases Enhance Market Power?

Critics argue that one way DP companies compete unfairly is by taking advantage of behavioral biases. Models of consumer behavior that are used to analyze welfare effects typically assume consumers behave rationally to pursue their self-interest, choosing deliberately to maximize utility. Behavioral models developed by psychologists such as Kahneman and Tversky, however, acknowledge human tendencies to eschew difficult calculations in favor of "cognitive ease."[111] People find that thinking in "deliberative, analytic ways" is costly and so "make different choices than they would if choosing were costless."[112]

Kahneman distinguishes System 1 choices, which are fast, intuitive choices, from System 2 choices, which are much more deliberative.[113] System 2 monitors and corrects some errors made under System 1, but to a very limited extent. System 1 is biased toward making decisions based on habit, avoiding rational calculation, often with suboptimal results. People tend to avoid strenuous mental effort because it demands self-control, which they are unwilling to exercise consistently.

110. "Facebook v. Power Ventures," Electronic Frontier Foundation, accessed January 13, 2021, https://www.eff.org/cases/facebook-v-power-ventures.
111. Adam Candeub, "Behavioral Economics, Internet Search, and Antitrust," *I/S: A Journal of Law and Policy for the Information Society* 9, no. 3 (2014): 418.
112. Candeub, "Behavioral Economics," 418.
113. Candeub, "Behavioral Economics."

Businesses take advantage of such choices by trying to push consumers to "make buying their products a System 1–guided habitual behavior."[114] A firm like Google allegedly takes advantage of System 1 behavior to make its search engine the portal to the web with the lowest cognitive cost. The same practice happens with the goods and services provided by other DP companies. Cognitive costs are often lower by transacting repeatedly with the same dominant company, particularly for online services.

Critics of behavioral economics, however, would argue that the kind of responses observed by behavioral economists, including making routine decisions without deliberating, are consistent with a rational choice model. Such decisions are a way to reduce transaction costs, which is consistent with rational choice theory. One must note, however, that to enter a market and successfully compete with an established firm, new competitors must find ways to reduce the transaction costs enough to convince consumers to try an alternative product or service. This path is how competition works and why new firms often take a long time to enter a market and grow large enough to reduce the market power of dominant firms.

ENHANCEMENT OF COMPETITION IN DP MARKETS: ANTITRUST ACTION AND ALTERNATIVES

Whether the goal pursued by antitrust agencies is consumer welfare or limiting of firms' market power, the issue is whether antitrust action against certain firms will contribute toward achieving the goal. In evaluating antitrust policy and its alternatives, this section explores the role that entry plays in contributing to competition, the way antitrust action is likely to influence innovation, and the consequences of remedies that could be pursued if a company is found guilty of violating antitrust law.

Role of Entry in Constraining Firm Behavior

DP markets tend to be dominated by a single firm, and those firms often do not have close competitors in the market. Because of network externalities, marginal costs close to zero, and economies of scale, consumers in DP markets may be better situated with one dominant firm than with several smaller competing firms in the market. In this case, the firm could still be constrained by potential

114. Candeub, 420.

firms that compete for the market. Whether a firm's market power is likely to be constrained in this way depends on how easily new competitors can enter. With regard to free entry, if a firm acts in a way that does not serve the best interests of consumers, such as charging prices that are too high, offering quality that is less than consumers would like, or not pursuing technological improvements that can enhance its products and services, then other firms will have an incentive to enter the market. If the market is contestable, new entrants will eventually attract consumers away from that firm, putting pressure on dominant firms to better serve consumers in order to avoid losing their dominant position. Markets are contestable if they lack significant barriers to entry and if sunk costs are low so that new entrants do not risk losing most of their investment if they enter and do not succeed.

Some recent research suggests that barriers to entry have strengthened over time, so that markets with one or a few dominant firms with market power are less likely to be contestable than in the past.[115] Supporters of vigorous antitrust enforcement argue that exclusionary practices of dominant firms create barriers to entry that limit competition and enable firms to maintain their market power. If there are network externalities, existing firms with an expansive network appear to have an almost insurmountable advantage against new entrants that aspire to compete with them.

Nevertheless, new entrants have been successful in replacing dominant DP firms. In 2007, Myspace had more than a 76 percent share of the social networking market, while Facebook had less than 13 percent.[116] Yahoo was the leading search engine in 2001, when Google had only one-third of Yahoo's market share. Yet Google surpassed Yahoo by 2003.[117] "Network effects facilitate the rapid growth" of DP firms, but "also accelerate their demise."[118]

Beyond a certain minimum efficient scale, size may not convey much of a competitive advantage in some DP markets. Advertisers on Google experience costs in the form of congestion effects from so many other firms advertising on Google. Some positive network externalities may apply to the use of a search engine. As more people use a search engine, the results can be better targeted

115. Germán Gutiérrez and Thomas Philippon, "The Failure of Free Entry" (NBER Working Paper No. 2601, National Bureau of Economic Research, Cambridge, MA, June 2019).
116. MarketingCharts, "MySpace Got 76% of US Social Network Traffic in '07, Facebook's Grew 51%," *MarketingCharts,* January 16, 2008.
117. Rufus Pollock, "Search Engine Market Shares," *Data Hub*, accessed April 13, 2021, https://datahub.io/rufuspollock/search-engine-market-shares.
118. Catherine Tucker, "Digital Data, Platforms and the Usual [Antitrust] Suspects: Network Effects, Switching Costs, Essential Facility," *Review of Industrial Organization* 54, no. 1 (2019): 685.

based on the interests of specific groups of users. This effect may be a barrier to entry for a firm that wants to start a new search engine. But if the number of searchers exceeds some threshold, as is the case with several other major search engines, those firms should be able to target their results sufficiently well to compete with Google.[119]

To the extent that network externalities increase the difficulty for new firms to gain enough scale to compete, other well-capitalized DP firms have the option of expanding the scope of their own networks and leveraging those networks to compete with an existing dominant firm. Although some attempts by large DP firms to compete with each other have failed, such as Google's effort to create a social media product and compete with Facebook, other firms appear to be succeeding. This success includes Amazon's growing role in digital advertising. Enough DP companies with large networks exist so that if one firm does not continue to treat its consumers well, then another one may be able to enter that market or find a partner that can use its network to compete with a dominant firm in another market. Entry and competition can occur in many different ways, which limits firms' ability to use anticompetitive practices to create durable entry barriers.

