



Market power in the U.S. economy today

By Jonathan B. Baker March 2017

Overview

The U.S. economy has a “market power” problem, notwithstanding our strong and extensive antitrust institutions. The surprising conjunction of the exercise of market power with well-established antitrust norms, precedents, and enforcement institutions is the central paradox of U.S. competition policy today.

As this policy brief explains, the harms from the exercise of firms’ market power may extend beyond individual markets affected to include slower overall economic growth and increased economic inequality. The implications for future economic productivity and welfare are troubling, but before detailing these consequences, it is necessary to understand why market power is a major issue despite well-established antitrust enforcement institutions and legal precedents.

Market power in an era of antitrust

We live in an era of antitrust. The United States has well-established norms against anticompetitive conduct, experienced enforcement institutions, a rich body of judicial precedents, and an active and knowledgeable community of antitrust lawyers and economists. These norms, precedents, and institutions are remarkable in their scope and depth. They have undoubtedly discouraged a great deal of anticompetitive conduct by businesses.¹

Most antitrust cases are noticed by the affected industry and the antitrust community only, but some achieve wider public attention. In recent years, for example, antitrust enforcers famously stepped in to prosecute Archer Daniels Midland Co. for agreeing with its major global competitors to boost the price of lysine;² to stop Microsoft Corp. from monopolizing the operating systems for Intel-compatible personal computers by limiting, among other things, the growth of Netscape Communications’ Internet browser;³ and to prevent AT&T Inc. from acquiring Deutsche Telekom AG’s T-Mobile USA Inc. affiliate, one of AT&T’s rivals in providing retail mobile wireless communications.⁴

Yet there are a number of reasons for concern about the exercise of what economists refer to as market power. Firms exercise market power in their output markets as sellers either by raising prices relative to what they would charge in a competitive market or by reducing quality or convenience or otherwise altering terms of trade adversely with their customers. Firms can also exercise market power as buyers by lowering prices or altering terms of trade adversely to sellers.

While seller market power has been more extensively studied, many of the reasons for concern about its exercise in the U.S. economy today are also reasons for concern about the exercise of market power by buyers. Some of those reasons suggest that sellers exercise substantial market power, and others suggest that the exercise of market power has been widening for decades—extending to more markets, increasing in importance within markets, or both. None is decisive individually, but collectively they make a compelling case that market power has become a serious problem in the U.S. economy.

Among those reasons are:

- Insufficient deterrence of anticompetitive coordinated conduct
- Insufficient deterrence of anticompetitive mergers between rivals
- Insufficient deterrence of anticompetitive exclusion
- Market power is durable
- Increased equity ownership of rival firms by diversified financial investors
- The rise of dominant information technology platforms
- Oligopolies are common and concentration is increasing in many industries
- Increased governmental restraints on competition
- The decline in economic dynamism

Let's examine each in turn.

Insufficient deterrence of anticompetitive coordinated conduct

The steady rate at which the U.S. Department of Justice uncovers criminal price-fixing and market-division cartels, year after year,⁵ combined with evidence that that penalties for collusion and treble damage awards to victims are systematically too low⁶—along with the absence of evidence that criminal enforcement systematically chills procompetitive conduct or induces excessive expenditures on antitrust compliance—indicates that

the antitrust laws do not sufficiently deter collusive conduct. Some cartels are purely domestic, and others are global, with harm to buyers in the United States and elsewhere. This form of anticompetitive business behavior has little or no procompetitive justification. It likely allows sellers to overcharge U.S. buyers by billions of dollars annually.⁷

Even more troubling, cartel prosecutions by the Justice Department are probably only the tip of a large market-power iceberg arising from coordinated conduct among oligopolists. It is probably substantially easier to deter express price-fixing and market division, which is what is usually involved in criminal cases, than it is to deter tacit collusion that leads to higher prices.

That's why it is reasonable to infer from the cartel statistics that the exercise of market power arising from anticompetitive coordinated conduct is common in oligopoly markets. One case in point: A recent study found that coordination between brewing behemoths—the MillerCoors joint venture (now owned by Molson Coors Brewing Co.) and Anheuser-Busch InBev SA/NV (owner of the Budweiser brand)—raised beer prices by at least 6 percent after the joint venture was consummated in 2008.⁸

Insufficient deterrence of anticompetitive mergers between rivals

Nor are anticompetitive mergers adequately deterred. A recent study of mergers between rival manufacturing firms between 1998 and 2006 finds that those deals systematically increased profit margins at acquired plants without reducing costs, suggesting that the lost competition from mergers generally resulted in higher prices.⁹

On average, moreover, so-called horizontal mergers (between two firms in the same market) that were close calls at the two federal antitrust enforcement agencies—the Justice Department and the Federal Trade Commission—turned out to harm competition.¹⁰ Systematic over-optimism among acquiring firms about the efficiencies they can achieve through acquisitions may help explain why too many harmful mergers between rivals are proposed.¹¹ A book-length business strategy analysis points to bad acquisitions as “the single most important reason for underperformance by media companies,” for example.¹²

Insufficient deterrence of anticompetitive exclusion

The antitrust rules today insufficiently deter harmful exclusionary practices that raise rivals' costs or limit rivals' access to customers,¹³ including those implemented through so-called vertical agreements (also termed vertical restraints), which are between a firm and its suppliers, distributors, or customers.¹⁴ That conclusion is consistent with the evidence that more than one-quarter of international cartels used vertical restraints to support collusion,¹⁵ and with the evidence that prices were higher and output lower in U.S. states in which one vertical practice—resale price maintenance—was subject to

rule-of-reason review (which evaluates its actual or likely competitive effects) than in states that kept the per se ban (which looks only to its nature).¹⁶

While some interpret the economic evidence on the competitive consequences of vertical agreements as counseling against enforcement, that interpretation is based heavily on studies of markets other than the oligopoly settings in which antitrust enforcement is concentrated and on studies that do not account for the possibility that the anticompetitive uses of vertical agreements were deterred by past antitrust rules.¹⁷ It is not surprising that anticompetitive exclusionary conduct is insufficiently deterred, given that the U.S. Supreme Court's antitrust decisions from the late 1970s through early 1990s (which are largely still followed) targeted for relaxation rules governing exclusionary conduct.¹⁸

Market power is durable

Market power is a concern not only because it is common, but also because it is durable. Among cartels cut short by antitrust enforcement, the average cartel has been found to last more than eight years and a number have survived for at least 40 years.¹⁹ To similar effect, even when monopolies or near-monopolies have eroded over time, they have often persisted for decades. Think General Motors Co. (automobiles), International Business Machines Corp. (computers), Eastman Kodak Co. (photographic film), RCA Corp. (television sets), United States Steel Corp. (steel), and Xerox Corp. (copiers) over much of the 20th century.

In many cases, moreover, dominant firms and colluding firms have erected entry barriers to exclude new rivals. This evidence shows that anticompetitive conduct can often be sustained for long periods of time, overcoming the incentive of firms to cheat on cartels and the incentive of fringe rivals and entrants to expand and compete away monopoly profits.

Increased equity ownership of rival firms by diversified financial investors

Large institutional investors such as BlackRock Inc., FMR LLC's Fidelity Investments, State Street Corp., and The Vanguard Group Inc. now collectively own roughly two-thirds of the shares of publicly traded U.S. firms overall, up from about one-third in 1980.²⁰ As a result, it has become common for rival firms to have common financial investor ownership.²¹

Recent studies of the airline and banking industries suggest that when competing firms have the same large shareholders, they may refrain from competing aggressively against each other, leading to higher prices.²² This evidence, combined with the growth and widespread nature of the practice, raises the possibility that financial investor ownership of rival firms has become a pervasive and increasing source of market power throughout U.S. industry.

