



## ESSAY

## Short-Termism and Antitrust's Innovation Paradox

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### Introduction

Antitrust law has long struggled to account for the role of innovation in economic production.<sup>1</sup> Dynamic factors like capital stock, investment spending, and productivity growth do not lend themselves to neat doctrinal rules or clear regulatory mandates. And the antitrust literature has long treated “innovation” as either the domain of intellectual property law or a black-box variable, rather than the product of specific intracompany organizational and investment decisions.<sup>2</sup>

This lacuna presents a problem for antitrust law. Without a theory of how and where innovation is happening in the U.S. economy, antitrust cannot fulfill the underlying economic portion of its mandate: not to promote competition for its own sake but rather “to make the economy bigger” while checking the power of large corporations.<sup>3</sup> That requires an account of how antitrust policy affects innovation, especially at the firm level.

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\* Yale Law School, J.D. expected 2020. I am grateful to George Priest for his advice and encouragement in writing this paper and to Ben Sprung-Keyser for the many conversations that led me to pursue it, as well as his thoughtful comments. In addition, my thanks go to Jonathan Bailey, Dominic Barton, Tim Koller, Jesse Williams, and Sarah Williamson for their guidance and intellectual inspiration. The author previously led McKinsey & Company's research on corporate short-termism and has served as an advisor to FCLT Global. All views are the author's alone, and no external funding supported this research.

1. See Jonathan B. Baker, *Beyond Schumpeter vs. Arrow: How Antitrust Fosters Innovation*, 74 ANTITRUST L.J. 575, 575-86 (2007) (discussing the longstanding debate over antitrust and innovation); Tim Wu, *Taking Innovation Seriously: Antitrust Enforcement If Innovation Mattered Most*, 78 ANTITRUST L.J. 313, 314 (2012) (“[C]urrent analysis of [antitrust enforcement and innovation] suffers from several endemic weaknesses.”).
2. See Wu, *supra* note 1, at 315 (“Even within the antitrust scholarship that goes beyond the patent-antitrust relationship, we face a serious failure to explain what kind of innovation antitrust should try to encourage. Rather, the concept is left vague.”).
3. See Herbert Hovenkamp, *Antitrust and Innovation: Where We Are and Where We Should Be Going*, 77 ANTITRUST L.J. 749, 750 (2011). Of course, antitrust's objectives are not solely economic but have long included political rationales as well. See, e.g., Maurice E. Stucke,

This concern is more than mere theory. Ongoing debates about antitrust enforcement and big tech have neglected the knock-on effects of such measures on long-term innovation and R&D investment. In particular, two discussions in the legal literature have thus far neglected their analytic kinship: the debate over antitrust and big tech and the debate over corporate short-termism and R&D investment.

On the one hand, a new generation of antitrust scholars has catalyzed a debate over whether the behavior and market positions of large technology firms ("big tech") merit some form of antitrust enforcement.<sup>4</sup> Some even argue that the dominant market share and platform structure of Amazon, Alphabet, and Facebook, in particular, require that they be broken up.<sup>5</sup>

On the other hand, corporate governance scholars have waded into the longstanding debate on whether corporate short-termism undermines long-term investment and innovation by large public companies.<sup>6</sup> These commentators argue public equities markets' laser-like focus on short-term, quarterly profits prevents large publicly-traded firms from making crucial long-term investments.<sup>7</sup>

Critically, a small set of firms seems to be largely exempt from this dynamic: big tech firms with high margins, ample cashflows, and dominant market positions.<sup>8</sup> As one columnist put it, when it comes to short-termism, "Amazon is the most famous counter-example."<sup>9</sup> Ditto Alphabet, Facebook, and Apple, the usual list of companies trotted out against the short-termism hypothesis.<sup>10</sup> These firms are investing at exceptionally high rates and in ways traditional

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*Reconsidering Antitrust's Goals*, 53 B.C. L. REV. 551, 559-64 (2012); Sandeep Vaheesan, *The Twilight of the Technocrats' Monopoly on Antitrust?*, 127 YALE L.J.F. 980, 980-82, 991-94 (2018). The distinction I claim is that competition is a proxy for more fundamental objectives, especially economic growth.