Even if entry eventually occurs, it may take a long time before competition from a new entrant affects existing dominant firms. Using historical data, Baker notes that in the past many well-known dominant firms eventually saw their market power erode, but their dominant positions generally persisted for decades.[120] One firm having and maintaining a dominant position, however, does not necessarily result in reduced consumer welfare. Having a large market share does not mean that a firm used its dominant position to monopolize the market. During periods when no entry occurs, the threat of entry and potential competition from firms in closely related markets may be sufficient to motivate current firms to keep prices reasonable, offer high-quality goods and services, and pursue innovation in order to maintain their dominant position for as long as possible.

One of the most important kinds of barriers that increase difficulty for market entry is government regulation.[121] A wide range of regulations may be enhancing the power of dominant DP firms. Privacy regulation, such as the EU's General Data Protection Regulation (GDPR), may be an important barrier to entry that benefits dominant firms. In particular, the GDPR has created high entry barriers for firms that could potentially compete with DP companies that

119. Manne and Wright, "Google."
120. Baker, "Taking the Error."
121. Gutiérrez and Philippon, "The Failure."

rely heavily on information collected from users to earn their revenue. Some evidence suggests that competition decreased among technology vendors that provide support services to websites following the enforcement deadline for the GDPR.[122] The week after its enforcement began, the number of web technology vendors used by websites fell by 15 percent, and the reduction was concentrated in the use of small vendors. Larger vendors, including Google and Facebook, benefitted from this reduction. The effect of the GDPR also seems to depend on how well it is enforced. Perceived lack of enforcement led to a reduction in market concentration of web technology vendors after an initial increase.[123]

Legal liability could also be a barrier to entry. The Communications Decency Act of 1996, Section 230, protects platforms from liability for the speech of their users, thereby likely encouraging more entry, particularly into social media markets.[124] Because of concerns about how internet platforms moderate content, some senators have proposed legislation that would alter some of the liability protections provided by Section 230.[125] Like increased privacy regulation, any change that weakens the liability protections provided by Section 230 could reduce competition in some DP markets.

Innovation and Appropriability

Antitrust action may reduce consumer welfare, even when directed against a firm that appears to be engaging in anticompetitive practices. Actions of a firm that lead to reductions in the number of its competitors are often viewed as anticompetitive. If there are fewer competitors, however, each may be able to charge lower prices or provide better quality owing to economies of scale. Economies of scale may also increase the incentive to innovate.

The relation between market structure and innovation is complicated. One view is that more competition gives rise to more innovation, but that view depends on how one defines competition. The process of competition matters more than the number of competitors. Furthermore, firms that innovate do so

122. Garrett Johnson, Scott Shriver, and Samuel Goldberg, "Privacy and Market Concentration: Intended and Unintended Consequences of the GDPR," unpublished paper, November 15, 2019, https://papers.ssrn.com/sol3/Papers.cfm?abstract_id=3477686.
123. Johnson, Shriver, and Goldberg, "Privacy."
124. Jennifer Huddleston, "Section 230 as Pro-competition Policy," *American Action Forum,* October 27, 2020.
125. Gilad Edelman, "Finally, an Interesting Proposal for Section 230 Reform," *Wired,* February 5, 2021.

in anticipation of gaining a larger market share, so the prospect of becoming a monopolist can promote innovation.

If a firm has market power, it may be able to reap more benefits from innovation. The biggest firms can be "some of the most impressive innovators."[126] If a dominant firm is protected by barriers to entry, however, it may not notice as much pressure to innovate. A firm that has market power, but also faces potential competitors that could enter the market easily, faces pressure to innovate in order to retain its market power and is likely to reap large benefits by doing so.

A key issue that influences innovation is the contestability of future sales. A firm will have a greater incentive to innovate "if it fears losing its leadership position to a disruptive rival."[127] To the extent that firms could use their market power to disable disruptive threats, either by acquiring potential rivals or by excluding them with anticompetitive conduct, antitrust action may be justified.

Nevertheless, using antitrust policy to punish firms for competing vigorously to gain market share from rivals could potentially reduce innovation and consumer welfare. In a number of cases, the European Commission has sent a message that "product market competition and diversity inevitably lead to more and better innovation" than if a single firm controls the market.[128] In its Intel decision, the European Commission noted that Intel's "anticompetitive conduct" to reduce the market share of its rival, Advanced Micro Devices (AMD), resulted in "lower incentives to innovate."[129] The decision leaves important questions unanswered such as whether there is evidence that less innovation by AMD led to less innovation by Intel or whether the quality of innovations would compare between the two companies.