The rise of dominant information technology platforms

Many information technology firms that have become large during the recent past—such as Apple Inc., Bloomberg L.P., Facebook Inc., Alphabet Inc.’s Google Inc. subsidiary, Microsoft Corp., and Oracle Corp.—have likely achieved those positions, at least in part, through varying combinations of network effects, intellectual property protections, endogenous sunk costs, and the absence of divided technical leadership.²³ As a result, their platforms are probably insulated from competition in some of their major markets.

These platforms have delivered substantial consumer benefits, and their conduct does not necessarily violate antitrust laws. Yet consumers and the U.S. economy as a whole would likely benefit even more if they faced greater competition.²⁴

Oligopolies are common and concentration is increasing in many industries

Many markets are oligopolies, in which a small number of firms account for most sales. A number of major industries, including airlines, brewing, and hospitals, have become substantially more concentrated over recent decades.²⁵ The number of major U.S. airlines, for example, including regional and low-cost carriers, has declined after multiple mergers, from nine in 2005 to four today. Similarly, in brewing, Anheuser-Busch InBev SA/NV and Molson Coors Brewing Co. account for nearly three-fourths of the beer sold in the United States and likely exercise market power notwithstanding competition from the many craft brewers that have entered in recent years.²⁶ Likewise, a number of studies show that hospital industry consolidation has led to higher prices.²⁷

Some evidence suggests that concentration has risen generally in U.S. manufacturing,²⁸ and perhaps also in other sectors.²⁹ Other evidence involving broad national aggregates also is consistent with rising concentration,³⁰ but it may instead reflect that large firms increasingly compete with the same large rivals across multiple product lines or regions.³¹

Coordinated conduct is a serious threat in oligopolies for several reasons. First, oligopolists, acting in their individual interest, may have an incentive not to compete aggressively.³² Second, businesses are taught to exploit gaps in antitrust rules to engage in coordinated conduct without running afoul of those rules.³³ Third, the empirical economics literature finds that greater market concentration is associated with an increased risk of anticompetitive conduct.³⁴

Increased governmental restraints on competition

Governmental restraints on competition appear to have grown in past decades. These include more extensive occupational licensing.³⁵ They also include growth in the scope of what may be patented, along with an excessive number of patents improperly granted

as a result of inadequate review of patent applications.³⁶ To similar effect, competitive harm from “pay-for-delay” settlements—high drug prices that arise when the settlement of patent disputes under an industry-specific regulatory framework delays the entry of generic pharmaceuticals—has increased over time,³⁷ though it is possible that the trend changed in 2013, when the Supreme Court made antitrust challenges easier.³⁸

Lobbying and other political rent-seeking activity by firms to limit competition and boost supra-competitive profits—a precursor to governmental restraints—may also be increasing.³⁹ For instance, one form of lobbying that may lead to competitive harm—citizen petitions from drug companies before the U.S. Food and Drug Administration seeking to delay entry by rivals—has “essentially doubled” since 2003.⁴⁰

The decline in economic dynamism

The troubling decline in dynamism of the U.S. economy over the past few decades is consistent with a concern about widening market power, though the jury is still out about the contribution of market power relative to other plausible causal factors. The most productive firms and plants in the economy are expanding less rapidly now than they did before 2000,⁴¹ and the rate of startups has been declining for nearly four decades.⁴²

Moreover, economic growth increasingly comes from improvements to existing products by incumbent firms rather than the displacement of existing products by better ones or the creation of new product varieties. Incumbent firms are increasingly accounting for productivity improvements relative to entrants and other rivals.⁴³

Widening market power of productive firms offers one plausible interpretation for these macroeconomic trends: If productive firms are often insulated from competition, that insulation would limit their incentive to expand and innovate and would discourage expansion, entry, and innovation by rivals. Widening market power also plausibly contributes to the growing gap in accounting profitability between the most and least profitable firms,⁴⁴ the rising profit share of U.S. gross domestic product,⁴⁵ and a secular slowdown in business investment.⁴⁶

Harms from market power

Firms exercise market power in their output markets (as sellers) when they raise prices relative to what they would charge in a competitive market or when they alter analogous terms of trade adversely to buyers (their customers).⁴⁷ As the reference to analogous terms of trade indicates, firms exercising market power may do so on a range of competitive dimensions—most obviously by raising prices, but also by reducing quality or convenience, modifying product features, reducing discounts to customers, or altering the geographic locations or product niches they serve.

The definition of buyer market power is analogous: Firms exercise market power in their input markets (as buyers) when they lower prices or alter terms of trade adversely to sellers. When seller market power is exercised by a dominant firm, it is termed monopoly power; when buyer market power is exercised by a dominant firm, it is termed monopsony power.

As market power has widened in the U.S. economy, its adverse effects have grown. Some of those adverse effects appear primarily in the specific markets affected by the exercise of market power, while others may be experienced economy-wide.

Harms within the affected markets

For the most part, antitrust analysis adopts what economists refer to as a partial equilibrium framework, looking at competitive harms within the markets potentially affected by the exercise of market power. From that perspective, the exercise of market power by sellers (in output markets) is harmful in several ways, among them:

- Wealth transfer and allocative efficiency loss
- Wasteful rent-seeking
- Slowed productivity improvements and innovation in affected markets

Each of these harmful outcomes in affected markets is complex and, for that reason, important to understand.

Wealth transfer and allocative efficiency loss

The exercise of market power in output markets leads to a wealth transfer from buyers to sellers—buyers are overcharged, conferring monopoly profits on sellers. Market power also creates what's known as an allocative efficiency loss, or deadweight loss, which arises because some transactions that would occur in a competitive market are not made—even though buyers value the product or service more than it costs sellers to make or provide it. Hence the economy sacrifices wealth (gains from trade) potentially available to be shared between buyers and sellers.

The wealth transfer (lost surplus to buyers) and the allocative efficiency loss (lost aggregate surplus) are both considered harms from the exercise of market power.⁴⁸ These harms are most easily described in a market for a homogenous product sold at a single price—perhaps grains, crude oil, raw metals, or industrial gases—though similar harms arise when products or services are differentiated or not always sold at identical prices, or when competition is primarily in quality, convenience, or features rather than price, as with branded consumer products, professional services, or transportation.

Wasteful rent-seeking

An efficiency loss from wasteful rent-seeking arises when firms compete for the opportunity to profit from exercising market power.⁴⁹ That may happen when sellers spend resources lobbying to secure or protect a government-granted privilege to sell to buyers free from competition, as might be conferred, for example, through certificate-of-need laws for hospitals—which can enable hospitals to serve a community free of competition—or patents, which are awarded by the U.S. Patent and Trademark Office.

Moreover, when sellers spend resources to erect barriers to entry and exclude rivals through means not involving the government, those expenditures also may be wasteful.

Slowed productivity improvements and innovation in affected markets

The exercise of market power also may have adverse dynamic consequences for productivity and innovation.⁵⁰ First, the exercise of market power slows the rate at which firms improve products and production processes, and lower costs.⁵¹ The loss of competition reduces firms' incentives to expand markets and take business from their rivals, which they might do by cutting costs and prices, improving quality and features, developing new and better products and production processes, or enhancing the value they offer customers by providing increased variety and better services.