4. Lina M. Khan, Note, *Amazon's Antitrust Paradox*, 126 YALE L.J. 710, 716-17 (2017).

5. See, e.g., TIM WU, *THE CURSE OF BIGNESS: ANTITRUST IN THE NEW GILDED AGE* 132-33 (2018); Ina Fried, *The Case for Breaking Up Big Tech*, AXIOS (Jan. 22 2018), <https://perma.cc/UT6U-MGYR>; Astead W. Herndon, *Elizabeth Warren Proposes Breaking Up Tech Giants Like Amazon and Facebook*, N.Y. TIMES (Mar. 8. 2019), <https://perma.cc/Q8N8-BQQQ>.

6. See, e.g., Jesse M. Fried, *The Uneasy Case for Favoring Long-Term Shareholders*, 124 YALE L.J. 1554, 1557-60, 1567-74 (2015); Leo E. Strine, Jr., *Who Bleeds When the Wolves Bite?: A Flesh-and-Blood Perspective on Hedge Fund Activism and Our Strange Corporate Governance System*, 126 YALE L.J. 1870, 1884, 1899-1910 (2017).

7. See Sanjeev Bhojraj et al., *Making Sense of Cents: An Examination of Firms That Marginally Miss or Beat Analyst Forecasts*, 64 J. FIN. 2361, 2362-64 (2009); John R. Graham et al., *The Economic Implications of Corporate Financial Reporting*, 40 J. ACCT. & ECON. 3, 32-35 (2005).

8. See, e.g., Khan, *supra* note 4, at 713-14 (noting investors' deferential approach to Amazon's long-term strategy).

9. Geoff Colvin, *Amazon Earnings: Maybe Investors Aren't Obsessed with Short-Term Gains?*, FORTUNE (Oct. 23, 2015), <https://perma.cc/GYY2-NE84>.

10. See Mark J. Roe, *Corporate Short-Termism—In the Boardroom and in the Courtroom*, 68 BUS. LAW. 977, 980 (2013).

competition theory would not predict.<sup>11</sup> Rather than focusing exclusively on building moats around their present markets, big tech firms also “compete through innovation . . . not just to gain a small share of a stable market but to fundamentally disrupt it.”<sup>12</sup>

Big tech firms are at the forefront of advances in artificial intelligence, driverless vehicles, and clean energy, among others.<sup>13</sup> One possible explanation for their unique ability to invest is that their dominant market positions motivate shareholders to give them freedom not afforded to other companies. The short-termism hypothesis implies that only companies with these characteristics will be able to underwrite innovation as the big tech firms do. Because their business models generate large and protected cashflows at relatively low cost (and because these companies have shown a propensity for innovation), investors seem comfortable letting them invest in ways that would be taken as a threat to share prices at other firms.

But the cashflows funding this innovation are, like the AT&T profits that funded R&D behemoth Bell Labs, derived from concentrated or quasi-monopolistic market structures (and from anticompetitive acquisitions, like Facebook’s purchase of Instagram). And like AT&T during its heyday, the big tech firms have tested the boundaries of—if not abused, at times—their market power.<sup>14</sup> Perhaps more worryingly, recent research suggests Facebook and Google’s dominance may have subverted the democratic process through their control of information flows to voters.<sup>15</sup> There is no doubt that something needs change. The question is not whether to act but *what* to do.

Here is where these conversations converge: The same qualities that make big tech companies prime targets for antitrust enforcement are those that have seemingly enabled them to resist short-term pressure. If breaking them up would undercut a substantial and hard-to-replace source of innovation, the U.S. economy could see declines in productivity, wage, and job growth unless lost R&D funding is replenished by public sector or other large-scale investment.<sup>16</sup>

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11. See Wu, *supra* note 1, at 318 (explaining the traditional view that internal innovations by large firms are generally incremental and that breakthroughs usually come from small, external innovators).

12. ROBERT D. ATKINSON & MICHAEL LIND, *BIG IS BEAUTIFUL: DEBUNKING THE MYTH OF SMALL BUSINESS* 211 (2018).

13. See, e.g., Derek Thompson, *Google X and the Science of Radical Creativity*, ATLANTIC (Nov. 2017), <https://perma.cc/BVP9-W3AB>.

14. See Khan, *supra* note 4, at 755-56 (criticizing Amazon’s business practices); K. Sabeel Rahman, *The New Utilities: Private Power, Social Infrastructure, and the Revival of the Public Utility Concept*, 39 CARDOZO L. REV. 1621, 1671 (2018) (citing infractions by and criticisms of Google and Facebook).

15. Rahman, *supra* note 14, at 1671.

16. See Leonid Kogan et al., *Technological Innovation, Resource Allocation, and Growth*, 132 Q. J. ECON. 665, 666-71, 706-07 (2017); Wu, *supra* note 1, at 313; Bryan Kelly et al., *Measuring Technological Innovation Over the Long Run* 4-5 (Nat’l Bureau of Econ. Research, Working Paper No. 25266, 2018).