Goettler and Gordon argue that without AMD as a competitor, Intel would have increased the rate of product quality innovation.[130] This result depends on the fact that the market was not growing very fast and also on the benefits Intel gains by selling more units of an updated version of its processor in competition with its installed base. Because the ability to appropriate profits provides an

126. Giulio Federico, Fiona Scott Morton, and Carl Shapiro, "Antitrust and Innovation: Welcoming and Protecting Disruption," in *Innovation Policy and the Economy*, vol. 20, ed. Josh Lerner and Scott Stern (Chicago: University of Chicago Press, 2020), 126.
127. Federico, Scott Morton, and Shapiro, "Antitrust and Innovation," 127.
128. Dirk Auer, "Structuralist Innovation: A Shaky Legal Presumption in Need of an Overhaul," *Competition Policy International,* December 17, 2018.
129. Case Comp/C-3/37.990—Intel [2009] C 227/07, para. 33.
130. Ronald Goettler and Brett Gordon, "Does AMD Spur Intel to Innovate More?," *Journal of Political Economy* 119, no. 6 (2011): 1141–200.

important incentive for innovation, control of a larger market share compared to rivals could sometimes lead to more innovation by a dominant firm. In addition to increasing its market share, a dominant firm's ability to profit from innovation could be enhanced by keeping innovations secret or by excluding rivals from access to a complementary asset the dominant firm controls.[131] If Facebook were required to make its network interoperable with competitors, its incentive to innovate could be reduced.

Excluding rivals from access to a complementary asset may have motivated Google to pursue more innovation to Android forks. Google required OEMs that had licensed its version of Android and wanted access to Google Play to agree to install its whole suite of complementary apps and agree to Google's Mobile Application Distribution Agreement.[132] The installation and placement of key apps, such as Google Search and Chrome, on Android phones enables Google to earn profits. Because those apps are complementary to the phones, profits from them are indirectly the result of Google's innovations to the Android Open Source Project, which it could not profit from directly. However, this practice also led to increased difficulty for competing app providers to get their apps installed on Android phones. Because of the effects on these rival app providers, the European Commission objected to conditions Google imposed on OEMs using Android forks that wanted to use its suite of apps.

A key question for antitrust policy is how much leeway firms should have to engage in conduct that has nominal anticompetitive effects in order to increase the appropriability of rents from innovation. Such firms may be constrained by the threat of entry from firms other than the rivals affected by the conduct in question, particularly the potential for firms active in different markets to compete against each other and to introduce innovations in markets "yet to be created" or in which they did not compete in the past.[133] Thus, although Google's actions may have increased the difficulty for rival app providers to compete for installation on its phone, Google is also constrained by potential competition from apps provided by Apple.

The European Commission's approach of requiring firms to accommodate competitors could discourage rather than enhance innovation. Also, an unintended consequence of requiring firms to accommodate competitors, as may be

131. David Teece, "Profiting from Technological Innovation: Implications for Integration, Collaboration, Licensing, and Public Policy," *Research Policy* 15, no. 6 (1986): 285–305.
132. Dirk Auer, "Appropriability and the European Commission's Android Investigation," *Columbia Journal of European Law* 23 (2016–17): 647–82.
133. Auer, "Structuralist Innovation."

the result of the commission's Android decision, is more fragmented markets.[134] If the market for Android forks were to become more fragmented, then the number of developers that produce software for Android forks could decrease. Auer notes that the Android app developer community "decried the Commission's decision."[135] Early on, developers were frustrated by the Android ecosystem until Google took steps to harmonize it. More developer support enhances the quality and variety of software that they make available to consumers.

Remedies for Violating Antitrust Laws

How well the goals of antitrust policy are achieved depends on the remedies applied to firms found guilty of violating the antitrust laws. Whether a given remedy will enhance consumer welfare is difficult to discern. Indeed, there are good reasons to think that proposed remedies to improve competition among DP companies will do more harm than good. Evidence from remedies pursued in some past antitrust cases also raises doubts about whether competition increased as a result.

Some proponents of antitrust action against big tech companies argue for structural or functional separation of the services provided by digital platforms, so that, for example, Amazon would not be permitted to sell products that compete with those of other firms that sell on its platform.[136] However, competition between Amazon and its third-party sellers could benefit consumers. Furthermore, even if Amazon were not permitted to sell its own products on its platform to compete with other firms that sell the same product, it would still have an incentive to provide better services to sellers of some products than others.[137] This is because a profit-maximizing platform will want to provide different quality services to different independent sellers depending on differences in their opportunity cost of selling via an independent retailer. A platform would have an incentive to offer better services for its own proprietary product compared with the product of an independent seller only if in comparing the opportunity

134. One of the European Commission's complaints against Google was that it gave preferential access to its proprietary applications to members of the Open Handset Alliance who agreed not to produce incompatible Android forks. The European Commission viewed this practice as limiting competition in the development of competing Android forks, as noted by Auer, "Structuralist Innovation."
135. Auer, "Structuralist Innovation."
136. Lina Kahn, "The Separation of Platforms and Commerce," *Columbia Law Review* 119, no. 4 (May 2019): 973–1098.
137. Richard Gilbert, "Separation: A Cure for Abuse of Platform Dominance?," *Information Economics and Policy* 54, no. 2 (2020): 1–18.

cost of selling each product via an independent retailer, the cost is greater for its proprietary product.[138]

More generally, structurally separating different products and services of vertically integrated DP firms could sacrifice important efficiencies, contributing to reduced incentives for competition and innovation and, in turn, harming consumers.[139] Such separation would likely have similar effects as the 1984 Modified Final Judgment resulting from the antitrust case against AT&T that separated local exchanges that had been part of AT&T into Regional Bell Operating Companies. The Modified Final Judgment facilitated new competition that resulted in lower prices for some services. However, the line-of-business restrictions it imposed also raised costs and slowed innovation in the telecommunications industry, creating "massive impediments to efficient operation of the network."[140]

The characteristics of DP companies would likely create even more difficulty in breaking them up without destroying many of the benefits that consumers gain from their ecosystems of products. These firms are tightly integrated and "rely upon flexible teams to solve problems that tend to cross the normal divisional and functional bounds."[141] Breaking up these firms would require breaking up their technology stacks, the suite of technologies that power websites. Some components of these stacks—such as Facebook's BigPipe, which dynamically serves pages quickly—keep costs down because they are used by multiple divisions. After the breaking up of these companies, preventing them from reintegrating would require government regulation. Such regulation would likely lead to a decline in innovation.[142] Although the number of firms might be larger, the overall result would likely be lower productivity and fewer consumer benefits.