The loss of competition also inhibits productivity-enhancing selection—the tendency of the best products and most-efficient producers to win out, as products, technologies,⁵² business models, plants, and firms that are unable to price competitively or attract sufficient customers to remain profitable are forced from the marketplace. Not surprisingly, modern economic and business literatures consistently and convincingly demonstrate that enhanced competition in an industry leads to greater productivity and that the exercise of market power reduces it.⁵³

Second, firms may seek to innovate in order to escape competitive pressures, which means they tend to innovate less when they have durable market power protecting them from the entry of other firms into their markets. There is a theoretical qualification: The exercise of market power could instead enhance innovation incentives if a firm's pre-existing market power reduces the likelihood that its rivals will quickly copy its new products or processes, then compete so aggressively as to prevent the firm from earning a profit sufficient to justify its investments in research and development.⁵⁴ That qualification is unlikely to be important in most markets where antitrust issues arise, however, because firms making major R&D investments usually have many reasons other than pre-existing market power for expecting to appropriate sufficient returns, even with some imitation.⁵⁵

Moreover, even if the prospect of greater post-innovation competition means a dominant firm would expect to earn less by innovating, the firm may still be led to keep

investing in R&D for fear of losing out to its rivals—many of which may themselves have a strong incentive to pursue new products and production processes in order to steal business from the dominant firm.⁵⁶ For all these reasons, greater competition—not greater market power—generally enhances the prospects for innovation,⁵⁷ and the exercise of market power tends to slow innovation and productivity improvements in the affected markets.⁵⁸

The exercise of market power by buyers (in input markets, including labor markets) leads to static and dynamic harms within affected markets analogous to the three types of harms arising from seller market power.⁵⁹ When buyers exercise market power, suppliers (the sellers) are paid too little, so wealth is transferred to buyers. In addition, allocative efficiency losses can arise because resources (the inputs) may not be employed in the markets where they are most valued. If the hospitals in a city collude to depress the wages paid to nurses below competitive levels—as hospitals in cities across the nation have allegedly done⁶⁰—then they will pay nurses too little, hire fewer nurses than they would otherwise, and lead some nurses to take non-nursing jobs.

Moreover, if lessened input purchases restrict downstream production, then the reduction in downstream output could generate additional allocative efficiency losses. If hospitals exercising market power as buyers hire fewer nurses, patient care may suffer.

The exercise of market power by buyers also can lead to insufficient supplier investment in improving production processes and developing product and service improvements, creating dynamic harms analogous to the way innovation and productivity are discouraged by the exercise of market power by sellers. If cable providers are able to depress the prices they pay for video programming through the exercise of market power in purchasing content, for example, content providers may invest less in developing new programs.

Competition can be wasteful at times. Competing firms typically make duplicative fixed expenditures,⁶¹ and competition can lead to excessive entry into existing or new markets.⁶² Notwithstanding these qualifications, the economics literature taken as a whole strongly supports the view that market competition is beneficial and market power is harmful within the affected markets, accounting for both static and dynamic effects.

Economy-wide harms

Looking beyond the individual markets affected by market power, the exercise of market power is harmful to the U.S. economy as a whole. Although competition operates market-by-market and industry-by-industry, the scope of market power can affect the overall economy. The resulting harms are not limited to the participants in the particular markets in which competition has declined. Instead, the exercise of market power may result in slowed economic growth and increasing economic inequality.

Slowed economic growth

The cross-national and cross-industry studies undertaken by the McKinsey Global Institute, summarized by William W. Lewis in 2004 for a popular business audience in “The Power of Productivity: Wealth, Poverty, and the Threat to Global Stability,” demonstrate that differences in competition in product markets across nations are likely as important as cross-national differences in macroeconomic policies and more important than cross-national differences in labor and capital markets in explaining variation in productivity and economic performance.⁶³ National economies do better, Lewis concluded, when competition is both “intense” and “fair” (not distorted by governmental subsidies to less productive firms).⁶⁴ Another leading expert on business strategy, Harvard Business School’s Michael Porter, reached a similar conclusion from a large cross-national study. Porter found that “vigorous domestic rivalry” in an industry helps make that national industry successful.⁶⁵

To similar effect, economists seeking to understand why some nations have grown wealthy consistently find that impediments to competition—which are frequently imposed at the behest of private interests with a stake in protecting existing economic and social arrangements—impede innovation, growth, and prosperity.⁶⁶ These studies reinforce the plausibility of the connection between the systematic widening of market power by firms and the decline in dynamism in the U.S. economy over the past few decades.

When firms and industries can secure long-lasting political power through their size and lobbying influence,⁶⁷ their economic and political power can reinforce each other in a vicious circle. Market power may give firms the resources to create and exploit political power, which they may use to protect or extend their economic advantages—and then invest some of the resulting rents to extend their political power.⁶⁸

Increased inequality

The exercise of market power also probably contributes to economy-wide inequality because the returns from market power go disproportionately to the wealthy. Increases in producer surplus from the exercise of market power (the wealth transfer) accrue pri-

marily to a firm's shareholders and its top executives, who are wealthier on average than the median consumer. In a recent year, the top 1 percent of the wealth distribution held half of stock and mutual fund assets, and the top 10 percent held more than 90 percent of those assets.⁶⁹ Unionized workers in the past may have been able to appropriate some of the profits from the exercise of market power, but with the decline of private-sector unionization, this possibility now has limited practical importance.

Whether economy-wide harms arise from slowed economic growth or increased inequality, the extent to which markets are competitive is far from the only determinant of economy-wide productivity, growth, and inequality. While the economic literature has yet to measure successfully the magnitude with which increasing market power has contributed to the post-1970s slowdown in the rate of U.S. productivity growth or the rise in inequality,⁷⁰ it is nonetheless evident that market power retards growth and enhances inequality—making it plausible that widening market power over the same period has contributed to these adverse economy-wide trends.

Conclusion

Our well-established antitrust norms, precedents, and institutions undoubtedly do much to deter the exercise of market power by firms. But that is not a reason for complacency: Market power is a substantial and widening problem for the U.S. economy today.⁷¹ The resulting harms may extend beyond the individual markets affected to the economy as a whole—in the form of slowed productivity and economic growth, and increased inequality. The surprising conjunction of widening market power with well-developed judicial norms against anticompetitive conduct and well-established antitrust enforcement institutions presents a challenge for academic researchers and policymakers alike: to determine where competition has been harmed, establish whether and how anticompetitive conduct undermines broad-based and equitable U.S. economic growth, and identify ways that courts, antitrust enforcers, and policymakers can do better to deter anticompetitive conduct.

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Endnotes

- 1 Several informal historical experiments demonstrate that when antitrust enforcement is lax, the substantial and long-lasting exercise of market power follows. See Jonathan B. Baker, *The Case for Antitrust Enforcement*, 17 J. ECON. PERSP. 27, 36-38 (2003).
- 2 *United States v. Andreas*, 2216 F.3d 645 (7th Cir. 2000). See generally KURT EICHENWALD, *THE INFORMANT: A TRUE STORY* (2001); JAMES B. LIEBER, *RATS IN THE GRAIN: THE DIRTY TRICKS AND TRIALS OF ARCHER DANIELS MIDLAND, THE SUPERMARKET TO THE WORLD* (2000); JOHN M. CONNOR, *GLOBAL PRICE FIXING: OUR CUSTOMERS ARE OUR ENEMY* (2d. ed. 2007).
- 3 *United States v. Microsoft Corp.*, 253 F.3d 34 (D.C. Cir. 2001). See generally ANDREW I. GAVIL & HARRY FIRST, *THE MICROSOFT ANTITRUST CASES: COMPETITION POLICY FOR THE TWENTY-FIRST CENTURY* (2014); WILLIAM H. PAGE & JOHN E. LOPATKA, *THE MICROSOFT CASE: ANTITRUST, HIGH TECHNOLOGY, AND CONSUMER WELFARE* (2007).