The pitfalls of structural separation are comparable in some ways to the ineffectiveness of past court decisions in which firms found guilty of monopolization were broken into smaller firms. This antitrust remedy was common in some early cases, including the cases against Standard Oil, Alcoa, and United Shoe Machinery.[143] Although one cannot be sure what would have happened in the absence of antitrust action against these dominant firms, some evidence suggests that

138. Gilbert, "Separation."
139. Gilbert, "Separation."
140. Gilbert, 11.
141. Will Rinehart, "Breaking Up Tech Companies Means Breaking Up Teams and the Underlying Technology," *American Action Forum,* July 23, 2018.
142. Rinehart, "Breaking Up."
143. Robert Crandall and Clifford Winston, "Does Antitrust Policy Improve Consumer Welfare? Assessing the Evidence," *Journal of Economic Perspectives* 17, no. 4 (2003): 3–26. See also United States v. Aluminum Co. of America, 148 F.2d 416 (2nd Cir. 1945); United States v. United Shoe Machinery Corp., 110 F. Supp. 295 (D. Mass. 1953); Standard Oil Co. of New Jersey v. United States, 221 U.S. 1 (1911).

breaking them up did not enhance competition and, in at least one case, may have worsened consumers' welfare. By the time each of these firms was broken up, the market had changed in a way that reduced the consequences of the breakup. While its case was being decided, Standard Oil's market share had fallen from 82 percent to 64 percent.[144] According to Boudreaux and Folsum, the decline in the company's market share was the result, in part, of its refusal to invest in the Texas oil boom and of the influence of its delay in switching from kerosene to gasoline.[145]

Following the *Alcoa* case, the size of the aluminum market grew to the point where it exceeded the output at which economies of scale favored Alcoa. This expansion of the market likely would have led to entry and growth of competitors, even without government assistance that was used to encourage entry.[146] In the case of *United Shoe Machinery*, foreign competition led to a growing share of shoes being manufactured outside the United States, and to the extent that the breakup of United Shoe raised costs, it may have contributed to the decline of shoe manufacturing in the United States.

SHOULD ANTITRUST POLICY BE REFORMED? WHAT WE LEARN FROM PUBLIC CHOICE AND RECENT HISTORY

Whether it makes sense to pursue more aggressive antitrust policy depends on the process by which antitrust policy is carried out. Even if it might be possible to intervene to make markets more competitive, that does not mean that one can count on courts and enforcement agencies to pursue the correct course of action. Public choice theory can help explain how antitrust policy is likely to be implemented. Recent history also reveals much about the effectiveness of antitrust policy.

Applying Public Choice Theory to Antitrust Policy

There are two problems with antitrust action. The first problem is one of knowledge, and the second is one of incentives.

The argument for more activist antitrust policy is based on certain assumptions about the capabilities of regulators and courts. Alleged anticompetitive

144. Richard Epstein, *Antitrust Consent Decrees in Theory and Practice: Why Less Is More* (Washington, DC: AEI Press, 2007).
145. Donald Boudreaux and Burton Folsum, "*Microsoft* and *Standard Oil*: Radical Lessons for Antitrust Reform," *Antitrust Bulletin* Fall (1999): 555–76.
146. Crandall and Winston, "Does Antitrust Policy."

conduct often benefits some consumers, though it may harm others. If one uses a consumer welfare standard, good decisions require the ability to estimate the effect of different kinds of conduct on competition on different margins—price, quality, innovation, and so on. In particular, one will need to know the rate of technical substitution between these different types of competition because practices that increase one kind of competition often reduce another.[147] Some changes may also benefit users on one side of a two-sided platform at the expense of users on the other side.

In addition to being able to estimate rates of technical substitution between price, innovation, and quality, those who decide antitrust cases must also evaluate the welfare tradeoffs involved. Because some consumers place a higher relative value on innovation while others may value low prices relatively more, those who make decisions about antitrust policy toward specific firms must often make interpersonal comparisons of utility.

In deciding a case, enforcement agencies and courts must weigh the value of gains to some consumers against losses to others. The costs and disruption of an antitrust case may increase the defendant firm's difficulty in competing in other markets, making those markets less competitive. Antitrust action could benefit consumers at the expense of workers, or vice versa. Distributional questions are thus central to any antitrust decision.

The way distributional questions are answered also depends on incentives, which are governed by public choice considerations. Incentives of regulatory agencies influence the weight given to the interests of different groups of consumers, to workers, and to different firms. Members of Congress pressure enforcement agencies to bring cases against certain companies, often because such cases may help those firms' competitors that are located in a certain Congressional district. Evidence also suggests that antitrust cases are more likely to be dismissed if they are filed against firms headquartered in states and districts represented by members of committees that have "oversight and budget responsibilities with respect to" the FTC.[148]

Economists benefit from a continuing stream of antitrust cases. They not only find jobs at the DOJ and the FTC but also are hired by many private consulting firms to assist the firms' clients in antitrust cases. This benefit does not necessarily mean that the views of economists toward antitrust policy are governed by

147. Harold Demsetz, "How Many Cheers for Antitrust's 100 Years?," *Economic Inquiry*, April (1992): 207–17.
148. William Shughart and Fred McChesney, "Public Choice Theory and Antitrust Policy," *Public Choice* 142 (2010): 393.

their personal financial considerations, but on the margin, most have little to gain and much to lose in opposing an important role for antitrust policy.

The rhetoric about antitrust policy toward DP companies in many recent media publications may reflect the fact that traditional providers of information are fighting for their survival. One should not be surprised that newspapers and other media companies strongly advocate antitrust action against firms like Google and Facebook, which have disrupted the companies' advertising markets and diverted so many customers away from them. Many who work for traditional media companies may have ideological reasons for advocating antitrust action, but such action against tech giants like Google and Facebook, if successful, could benefit those media companies by weakening the competition they face.

Even among economists, the direction of intellectual bias is more likely to be in favor of anticompetitive explanations of "new forms of conduct that are not well understood."[149] Ronald Coase argues that economists are inclined to look for monopoly explanations for business practices they do not understand.[150]

For these and other reasons, the critique of the error cost approach as summarized by Baker is unpersuasive. The power of the error cost framework is that it encourages regulators, judges, and policymakers to formulate "simple and sensible filters and safe harbors" in order to analyze alleged anticompetitive practices "rather than convert themselves into amateur econometricians, game theorists or behaviorists."[151] One cannot clearly discern if economists have the ability to develop models that can "predict how a rule will impact the mixture of competitive forms that will exist after the policy is implemented" and the ability to assess these mixtures in terms of their effect on consumer welfare.[152]

One should not expect activist antitrust policy in the future to work any better than it has in the past. Even though the empirical tools available to economists and policy analysts may have improved, the ability to decide what model applies to a particular situation is very limited.[153] Part of the problem with determining whether firm actions that are the subject of antitrust cases are anticompetitive is that corporate actors themselves often do not clearly understand the relationship between their actions and the consequences.

149. Manne and Wright, "Google," 183.
150. Ronald Coase, "Industrial Organization: A Proposal for Research," in *Policy Issues and Research Opportunities in Industrial Organization*, ed. Victor Fuchs, 59–73 (Cambridge, MA: National Bureau of Economic Research, 1972).
151. Manne and Wright, "Google," 183.
152. Manne and Wright, "Google," 184.
153. Manne and Wright, "Google."

Firms' decision-making is often a trial-and-error process. Easterbrook argues that firms can describe what they do but have difficulty articulating why they do it.[154] Markets facilitate economic coordination by combining the dispersed knowledge of many different participants, none of whom sees the big picture very clearly. However, when policymakers misunderstand idiosyncratic pricing and contractual practices that are a firm's response to the information available to its managers and the incentives they face, the resulting antitrust action may worsen consumers' welfare.

Recent History

This sections considers two aspects of the recent history of antitrust. First is a general discussion of how antitrust policy has been carried out since the late 1970s. Second is a discussion of two major antitrust cases that involved large technology companies to illustrate and compare the process and outcomes of antitrust policy before and after the consumer welfare standard became the focus of antitrust policy.

Antitrust Policy as a Second-Best Approach for Promoting Competition.

In spite of its flaws, antitrust policy since the late 1970s has been carried out reasonably well. More stringent antitrust enforcement would likely worsen consumers' welfare. Antitrust law has evolved through a trial-and-error process with input from "economists, legal scholars, jurists and practitioners" who generally agree about "the value of applying rigorous economic analysis to advance the interests of consumers across the range of highly dynamic markets that make up today's economy."[155]

The FTC and the DOJ have done less than the European Commission in the way of public enforcement actions against Google, Facebook, Amazon, or Apple. The DOJ did act in 2008 to prevent an "ad search pact" between Yahoo and Google "in which Google would supply Yahoo with search ads."[156]

The FTC also concluded an investigation of Google's search practices in 2013. The FTC considered the accusation that Google favored its own search results over the results of searches provided by other firms that specialize in a particular area, such as providing restaurant reviews. Some vertical websites

154. Easterbrook, "Limits."
155. Muris and Neuchterlein, "Antitrust," 671.
156. Chris Butts, "The Microsoft Case 10 Years Later: Antitrust and New Leading 'New Economy' Firms," *Northwestern Journal of Technology and Intellectual Property* 8, no. 2 (2010): 286.

complained that Google "unfairly promoted its own" vertical search results through changes in its search results page.[157] They argued that Google changed its search results with the intention of excluding actual or potential competitors.

The FTC, in considering allegations that Google behaved anticompetitively by biasing its search results, concluded that Google was not guilty of violating antitrust laws. FTC staff economists did empirical research on the effect of Google's design changes that gave more prominence to its own results and concluded that the changes likely benefitted consumers.[158] In its closing statement, the FTC emphasized that Google's decisions about designing its search results page, including how to allocate space among organic links, paid advertisements, and other features, are not something the Commission should second guess because there are "plausible procompetitive justifications" that are "supported by ample evidence."[159]

In addition to search practices, the FTC also investigated two other allegations about Google's conduct. The first is that Google "'scraped' or misappropriated, the content of certain competing websites" and "passed this content off as its own."[160] The second is "that Google placed unreasonable restrictions on the ability of advertisers to simultaneously advertise on Google and competing search engines."[161] Three commissioners found that the evidence supported strong concerns about Google's misappropriation of a rival's content. In response, Google committed to refraining from such conduct in the future. Two commissioners found evidence in support of strong concerns about Google's restrictions on advertisers, and Google also committed to refraining from that conduct in the future.