- 4 See Complaint, *United States v. AT&T Inc.*, No. 1:11-cv-01560, (D.D.C. Aug. 31, 2011); Staff Analysis and Findings, Applications of AT&T Inc. and Deutsche Telekom AG For Consent To Assign or Transfer Control of Licenses and Authorizations, FCC WT Docket No. 11–65 (Nov. 29, 2011), http://hraunfoss.fcc.gov/edocs_public/attachmatch/DA-11-1955A2.pdf. See generally Jeff Bliss, DISCONNECTED: HOW AT&T'S BID FOR T-MOBILE USA FAILED AND EXPOSED THE LIMITS OF CORPORATE POWER (2016).
- 5 See, e.g., Antitrust Division, *Criminal Enforcement Trends Charts*, U.S. DEPT. OF JUSTICE, <https://www.justice.gov/atr/criminal-enforcement-fine-and-jail-charts> (last visited Feb. 25, 2017) (10-year statistics through fiscal year 2016); cf. Daniel Ferrés, Gaizka Ormazabal, Paul Povel & Giorgio Sertosis, *Capital Structure Under Collusion 3* (Working Paper 2016), <https://ssrn.com/abstract=2877374> (cartel activity includes many large firms).
- 6 John M. Connor & Robert H. Lande, *Cartels as Rational Business Strategy: Crime Pays*, 34 CARDOZO L.REV. 427 (2012). Connor and Lande may overstate the extent to which private damages deter collusive behavior if, in some cases, cartels anticipate that they will be required to pay antitrust damages in the future, leading the firms to pass through the expected damages payment to buyers in advance in the form of even higher prices.
- 7 A recent survey concludes that the total overcharge to U.S. buyers from 75 cartels sanctioned between 1990 and 2010 was \$182 billion, for an annual overcharge of \$8.7 billion. See John M. Connor & Robert H. Lande, *Cartels as Rational Business Strategy: Crime Pays*, 34 CARDOZO L.REV. 427, 468, 477 n.250 (2012). Because cartels last 8.1 years on average, Margaret C. Levenstein & Valerie Y. Suslow, *Breaking Up Is Hard to Do: Determinants of Cartel Duration*, 54 J.L. & ECON. 455, 463 (2011), these figures imply that if the sample is representative of the population of cartels, cartels are formed at a stable rate, and the annual probability of cartel detection is stable, then 28.9 cartels are active at any one time; the average cartel overcharges U.S. buyers by about \$300 million annually; and the \$8.7 billion annual overcharge will continue as existing cartels are sanctioned and new cartels are formed. (The roughly 3.5 cartels (75/21) detected annually are slightly less than one-eighth of the total cartels, so, on average, 28.9 (8.1*75/21) are active at any time, and the average cartel overcharges buyers by about \$300 million annually (8.7/28.9).) This calculation assumes no net effect from sample censoring (overcharges from before the sample period that were included, and overcharges from cartels that were sanctioned after the sample period that were excluded). The calculation is conservative because the sample excluded some cartels for which data was not available.
- 8 Nathan H. Miller & Matthew C. Weinberg, *Understanding the Price Effects of the MillerCoors Joint Venture*, *ECONOMETRICA* (forthcoming) (working paper available at <http://www.nathanhmilller.org/research.html>).
- 9 Bruce A. Blonigen & Justin R. Pierce, *Evidence for the Effects of Mergers on Market Power and Efficiency* (NBER Working Paper No. 22750, 2016). This study does not control for the possibility that higher prices reflect improved product quality.
- 10 A study of five consummated consumer-product mergers between rivals not challenged by antitrust enforcers but likely close to the enforcement margin found that four led to higher consumer prices. See Orley Ashenfelter & Daniel Hosken, *The Effect of Mergers on Consumer Prices: Evidence from Five Selected Case Studies*, 53 J. L. & ECON. 417 (2010). A meta-analysis of 47 published retrospective studies evaluating 60 horizontal mergers also concluded that mergers that were close calls tended to raise prices. See JOHN KWOKA, *MERGERS, MERGER CONTROL, AND REMEDIES: A RETROSPECTIVE ANALYSIS OF U.S. POLICY* (2015). A critique suggested that the statistical precision of Kwoka's conclusions was overstated because the methodology did not account adequately for differences in reliability across the studies in the sample, but the critique did not question that the underlying studies frequently found higher prices following horizontal mergers. Michael Vita & F. David Osinski, John Kwoka's Mergers, Merger Control, and Remedies: A Critical Review (Dec. 2016) (unpublished manuscript), <https://ssrn.com/abstract=2888485>. The critique also observed that the studies were not distributed randomly over the population of agency-reviewed mergers, but Kwoka had suggested that the studies were more likely representative of the population of mergers that are competitive close calls. KWOKA, *MERGERS, MERGER CONTROL, AND REMEDIES* 158.
- 11 See Louis Kaplow & Carl Shapiro, *Antitrust*, in 2 HANDBOOK OF LAW AND ECONOMICS 1073, 1154 (A. Mitchell Polinsky & Steven Shavell eds., 2007) (summarizing event study evidence showing that acquiring firms do not benefit from mergers on average). Some accounting evidence on merger profitability similarly suggests "excessive managerial zeal," but that evidence is mixed. *Id.* at 1155. See also Lars-Hendrik Röller, Johan Stennek, and Frank Verboven, *Efficiency Gains from Mergers*, in EUROPEAN MERGER CONTROL: DO WE NEED AN EFFICIENCY DEFENCE ch. 3 §2.1.3 (Fabienne Ilzkovitz & Roderick Meiklejohn eds., 2006) (concluding from a review of economic studies that "mergers have but modest average effects on the profitability of the merging firms" and "a large proportion of mergers reduces profitability"); but cf. *id.* (observing from a review of event studies that investors expect short-run increases in profits on average, while cautioning that event study evidence is not strongly probative as to the average effect of mergers on profitability or the contribution of efficiencies to that effect).
- 12 JONATHAN A. KNEE, BRUCE C. GREENWALD & AVA SEAVE, *THE CURSE OF THE MOGUL: WHAT'S WRONG WITH THE WORLD'S LEADING MEDIA COMPANIES* 205 (2009). Moguls "relentlessly undertake inherently foolish deals or overpay for ones that might have made sense at a different price." *Id.* The deals reviewed included both horizontal and nonhorizontal acquisitions.
- 13 A wide range of exclusionary practices may harm competition, potentially including, for example, destroying a rival's distribution facilities, fraudulently acquiring a patent, redesigning an upstream product to create an incompatibility for downstream rivals, engaging in sham litigation or manipulation of a regulatory scheme, refusing to sell a key input to downstream rivals or to distribute a rival's product, contracting with sellers of a key input or key distributors not to deal with rivals, refusing to deal with firms that supply rivals or distribute rivals' products, acquiring a supplier or distributor to foreclose rivals from access to inputs or distribution, tying complementary products together when rivals are unintegrated, contracting with suppliers to give a firm the benefit of any discount the suppliers offer a rival, or responding aggressively to entry in one market to deter entry in other markets. See generally Jonathan B. Baker, *Exclusion as a Core Competition Concern*, 78 ANTITRUST L.J. 527, 539-43 (2013).
- 14 Antitrust cases alleging anticompetitive exclusion are most commonly framed as challenges to vertical agreements or monopolization. Although vertical conduct can also facilitate anticompetitive collusion (and horizontal conduct can harm competition through exclusion), it is reasonable to treat the stringency of antitrust rules governing vertical practices as related to the extent to which antitrust rules deter anticompetitive exclusion.
- 15 Margaret C. Levenstein & Valerie Y. Suslow, *How Do Cartels Use Vertical Restraints? Reflections on Bork's The Antitrust Paradox*, 57 J.L. & ECON. 533 (2014). The vertical restraints allowed the colluding firms to discourage cheating or entry while keeping their collusive horizontal agreement secret.
- 16 Alexander MacKay & David Aron Smith, *The Empirical Effects of Minimum Resale Price Maintenance on Prices and Output* (June 16, 2014) (unpublished manuscript), home.uchicago.edu/~mackay/research.html.
- 17 See generally Jonathan B. Baker, *Taking the Error Out of "Error Cost" Analysis: What's Wrong with Antitrust's Right*, 80 ANTITRUST L.J. 1, 17-23 (2015).
- 18 U.S. Supreme Court decisions from the late 1970s through the early 1990s, among other things, relaxed the rule governing nonprice vertical restraints, raised barriers to plaintiffs seeking to prove predatory pricing, made it more difficult to challenge resale price maintenance, and made it more difficult for rivals to challenge harmful conduct. See generally, Jonathan B. Baker, *A Preface to Post-Chicago Antitrust*, in POST CHICAGO DEVELOPMENTS IN ANTITRUST LAW 60, 66-67 (Roger van den Bergh, Roberto Pardolesi & Antonio Cucinotta eds., 2002). In addition, taking their cue from decisions like these, the lower courts modified the rule governing exclusive dealing. *Id.* at 67. Looking to the outcome, reasoning, and tone of judicial decisions since that time, the Supreme Court and the appellate courts have applied the more relaxed approach to address exclusionary conduct without consistently favoring either defendants or plaintiffs. See Jonathan B. Baker, *Exclusion as a Core Competition Concern*, 78 ANTITRUST L.J. 527, 536-37 (2013).