More recently, President Donald Trump's administration and members of Congress called "for closer scrutiny" of DP companies.[162] The limited action by the FTC and the DOJ against these companies may reflect the agencies' desire to be guided by a consumer welfare standard. Error cost analysis requires that they weigh the "risks of not challenging potential exclusionary or discriminatory conduct against those of proceeding against conduct that turns out to be

157. Fed. Trade Comm'n, File No. 111-0163, Statement of the Federal Trade Commission Regarding Google's Search Practices, *In the Matter of Google Inc.*, at 1 (Jan. 3, 2013), https://www.ftc.gov/system/files/documents/public_statements/295971/130103googlesearchstmtofcomm.pdf.
158. John Yun, "Understanding Google's Search Platform and the Implications for Antitrust Analyses," *Journal of Competition Law and Economics* 14, no. 2 (2018): 311–29.
159. Fed. Trade Comm'n, Statement, at p. 3.
160. Fed. Trade Comm'n, Statement, at p. 3 n.2.
161. Fed. Trade Comm'n, Statement, at p. 3 n.2.
162. Michael Byowitz et al., "Navigating the New Competition Law Frontier: Reviewing Global Antitrust Approaches to Technology Platforms," *International Lawyer* 52, no. 2 (2019): 164.

pro-competitive or competitively benign."[163] The hesitancy of the FTC and the DOJ to bring charges against DP companies may also reflect 21st-century Supreme Court precedents that make success in monopolization cases relatively difficult.

One important concern raised by the growth of DP companies is whether to revise policy toward mergers and acquisitions. Since the Hart-Scott-Rodino Antitrust Improvements Act was approved in 1976, the government has been evaluating prospective mergers, challenging those deemed to be anticompetitive before they occur. The government requires firms to a file a premerger notification if the deal is larger than some minimum value and the parties are a specified minimum size.[164] Whether the FTC or the DOJ challenges a merger depends on whether the agency finds that is it likely to harm competition and reduce consumer welfare.

The FTC reviewed and approved Facebook's 2012 acquisition of Instagram and its 2014 acquisition of WhatsApp but is now considering requiring Facebook to divest itself of those companies.[165] As part of its review of the acquisition of WhatsApp, the FTC sent letters to Facebook and WhatsApp emphasizing that Facebook must continue to honor the privacy promises made by WhatsApp to its users.[166]

As noted earlier, in some cases, the most important source of competition for a DP firm with network externalities may be new firms entering the market. Dominant firms may be able to foreclose this competition by preemptively acquiring startups that have the potential to compete with them. The possibility that acquisitions of potential competitors could reduce competition and discourage innovation has motivated the FTC to engage in retrospective analysis of past unnotified acquisitions by big tech firms in order to decide whether to more closely scrutinize such activity in the future.[167] There is also the risk, however, that blocking acquisitions of startups that produce complementary services will diminish incentives for capital to be made available to small innovators that hope to be acquired, thereby diminishing a source of innovation.

163. Byowitz et al., "Navigating," 169.
164. Federal Trade Commission, "Premerger Notification and the Merger Review Process," accessed January 20, 2020, https://www.ftc.gov/tips-advice/competition-guidance/guide-antitrust-laws/mergers/premerger-notification-merger-review.
165. Federal Trade Commission, "FTC Sues Facebook."
166. Federal Trade Commission, "FTC Notifies Facebook, WhatsApp of Privacy Obligations in Light of Proposed Acquisition," press release, April 10, 2014, https://www.ftc.gov/news-events/press-releases/2014/04/ftc-notifies-facebook-whatsapp-privacy-obligations-light-proposed.
167. Federal Trade Commission, "FTC to Examine Past Acquisitions by Large Tech Companies," press release, February 11, 2020, https://www.ftc.gov/news-events/press-releases/2020/02/ftc-examine-past-acquisitions-large-technology-companies.

Analysis of Recent Cases against Big Tech Companies: IBM and Microsoft. The US government pursued an antitrust case against Microsoft beginning in the late 1990s, and an earlier case against IBM.[168] Both of these cases illustrate some important aspects of how the process of bringing an antitrust case and its outcome influence competition and consumer welfare. Even when the result of antitrust action is token remedies, as appears to be true of the *Microsoft* case, some observers have argued that the media scrutiny associated with antitrust cases can motivate firms to improve their behavior. Following the 1990s prosecution of Microsoft, some divisions of Microsoft proactively shared their software plans with competitors to discourage lawsuits.[169] Some insiders believe that Microsoft could have used practices that would have kept Google from growing its browser but did not do so because of the culture of compliance resulting from antitrust action against Microsoft. Duhigg argues that the most recent antitrust case against IBM and pressure from prosecutors resulted in IBM ending its practice of bundling software and hardware, which led to the growth of the software industry, beginning with Microsoft.

A more in-depth analysis of each case, however, is instructive in pointing out problems and possible societal benefits from antitrust policy. Considerable evidence suggests that the antitrust case against IBM may have done more to harm than enhance market competition. Evidence implies that in response to the case, which the DOJ filed in 1969 and dropped in 1982, IBM raised computer prices. Antitrust action against IBM, by threatening IBM's right to achieve a certain market share, reduced the potential future profits that it could have earned from expanding. This threat increased the attractiveness of raising prices, which would increase short-run profits but would reduce market share, and thus expected profits, in the long run.[170] The DOJ began its investigation in 1967. IBM charged a price premium relative to other mainframe manufacturers during 1967–71.[171] Beginning in 1981, after IBM's prospects of winning the antitrust case improved, the company changed its pricing strategy and discounted its price relative to other mainframe manufacturers.[172]

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168. United States v. Microsoft Corp., 253 F.3d 34 (D.C. Cir. 2001), and United States District Court for the Southern District of New York, Stipulation of Dismissal; United States v. IBM, Civil Action No. 69 CIV 200 (Jan. 8, 1982).
169. Duhigg, "Case against Google."
170. David Levy and Steve Welzer, "System Error: How the IBM Antitrust Suit Raised Computer Prices," *Regulation* 9, no. 5 (1985): 27–30.
171. Brian Ratchford and Gary Ford, "A Study of Prices and Market Shares in the Computer Mainframe Industry: Reply," *Journal of Business* 52, no. 1 (1979): 125–34.
172. David Levy and Steve Welzer, "An Unintended Consequence of Antitrust Policy: The Effect of the IBM Suit on Pricing Policy," unpublished paper, Department of Economics, Rutgers University, December 1984.