- 19 Margaret C. Levenstein & Valerie Y. Suslow, *Breaking Up Is Hard to Do: Determinants of Cartel Duration*, 54 J.L. & ECON. 455, 463 (2011) (average duration); Margaret C. Levenstein & Valerie Y. Suslow, *What Determines Cartel Success?*, 44 J. ECON. LITERATURE 43, 53 tbl.2 (2006) (indicating that a number of cartels lasted at least 40 years).
- 20 Marshall E. Blume & Donald B. Keim, *The Changing Nature of Institutional Stock Investing* 5 (Nov. 12, 2014) (unpublished manuscript), <https://fnce.wharton.upenn.edu/profile/948/research>; see THE CONFERENCE BOARD, *THE 2010 INSTITUTIONAL INVESTMENT REPORT* 22 tbl.10 (2010), <http://ssrn.com/abstract=1707512> (describing how institutional ownership of U.S. equities rose from 28.4 percent in 1980 to 50.6 percent in 2009); *id.* at 27 tbl.13 (noting that institutions owned 73 percent of the equity in the top 1,000 corporations in 2009).
- 21 If the top three financial investors were a single entity, they would be the largest shareholder in nearly 90 percent of firms in the S&P 500, and in more than 40 percent of all publicly traded firms (which account for nearly 80 percent of stock market capitalization). See Jan Fichtner, Eelke M. Heemskerck & Javier Garcia-Bernardo, *Hidden Power of the Big Three? Passive Index Funds, Re-Concentration of Corporate Ownership, and New Financial Risk* 15 (Feb. 9, 2017) (unpublished manuscript), <https://ssrn.com/abstract=2798653>.
- 22 José Azar, Martin C. Schmalz & Isabel Tecu, *Anti-Competitive Effects of Common Ownership* (Ross Sch. of Bus., Working Paper No. 1235, 2017), <http://ssrn.com/abstract=2427345>; José Azar, Sahil Raina & Martin Schmalz, *Ultimate Ownership and Bank Competition* (Jan. 17, 2016) (unpublished manuscript), <http://ssrn.com/abstract=2710252>. These studies are carefully conducted, and their results suggest a pervasive and serious problem. But that conclusion is tentative because the economic literature has not established the magnitude and scope of the problem in the economy as a whole; the studies do not account for the potentially countervailing impact of financial investor ownership of complementary products; the identification strategies the studies employ to address the possible endogeneity of common ownership are plausible but could be questioned; and the economic literature has not established which of several plausible mechanisms leads firms with common ownership to raise product prices in the industries studied.
- 23 Network effects may discourage entry when the incumbent firms benefit from some customer captivity, and the need to invent around rival's intellectual property protections may discourage entry as well. Few platforms have room to compete when the firms participating on them make substantial endogenous sunk expenditures, and the absence of divided technical leadership (the supply of key components by multiple firms) tends to slow the speed of technological progress by limiting the incentive of platform participants to allow their components to work with complements developed by other firms. See Timothy F. Bresnahan & Shane Greenstein, *Technological Competition and the Structure of the Computer Industry*, 47 J. INDUS. ECON. 1 (1999). Entrants may succeed by targeting newly developed niches, and some may seek to build on that success by adding capabilities similar to those of incumbents, but even then, incumbent advantages may allow the latter firms to exercise market power for a long time.
- 24 In general, for reasons discussed below, greater competition would be expected to increase the rate of innovation, increase the rate at which firms lower quality-adjusted prices, and reduce the potential for harm from anticompetitive exclusionary conduct in the markets that these platforms dominate.
- 25 Other industries have become less concentrated over time, however, or, to similar effect, some once-narrow markets may have broadened and, in consequence, now include more participants. E.g., *Statement of the Federal Trade Commission Concerning the Proposed Merger of Office Depot, Inc. and OfficeMax, Inc.*, No. 131-0104 (Nov. 1, 2013), <https://www.ftc.gov/news-events/press-releases/2013/11/ftc-closes-seven-month-investigation-proposed-office> (concluding that the large office superstores faced greater retail competition from nonsuperstore retailers in 2013 than they faced in 1997, when the Federal Trade Commission viewed office supplies sold at retail as a market).
- 26 In brewing, the owners of Budweiser and Miller account for nearly three-fourths of the beer sold in the United States and likely exercise market power, notwithstanding competition from the many craft brewers that have entered in recent years. See Complaint at 10, *United States v. Anheuser-Busch InBEV SA/NV*, No. 1:16-cv-01483, (D.D.C. July 20, 2016) (ABI (Budweiser) and Miller have a combined national share of 72 percent and combined market shares in the metropolitan areas for which reliable data is available ranging from 37 percent to 94 percent). Entry by niche firms does not necessarily compete away the market power exercised by oligopolists because those firms may not be able to expand inexpensively. See *id.* at 12-13 (describing barriers to entry and expansion in brewing). See also Nathan H. Miller & Matthew C. Weinberg, *Understanding the Price Effects of the MillerCoors Joint Venture*, *ECONOMETRICA* (forthcoming) (working paper available at <http://www.nathanhmilller.org/research.html>) (identifying the exercise of market power in the brewing industry).
- 27 David M. Cutler & Fiona Scott Morton, *Hospitals, Market Share, and Consolidation*, 18 J. AM. MED. ASS'N 1964 (2013); Martin Gaynor & Robert Town, *The Impact of Hospital Consolidation – Update* (Robert Wood Johnson Foundation 2012), <http://www.rwjf.org/en/library/research/2012/06/the-impact-of-hospital-consolidation.html>; Leemore Dafny, Kate Ho & Robin S. Lee, *The Price Effects of Cross-Market Hospital Mergers* (NBER Working Paper No. 22106, Mar. 2016).
- 28 Sam Peltzman, *Industrial Concentration Under the Rule of Reason*, 57 J. L. & ECON. S101 (2014). Peltzman attributes growing concentration to lax merger policy, but does not resolve whether mergers primarily allowed firms to achieve efficiencies or to exercise market power.
- 29 David Autor, David Dorn, Lawrence F. Katz, Christina Patterson & John Van Reenen, *Concentrating on the Fall of the Labor Share*, 107 AM. ECON. REV. (Papers & Proceedings) (2017, forthcoming) (identifying “a remarkably consistent upward trend in concentration” in the average four-digit industry across manufacturing, finance, services, utilities, retail trade, and wholesale trade). The authors suggest that sales are increasingly concentrated among firms with superior products or higher productivity, though their empirical results could also mean that firms exercise greater market power. The market definitions used in this study and Peltzman's study may be broader than those that would typically be employed in antitrust analysis. Cf. Gregory J. Werden, *The Divergence of SIC Industries from Antitrust Markets: Some Evidence from Price Fixing Cases*, 28 ECON. LETTERS 193 (1988) (explaining that industries defined for government statistical purposes are often far broader in product or geographic scope than antitrust markets).
- 30 Theo Francis & Ryan Knutson, *Wave of Megadeals Tests Antitrust Limits in U.S.*, WALL ST. J. (Oct. 18, 2015) (finding that many large publicly traded firms face less competition on average over time using data that defines industries broadly based upon firm revenues and the lines of business in which firms report they participate); cf. Gustavo Grullon, Yelena Larkin & Roni Michaela, *Are U.S. Industries Becoming More Concentrated?* Fig. 2-B, 2-C & 2-D (Working Paper, June 2016), https://finance.eller.arizona.edu/sites/finance/files/grullon_11.4.16.pdf (concentration in broadly defined industries in the United States generally rose from 1997 through 2014) (analysis based on both Compustat and Census data); but cf. Jan Keil, *The Trouble with Approximating Industry Concentration from Compustat* (Dept. of Econ., U. of the West Indies Working Paper 2016) (tbl. 3), <https://ssrn.com/abstract=2879035>, (questioning the reliability of concentration measures based on Compustat data and reporting Herfindahl-Hirschman Index measures for broadly defined industries based on U.S. Census Bureau data that are low relative to the concentration standards in the merger guidelines). Concentration may also be growing among the top 50 firms in many sectors, Council of Economic Advisers Issue Brief, *Benefits of Competition and Indicators of Market Power* 4 (fig. 1) (Apr. 2016), https://obamawhitehouse.archives.gov/sites/default/files/page/files/20160414_cea_competition_issue_brief.pdf, but that aspect of market structure seems unlikely to be related to the extent to which firms exercise market power unless it is correlated with other measures of concentration.
- 31 As with increased concentration, growing multimarket contact could facilitate coordination among firms. B. Douglas Bernheim & Michael D. Whinston, *Multimarket Contact and Collusive Behavior*, 21 RAND J. ECON. 1, 4-5 (1990).
- 32 Repeated interaction may help firms reach consensus on the terms of a coordinated arrangement, and discourage firms from cheating by exacerbating the punishment that coordinating rivals can inflict. Even if firms do not secure