IBM's growth in sales slowed and its market share declined during 1968–72 when it charged a high price, but sales increased more rapidly and market share increased during 1979–83.[173]

The consent decrees that resulted from the antitrust cases against Microsoft are easier to defend as enhancing consumer welfare, particularly the settlement that ensued from the second antitrust suit that the government launched against Microsoft, beginning in 1998. In that case, Microsoft was accused of using anticompetitive practices to "catch and displace" the then-dominant web browser, which had been developed by Netscape.[174] Netscape's internet browser and Sun Microsystems' Java technologies were viewed as potential threats to Microsoft's dominance in the market for operating systems. Microsoft developed its own web browser, Internet Explorer (IE), to compete with Netscape's Navigator and took various actions to give IE a competitive advantage against rival browsers.

Microsoft was found guilty of anticompetitive practices. These included restrictions it placed on OEMS that installed Windows, technical steps it took to "bind IE to Windows,"[175] and its distribution agreements with internet access providers. The court found that Microsoft's actions had no efficiency justification. In considering Microsoft's product design decisions, the appeals court in its deliberation upheld the proposition that it should be skeptical about allegations that product design changes harmed competition.[176] When confronted with a design change for which there was no plausible efficiency justification, however, the court sided with the government and found Microsoft guilty. The design change at issue was Microsoft's elimination of a feature that allowed the easy addition and removal of Internet Explorer from Windows 98 that had been a part of earlier versions of Windows.

The *Microsoft* case is an interesting example of the application of the consumer welfare standard. Judge Robert Bork, who once said that tying should never be an antitrust violation, subsequently argued that Microsoft's tying of Internet Explorer to Windows was anticompetitive and constituted a violation of antitrust law.[177] He changed his mind because of new information about the way tying could be used and because of inferences about its harmful effect on consumer welfare when used in the same way it was used by Microsoft.

173. Levy and Welzer, "System Error."
174. Epstein, *Antitrust*, 84.
175. Epstein, 88.
176. Epstein, *Antitrust*.
177. Dennis Carlton and Michael Waldman, "Robert Bork's Contributions to Antitrust Perspectives on Tying Behavior," *Journal of Law and Economics* 57, no. S3 (2014): S121–S144.

Although the evidence is compelling that Microsoft's intent was to gain a competitive advantage over rivals in a way that could have harmed consumers, whether the actions for which it was found guilty had much effect on market outcomes is questionable. Although a good counterfactual analysis of the *Microsoft* case is difficult, Lopatka argues persuasively that Microsoft's practices did not have much effect on the distribution of Netscape's browser or Java's platform.[178] Netscape's browser was easy to download from the internet as evidenced by the fact that 160 million copies were downloaded in 1998.[179]

Microsoft's rivals, including Netscape, AOL, and Sun Microsystems, engaged in rent-seeking to try to influence the outcome of the cases against Microsoft.[180] There is no evidence that lobbying influenced the DOJ's decision to sue Microsoft. However, Microsoft's competitors lobbied the European Commission to try to influence its decisions in its cases against Microsoft.[181]

One argument for government antitrust intervention in cases like Microsoft is that even if it has little effect on the specific market about which the case is concerned, intervention can be expected to deter firms in other markets from undertaking similar conduct that may be effective in blocking competition.

Although there is plenty of disagreement about the verdict and remedies that resulted from the *Microsoft* cases, those cases offer some important lessons about antitrust policy toward big tech companies. Careful review of the details of the cases demonstrates that the agencies and courts involved in enforcing the antitrust laws showed themselves capable of assessing the possible effects of Microsoft's conduct on competition and doing so in a timely manner.[182] Likewise, the substantive antitrust standards developed over the course of the 20th century proved useful in providing a framework for deciding the case.

Three provisions of the consent decree issued in 2002 may have enhanced competition. These provisions required Microsoft to disclose APIs used to communicate with its operating system and communication protocols for end-user machines used to communicate with Microsoft servers. These requirements facilitate competition with Microsoft in the "personal computer operating

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178. John Lopatka, "Assessing Microsoft from a Distance," *Antitrust Law Journal* 75, no. 3 (2009): 811–45.
179. Epstein, *Antitrust,* 90.
180. Ryan Young, "Antitrust Basics: Corruption and Rent-Seeking," *Competitive Enterprise Institute,* August 21, 2019.
181. Todd Zywicki, "Rent-Seeking, Crony Capitalism, and the Crony Constitution," *Supreme Court Economic Review* 23 (2015): 77–103.
182. Andrew Gavil and Harry First, "Lessons from the *Microsoft* Cases," in *The Microsoft Antitrust Cases: Competition Policy for the Twenty-first Century*, ed. Andrew Gavil and Harry First, 309–30 (Cambridge, MA: MIT Press, 2014).

system market and the workgroup server market."[183] They also allow firms to provide complements to Microsoft Windows products more easily. These required disclosures benefit competitors and may also strengthen Microsoft.

Critics have argued that Microsoft became more cautious as a result of the antitrust cases so that innovation suffered, but there is not much evidence to support this assertion. Although lack of good counterfactual information means one cannot be sure how the case affected innovation, Gavil and First make a persuasive argument that at the time of the case, Microsoft had fallen behind in the development of server software and was not adjusting quickly enough to the growth of the internet.[184] It may have engaged in anticompetitive practices as a way to try to catch up with firms that had surpassed it in innovation.

Gavil and First argue that antitrust enforcement moved too slowly for one dimension of the *Microsoft* case so that it failed to preserve "rivalry before it was effectively vanquished."[185] They suggest that by the time the case was decided, the two rival firms that had been harmed by Microsoft's exclusionary practices, Sun Microsystems and Netscape, had been weakened sufficiently so that they were not much of a competitive threat, compared to what they might have been a year or two earlier. To expect courts and enforcement agencies to be nimble enough to enact the kind of injunctions early in the case that might have preserved the competitive viability of these firms is probably too much to ask of the antitrust enforcement process.

One other possible effect of the cases against Microsoft was to limit its freedom to innovate and efficiently develop and design its products. The DOJ and the EU attacked Microsoft for "including new features, specifically a browser and media player, in the large bundle of applications, utilities and system software" that constitutes an operating system.[186] Competing operating systems include many bundled applications, such as web browsers and media players. Because this decision did not set a precedent outlawing all tying, it may not have had much of a long-term effect on what Microsoft bundles with Windows.

CONCLUSION

The fundamental issue about antitrust policy is the kind of economic system that will emerge. Will we have a system in which property rights are central and

183. Robert Crandall and Charles Jackson, "Antitrust in High-Tech Industries," *Review of Industrial Organization* 38, no. 4 (2011): 351.
184. Gavil and First, "Lessons."
185. Gavil and First, "Lessons," 324.
186. Crandall and Jackson, "Antitrust," 357.

in which firms are permitted to compete in a way that is consistent with maintaining and enhancing the value of their own property rights without interfering with the property rights of others? The alternative is a system of managed competition with rules set by the DOJ and the FTC and mediated by the courts.

Existing policy gives some weight to consumer welfare and, in doing so, places some modest limits on property rights of firms. The consumer welfare standard as applied to antitrust policy has often served as a check on the power of regulators to interfere with the plans of consumers and entrepreneurs in a market economy.

Rather than needing protection from predatory firms, consumers are capable of pursuing their own interests in the marketplace. In light of the history of antitrust policy and public choice considerations, government intervention often serves powerful interest groups and cannot be counted on to promote consumer welfare. In the cases where well-intentioned regulators seek to intervene on behalf of consumers, they often lack the knowledge necessary to alter the distribution of the benefits of exchange in a way that increases aggregate welfare. In addition, one cannot rely on judges in antitrust cases to be able to make the kind of interpersonal welfare comparisons that are required to adjudicate between all the different parties involved.

Outsiders can easily underestimate the challenges that a firm must overcome to gain dominance in any market. Firms succeed and grow by engaging in mutually beneficial voluntary exchanges with many millions of customers on a regular basis. Those few firms that succeed and dominate the global economy for the long term achieve and retain their dominance by effectively coordinating the plans of numerous diverse market participants all over the world—an enormous undertaking. Billions of these market participants are better off because of the information they have access to as the result of contributions by firms like Google that are so effective at market coordination.

Most so-called anticompetitive practices that are the subject of antitrust cases benefit some consumers even if they worsen others' positions. Too much of what critics refer to as anticompetitive practice is part of a process that may involve some combination of information and product promotion, product design, contract terms, pricing strategy, and innovation by which firms compete to attract market share from their rivals. It is anticompetitive only in the sense that it reduces the market share of their competitors. At least one can expect that if courts and enforcement agencies are governed by a consumer welfare standard, then they will exercise skepticism about accusations of anticompetitive behavior. Such skepticism was exemplified in some late 20th-century court decisions, such as *Matsushita v. Zenith*, *Continental TV v. GTE Sylvania*, and *United States v. General Dynamics*.[187] It was also demonstrated in several key 21st-century decisions, including *Verizon Communic'ns, Inc. v. Law Offices of Curtis V. Trinko; Pacific Bell Telephone Co. v. linkLine Communic'ns, Inc.; Weyerhaeuser Co. v. Ross-Simmons Hardwood Lumber Co.;* and *Illinois Tool Works, Inc. v. Independent Ink, Inc.*[188]

Even in cases, such as the *Microsoft* case, in which antitrust agencies have identified behavior that is anticompetitive in the sense that it was intended to block rivals without offering any offsetting benefit to consumers, one can debate whether antitrust action was warranted. The resulting consent decrees and financial awards from private antitrust lawsuits against Microsoft may provide an effective deterrent to other firms considering similar behavior. But for every case like the *Microsoft* case, in which it was nearly impossible to justify some of the actions toward competitors as beneficial to consumers, there are other cases in which behavior that may appear to be anticompetitive is in fact beneficial to consumers. Insofar as antitrust agencies are likely to pursue large DP firms in court, one can only hope that the courts will not permit the FTC and the DOJ to overreach but instead will give such firms the benefit of the doubt if their behavior can be shown to enhance some dimension of consumer welfare, even if it makes operations more difficult for their competitors.

The biggest danger from antitrust policy comes when it is used to target firms because of their size and success and when courts allow agencies to overreach by not upholding a rigorous consumer welfare standard. Firms like Google, Facebook, Amazon, and Apple become dominant and remain dominant primarily because they relentlessly improve the quality of the goods and services they offer while keeping prices low and affordable. Applying the consumer welfare standard and error cost analysis to antitrust policy can play an important role in limiting the waste of taxpayers' money that results from pursuing cases that are unlikely to enhance consumer welfare and may even reduce it.

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187. Matsushita Electric Industrial Co. v. Zenith Radio Corp., 475 U.S. 574 (1986); Continental T.V. v. GTE Sylvania, Inc., 433 U.S. 36 (1977); United States v. General Dynamics Corp., 481 U.S. 239 (1987). See also Armentano, *Antitrust and Monopoly*; Huddleston, "Section 230"; Kwoka and White, *The Antitrust Revolution,* 273–84.
188. *Verizon*, 540 U.S. 398; Pacific Bell Telephone Co. v. linkLine Communic'ns, Inc., 555 U.S. 438 (2009); Weyerhaeuser Co. v. Ross-Simmons Hardwood Lumber Co., 549 U.S. 312 (2007); Illinois Tool Works, Inc. v. Independent Ink, Inc., 547 U.S. 28 (2006).

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