- higher-than-competitive prices by identifying consensus terms and committing to punish rival cheating, they may achieve a similar anticompetitive outcome through parallel accommodating conduct not pursuant to a prior understanding. Absent repeated interaction, for example, competition may be dampened when firms find it costly or time-consuming to change their output levels under quantity competition or price competition when production capacity is fixed. David M. Kreps & Jose A. Scheinkman, *Quantity Precommitment and Bertrand Competition Yield Cournot Outcomes*, 14 BELL J. ECON. 326 (1983). Competition is also dampened without repeated interaction in the Markov perfect equilibrium of a model with adjustment costs. See Eric Maskin & Jean Tirole, *A Theory of Dynamic Oligopoly III: Cournot Competition*, 31 EUR. ECON. REV. 947, 956 (1987).
- 33 E.g. BRUCE GREENWALD & JUDD KAHN, *COMPETITION DEMYSTIFIED: A RADICALLY SIMPLIFIED APPROACH TO BUSINESS STRATEGY* 293-321 (2005). *Id.* at 293-321 (ways to coordinate); *id.* at 230-32 (ways to deter entry); R. PRESTON McAFEE, *COMPETITIVE SOLUTIONS: THE STRATEGIST'S TOOLKIT* 138-46 (2002) (ways to coordinate); *id.* at 11-16, 69-70, 342-44, & 379-80 (ways to deter entry); MICHAEL E. PORTER, *COMPETITIVE STRATEGY* 93-95, 106 (1980) (ways to coordinate and deter cheating).
 - 34 This literature relates concentration to prices (not profits, the concern of an older and more controversial literature). See generally, Richard Schmalensee, *Inter-Industry Studies of Structure and Performance*, in 2 HANDBOOK OF INDUSTRIAL ORGANIZATION 988 (Richard Schmalensee & Robert D. Willig eds., 1989) (Stylized Fact 5.1) (survey concluding that “[i]n cross-section comparisons involving markets in the same industry, seller concentration is positively related to the level of price”). See Timothy F. Bresnahan & Valerie Y. Suslow, *Oligopoly Pricing with Capacity Constraints*, 15/16 ANNALES D’ECONOMIE ET DE STATISTIQUE 267 (1989) (relating price to concentration in the aluminum industry); see also William N. Evans, Luke M. Froeb & Gregory J. Werden, *Endogeneity in the Concentration Price Relationship: Causes, Consequences, and Cures*, 41 J. INDUS. ECON. 431 (1993) (relating price to concentration in the airline industry); see also Vishal Singh & Ting Zhu, *Pricing and Market Concentration in Oligopoly Markets*, 27 MARKETING SCI. 1020 (2008) (relating price to concentration in the auto-rental industry). Cf. Sam Peltzman, *The Gains and Losses from Industrial Concentration*, 20 J. L. & ECON. 229 (1977) (finding that greater concentration in an industry is associated with lower average industry costs and higher average industry price-cost margins, and that higher margins are associated with reduced competition rather than derived from the incomplete pass through of lower costs in markets in which small firms are becoming more efficient and only slowly taking share from less efficient larger firms).
 - 35 Aaron Edlin & Rebecca Haw, *Cartels by Another Name: Should Licensed Occupations Face Antitrust Scrutiny?*, 162 U. PA. L. REV. 1093 (2014).
 - 36 Jonathan Masur, *Patent Inflation*, 121 YALE L. J. 470 (2011). See FEDERAL TRADE COMMISSION, *TO PROMOTE INNOVATION: THE PROPER BALANCE OF COMPETITION AND PATENT LAW AND POLICY* (2003), <https://www.ftc.gov/reports/promote-innovation-proper-balance-competition-patent-law-policy>; see also ADAM B. JAFFE & JOSH LERNER, *INNOVATION AND ITS DISCONTENTS* 34-35, 115-19 (2004). On the more recent response by Congress and the courts to concerns about patent scope and validity, see J. Jonas Anderson, *Patent Dialogue*, 92 N.C. L. REV. 1049 (2014). See also J. Jonas Anderson, *Congress as a Catalyst of Patent Reform at the Federal Circuit*, 63 AM. U. L. REV. 961 (2014).
 - 37 FED. TRADE COMM’N, *PAY-FOR-DELAY: HOW DRUG COMPANY PAY-OFFS COST CONSUMERS BILLIONS* (2010). The Federal Trade Commission estimated that pay-for-delay agreements cost American consumers \$3.5 billion annually. *Id.* at 2.
 - 38 Fed. Trade Comm’n v. Activis, Inc., 133 S. Ct. 2223 (2013).
 - 39 Thomas Groll and Christopher J. Ellis, *Repeated Lobbying by Commercial Lobbyists and Special Interests* 1 (CESifo Working Paper No. 5809, 2016) (recent growth in total federal lobbying expenditures “is almost entirely accounted for by the increase in commercial lobbying activities”). See John M. de Figueiredo, *The Timing, Intensity, and Composition of Interest Group Lobbying: An Analysis of Structural Policy Windows in the States* (NBER Working Paper No. 10588, 2004) (finding that lobbying expenditures by corporations and trade associations represent approximately 85 percent of total interest group lobbying expenditures in the United States at both the federal and state level); see also James Bessen, *Accounting for Rising Corporate Profits: Intangibles or Regulatory Rents?* (B.U. Sch. L. & Econ., Working Paper No. 16-18, May 11, 2016) (lobbying and other rent seeking in industries such as chemicals, pharmaceuticals, petroleum refining, transportation equipment, electricity and gas, and communications has accounted for a substantial share in the growth of corporate profits since 2000).
 - 40 Robin Feldman, Evan Frondorf, Andrew K. Cordova, *Empirical Evidence of Drug Pricing Games – A Citizen’s Pathway Gone Astray* 104 (UC Hastings Research Paper No. 215 2017); but cf. Michael A. Carrier & Carl Minniti, *Citizens Petitions: Long, Late-Filed, and At-Last Denied*, 66 AM. U. L. REV. 305, 326, tbl. 1 (2016) (finding a decline in the use of citizen petitions by brand-name drug manufacturers to delay entry by generic rivals between 2013 and 2015).
 - 41 See Ryan A. Decker, John Haltiwanger, Ron S. Jarmin & Javier Miranda, *Declining Dynamism, Allocative Efficiency, and the Productivity Slowdown* (Fed. Reserve Bd. Fin. & Econ. Discussion Series Working Paper No. 2017-019, 2017) (finding a declining correlation between firm size and higher productivity growth between 1997 to 1999 and 2011 to 2013, and attributing the bulk of the productivity slowdown from the late 1990s to the mid-2000s to a reduction in the extent to which resources flow to the most productive firms); see also Ryan A. Decker, John Haltiwanger, Ron S. Jarmin & Javier Miranda, *Changing Business Dynamism: Volatility of Shocks vs. Responsiveness to Shocks?* fig. 10 (Working Paper Apr. 2006) (finding a declining response of plant employment growth to positive productivity shocks since 2000, particularly for high-tech firms and young firms); see also Ryan A. Decker, John Haltiwanger, Ron S. Jarmin & Javier Miranda, *Where Has All the Skewness Gone? The Decline in High-Growth (Young) Firms in the U.S.*, 86 EUR. ECON. REV. 4 (2016) (finding a declining likelihood of rapid employment growth by startups since 2000).
 - 42 See Ryan A. Decker, John Haltiwanger, Ron S. Jarmin & Javier Miranda, *Where Has All the Skewness Gone? The Decline in High-Growth (Young) Firms in the U.S.*, 86 EUR. ECON. REV. 4 (2016) (finding a decline in the firm entry rate since 1979); see also Ian Hathaway & Robert E. Litan, *Declining Business Dynamism in the United States: A Look at States and Metros* 1, fig. 1 (Brookings Econ. Stud. 2014), <https://www.brookings.edu/search/?s=Hathaway+Litan> (finding a decline in the firm entry rate between 1978 and 2011).
 - 43 Daniel Garcia-Macia, Chang-Tai Hsieh, and Peter J. Klenow, *How Destructive is Innovation?* 28, tbls. 5 & 6 NBER Working Paper No. 22953 (Dec. 2016) (comparing sources of total factor productivity growth between 1976 to 1986 and 2003 to 2013).
 - 44 Jason Furman & Peter Orszag, *A Firm-Level Perspective on the Role of Rents in the Rise of Inequality* 10, figs. 8 & 9 (Oct. 16, 2015), https://obamawhitehouse.archives.gov/sites/default/files/page/files/20151016_firm_level_perspective_on_role_of_rents_in_inequality.pdf.
 - 45 Simcha Barkai, *Declining Labor and Capital Shares* (Univ. of Chicago Stigler Center New Working Paper Series No. 2, 2016). Economic forces other than growing market power that potentially have contributed to the decline in the labor share of GDP are surveyed in David Autor, David Dorn, Lawrence F. Katz, Christina Patterson & John Van Reenen, *Concentrating on the Fall of the Labor Share*, 107 AM. ECON. REV. (Papers & Proceedings) (forthcoming 2017); Ricardo J. Caballero, Emmanuel Farhi & Pierre-Olivier Gourinchas, *Rents, Technical Change, and Risk Premia: Accounting for Secular Trends in Interest Rates, Returns on Capital, Earnings Yields, and Factor Shares* at n.2 and accompanying text (Working Paper, Jan. 25, 2017).
 - 46 Germán Gutiérrez & Thomas Philippon, *Investment-Less Growth: An Empirical Investigation* (NBER Working Paper No. 22897, Dec. 2016) (attributing the investment slowdown primarily to a combination of market concentration and increased equity ownership by financial firms, both of which are potential sources of market power).
 - 47 If entry is easy and price discrimination is feasible, then firms can exercise market power with respect to some customers without elevating their average prices above competitive (free entry) levels, and thus without harming competition overall. See Jonathan B. Baker, *Competitive Price Discrimination: The Exercise of Market Power Without Anticompetitive Effects*, 70 ANTITRUST L.J. 643, 651 (2003).

- 48 The longstanding debate about whether antitrust should aim to prevent wealth transfers or allocative efficiency losses is surveyed critically in Jonathan B. Baker, *Economics and Politics: Perspectives on the Goals and Future of Antitrust*, 81 *FORDHAM L. REV.* 2175, 2176-80 (2013).
- 49 Richard A. Posner, *The Social Costs of Monopoly and Regulation*, 83 *J. POL. ECON.* 807 (1975); Franklin M. Fisher, *The Social Costs of Monopoly and Regulation: Posner Reconsidered*, 93 *J. POL. ECON.* 410 (1985).
- 50 Slowed productivity growth and innovation are measured relative to what would be expected in a more competitive market. Thus, dominant firms with a strong record of innovation would likely have been more innovative had they faced greater competition. See, e.g., Jonathan B. Baker, *Evaluating Appropriability Defenses for the Exclusionary Conduct of Dominant Firms in Innovative Industries*, 80 *ANTITRUST L.J.* 431, 453-54 (2016) (an FTC remedy creating competition in plain paper copiers spurred innovation by Xerox, the former dominant firm, and its rivals).
- 51 Cf. John Vickers, *Concepts of Competition*, 47 *OXFORD ECON. PAPERS* 1 (1995) (describing concepts of competition related to incentives, selection, and innovation).
- 52 E.g., Sandro Mendonça, *The "Sailing Ship Effect": Reassessing History as a Source of Insight on Technical Change*, 42 *RES. POL'Y* 1724 (2013) (technological competition between sailing ships and steamships); see Allan Collard-Wexler & Jan De Loecker, *Reallocation and Technology: Evidence from the US Steel Industry*, 105 *AM. ECON. REV.* 131 (2015) (technological competition between vertically integrated steel producers and minimills).
- 53 Thomas J. Holmes & James A. Schmitz, Jr., *Competition and Productivity: A Review of Evidence*, 2 *ANN. REV. ECON.* 619 (2010); Nicholas Bloom & John Van Reenen, *Why Do Management Practices Differ Across Firms and Countries?* 24 *J. ECON. PERSP.* 203, 215 (2010) (competitive product markets foster better management and improved productivity by speeding the exit of poorly performing firms and strengthening firm incentives to improve management practices); WILLIAM W. LEWIS, *THE POWER OF PRODUCTIVITY: WEALTH, POVERTY, AND THE THREAT TO GLOBAL STABILITY* (2004). See Matthew R. Backus, *Why is Productivity Correlated with Competition?* 1 (Working Paper, Aug. 29, 2014), <http://www8.gsb.columbia.edu/researcharchive/articles/15059>; Jonathan B. Baker, *Beyond Schumpeter vs. Arrow: How Antitrust Fosters Innovation*, 74 *ANTITRUST L.J.* 575, 583-86 (2007); Carl Shapiro, *Competition and Innovation: Did Arrow Hit the Bull's Eye?*, in *THE RATE AND DIRECTION OF INVENTIVE ACTIVITY REVISITED* 361, 376-82 (Josh Lerner & Scott Stern eds., 2012).
- 54 Some economists suggest that this danger is greater for product innovation than production process innovation because new products can be more easily copied.
- 55 The reasons may include, for example, intellectual property rights, rapid market growth, scale economies, network effects, the sale of complementary products, and customer switching costs.
- 56 See Jonathan B. Baker, *Evaluating Appropriability Defenses for the Exclusionary Conduct of Dominant Firms in Innovative Industries*, 80 *ANTITRUST L.J.* 431 (2016).
- 57 The modern Schumpeterian growth literature concludes that greater product-market competition fosters R&D investment by all firms in sectors where the firms operate at the same technological level, and suggests that in the event that product markets were to grow more competitive, the innovation incentives of a dominant firm with a technological lead would remain high. This literature does not bear directly on the innovation consequences of greater antitrust enforcement against exclusionary conduct by dominant firms, however, because it models increased product market competition as arising from greater imitation (hence reduced appropriability for entrants) rather than as arising from increased contestability (hence increased appropriability for entrants). Carl Shapiro, *Competition and Innovation: Did Arrow Hit the Bull's Eye?*, in *THE RATE AND DIRECTION OF INVENTIVE ACTIVITY REVISITED* 361, 372-74 (Josh Lerner & Scott Stern eds., 2012).
- 58 At one time, empirical economists who studied the question thought that some market power but not extensive market power would be best for innovation, based on cross-industry studies that found an "inverted-U" relationship between market concentration. But those studies did not successfully control for differences in technological opportunity across industries. See Wesley M. Cohen, *Fifty Years of Empirical Studies of Innovative Activity and Performance*, 1 *HANDBOOK OF THE ECONOMICS OF INNOVATION* 129, 146-48, 154-55 (Bronwyn H. Hall & Nathan Rosenberg eds., 2010); Carl Shapiro, *Competition and Innovation: Did Arrow Hit the Bull's Eye?*, in *THE RATE AND DIRECTION OF INVENTIVE ACTIVITY REVISITED* 361, 380 (Josh Lerner & Scott Stern eds., 2012). In some studies, the technological opportunity problem is addressed by evaluating the innovation effects of competition within an industry over time. E.g., Eric W. Zitzewitz, *Competition and Long-Run Productivity Growth in the U.K. and U.S. Tobacco Industries, 1879-1939*, 51 *J. INDUS. ECON.* 1 (2003) (finding that competition spurred innovation).
- 59 Large buyers sometimes have the ability and incentive to undermine seller coordination, as by sponsoring entry, integrating upstream, or shifting purchases to sellers that discount. Large buyers that induce greater competition among sellers are not necessarily exercising buyer market power and do not necessarily prevent sellers from continuing to exercise market power against other buyers.
- 60 E.g., Final Order and Judgment as to VHS of Michigan, Inc., d/b/a/ Detroit Medical Center, Cason-Merenda v. VHS of Michigan, Inc., No. 06-15601 (E.D. Mich. Jan. 27, 2016) (settling complaint alleging that eight hospitals in the Detroit area agreed to depress compensation to registered nurses); Final Judgment, United States v. Arizona Hospital & Healthcare Ass'n, No. CV07-1030-PHX (Sept. 12, 2007) (settling complaint alleging that most hospitals in the Phoenix and Tucson areas agreed to depress the wages paid temporary nurses); Stephen Greenhouse, *Settlement in Nurses' Antitrust Suit*, *N.Y. TIMES* (March 9, 2009), at A23 (settling complaint alleging that Albany area hospitals agreed to depress nurse wages).
- 61 To similar effect, competition in research and development often leads to duplication of effort.
- 62 Entry may be excessive in oligopoly markets from an aggregate welfare (efficiency) perspective when incumbents respond to entry by reducing their output, allowing the entrant to "steal business" from them. N. Gregory Mankiw & Michael D. Whinston, *Free Entry and Social Inefficiency*, 17 *RAND J. ECON.* 48 (1986). Entry may also be excessive in financial markets subject to "advantageous" selection. See Neale Mahoney, Andre Veiga & E. Glen Weyl, *Competition Policy in Selection Markets*, *CPI ANTITRUST CHRONICLE* (Aug. 21, 2014), <https://ssrn.com/abstract=2484738>. Furthermore, entry may be excessive in competitive markets with negative externalities. If industry output would exceed the efficient level in a competitive market for any of these reasons, then it is possible that the output reduction associated with the exercise of market power would mitigate the efficiency loss to some extent. But there is no reason to expect a perfect offset, and, after accounting for both effects, aggregate welfare may end up lower than it would absent the exercise of market power.
- 63 WILLIAM W. LEWIS, *THE POWER OF PRODUCTIVITY: WEALTH, POVERTY, AND THE THREAT TO GLOBAL STABILITY* ix (2004).
- 64 WILLIAM W. LEWIS, *THE POWER OF PRODUCTIVITY: WEALTH, POVERTY, AND THE THREAT TO GLOBAL STABILITY* 231 (2004).
- 65 MICHAEL PORTER, *THE COMPETITIVE ADVANTAGE OF NATIONS* 597 (1990). "Rarely do firms gain and sustain competitive advantage internationally without tough competition at home." *Id.*
- 66 WILLIAM J. BAUMOL, *THE FREE-MARKET INNOVATION MACHINE: ANALYZING THE GROWTH MIRACLE OF CAPITALISM* (2002); WILLIAM EASTERLY, *THE ELUSIVE QUEST FOR GROWTH* ch. 9 (2001); JOEL MOKYR, *THE GIFTS OF ATHENA: HISTORICAL ORIGINS OF THE KNOWLEDGE ECONOMY* (2002); STEPHEN L. PARENTE & EDWARD C. PRESCOTT, *BARRIERS TO RICHES* (2000); NATHAN ROSENBERG & L.E. BIRDZELL, JR., *HOW THE WEST GREW RICH: THE ECONOMIC TRANSFORMATION OF THE INDUSTRIAL WORLD* (1986); ANDREI SHLEIFER & ROBERT W. VISHNY, *THE GRABBING HAND: GOVERNMENT PATHOLOGIES AND THEIR CURES* (1998).
- 67 The disproportionate influence of the wealthiest on public policy has been well documented. E.g., MARTIN GILENS, *AFFLUENCE & INFLUENCE: ECONOMIC INEQUALITY AND POLITICAL POWER IN AMERICA* 85 (2012); JEFFREY A. WINTERS, *OLIGARCHY* 249 (2011); LARRY M. BARTELS, *UNEQUAL DEMOCRACY: THE POLITICAL ECONOMY OF THE NEW GILDED AGE* 252-83 (2008); THOMAS BYRNE EDSELL, *THE NEW POLITICS OF INEQUALITY* 241-42 (1984); Martin Gilens & Benjamin I. Page, *Testing Theories of American Politics: Elites, Interest Groups, and Average Citizens*, 12 *PERSP. ON POL.* 564, 576 (2014). To the extent large firms are owned by wealthy families, those families may

seek to influence the political system simultaneously to protect large firms from competition and to lower taxes on income and wealth.

- 68 LUIGI ZINGALES, *A CAPITALISM FOR THE PEOPLE: RECAPTURING THE LOST GENIUS OF AMERICAN PROSPERITY* 29 (2012). See DARON ACEMOGLU & JAMES A. ROBINSON, *WHY NATIONS FAIL: THE ORIGINS OF POWER, PROSPERITY, AND POVERTY* 335-57 (2012) (describing a vicious circle in which extractive political institutions create extractive economic institutions, which in turn support extractive political institutions because wealth and economic power buy political power).
- 69 See Edward N. Wolff, *Household Wealth Trends in the United States, 1962–2013: What Happened Over the Great Recession?* 38 tbl.7 (Nat'l Bureau of Econ. Research, Working Paper No. 20733, Dec. 2014) (statistics for 2013). If indirect ownership through retirement plans and similar accounts is taken into account, the top 10 percent owned more than 80 percent of stock and mutual fund assets. *Id.* The top 10 percent also owned more than 90 percent of unincorporated business equity. *Id.*
- 70 Productivity grew rapidly from 1948 through 1973 but has grown slowly since, excepting a decade of more rapid growth beginning in 1995. Martin Neil Baily & Nicholas Montalbano, *Why is US Productivity Growth So Slow? Possible Explanations and Policy Responses* 3 fig. 1 (Brookings Hutchins Center Working Paper No. 22, 2016). Inequality has been rising since the 1980s. See Edward N. Wolff, *Household Wealth Trends in the United States, 1962–2013: What Happened Over the Great Recession?* 50 tbl. 2 & 51 tbl. 3 (Nat'l Bureau of Econ. Research, Working Paper No. 20733, Dec. 2014). The likely timing of the productivity slowdown, the rise in inequality, and the growth of market power are not perfectly consistent, but none are measured well, so the timing is not decisive for evaluating whether they are related.
- 71 Antitrust enforcement is not costless, and some steps taken to prevent anticompetitive conduct risk chilling beneficial conduct, so it is unreasonable to expect even the best antitrust institutions to deter market power completely. But it is unlikely that the market power now exercised is socially efficient. See Jonathan B. Baker, *The Case for Antitrust Enforcement*, 17 J. ECON. PERSP. 27, 42-45 (2003) (explaining why the benefits of antitrust enforcement likely dwarf the costs).

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