Whatever remedy is chosen, short-termism and the U.S. innovation economy must be part of that decision.

This Essay unfolds in two parts. Part I surveys the legal and economic literature on corporate short-termism and highlights the role of big tech firms in U.S. R&D investment. Part II situates these conclusions in the context of Neo-Brandeisian antitrust discussions. The growing movement on the Left to reinvigorate antitrust enforcement rests on the belief that market concentration is not only anticompetitive but imperils both economic welfare and broader political equality.<sup>17</sup> If Part I's conclusions are taken seriously, Neo-Brandeisian enforcement approaches either ought to pair forced divestitures with substantial increases in public R&D spending or should seek to preserve big tech's innovative capacity while otherwise controlling these companies' market power. If innovation is undercut, worker and consumer welfare may suffer, too.

## **I. Short-Termism and Superstars**

In brief, the short-termism hypothesis is this: Because the shareholders of large publicly-traded companies are focused on short-term, quarterly results, they pressure corporate managers to underinvest in long-term projects that drive real growth and create jobs. The upshot is that short-termism may be an important contributor to corporate underinvestment at the macroeconomic level.<sup>18</sup> The means by which short-termism is allegedly injected into corporate decision-making are legion, from hedge funds that themselves are evaluated on a short-term basis to Wall Street research analysts who monitor quarterly earnings targets down to the cent.

The evidence supporting this view is compelling, albeit not conclusive.<sup>19</sup> Researchers have found that private firms invest substantially more than similar public firms, and firms that go public invest more in the five years pre-IPO than post;<sup>20</sup> that public firms that adopt long-term-oriented executive compensation packages experience superior returns, invest more in

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17. See, e.g., WU, *supra* note 5, at 127-39.

18. See Scott Andes & Mark Muro, *U.S. R&D: A Troubled Enterprise*, BROOKINGS INSTITUTION (May 28, 2015), <https://perma.cc/K98X-CXNM>; Stephen J. Terry, *The Macro Impact of Short-Termism* 3-4 (Jan. 24, 2015) (unpublished manuscript), <https://perma.cc/6PSV-C24V>.

19. Michal Barzuza & Eric Talley, *Long-Term Bias* 15 (Feb. 20, 2019) (unpublished manuscript), <https://perma.cc/UH7J-WAUV> (observing that “[t]he battle lines around activism and short-termism are now ell [sic] established, and they have remained approximately stationary for roughly a decade” and that there has been a “lack of a definitive victor”).

20. See John Asker et al., *Corporate Investment and Stock Market Listing: A Puzzle?*, 28 REV. FIN. STUD. 342, 343-44 (2015).

innovation, and produce more and more-utilized patents;<sup>21</sup> and that long-term-oriented firms weather downturns better and create more jobs than other firms.<sup>22</sup> And numerous surveys of corporate executives corroborate the existence of short-term pressure.<sup>23</sup> Either it is real, or corporate America has deluded itself en masse.

Simultaneously, economists have noted the rise of “superstar firms” that dominate their markets, contributing to the sort of concentration exhibited among big tech firms. As David Autor and his co-authors have observed, “[t]he industries where concentration has grown are those that have been increasing their innovation most rapidly.”<sup>24</sup> Today, the top 1% of firms as measured by economic profit invest in R&D at nearly three times the rate of median firms.<sup>25</sup> Most strikingly, recent research has found that from the late nineteenth century to the present, just forty firms account for about 36% of all breakthrough innovations, as measured by textual analysis of similarities across patents.<sup>26</sup> At any given point in time, the number of highly innovative firms is even smaller.

Big tech firms stand out from other large companies for two reasons. First, their R&D spending is exceptional. Alphabet, Amazon, Apple, Facebook, and Microsoft together accounted for nearly a quarter of reported R&D spending for the entire S&P 500 in 2017 and nearly 18% for all North American public companies.<sup>27</sup>

Second, and more importantly, big tech firms—especially Alphabet, Amazon, and Facebook—invest differently than even other superstar firms. Unlike, for example, pharmaceutical companies whose business models require high investment for sustained success, the big tech firms are not especially capital intensive.<sup>28</sup> They invest not primarily to protect their current cash flows

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21. See Caroline Flammer & Pratima Bansal, *Does a Long-Term Orientation Create Value? Evidence from a Regression Discontinuity*, 38 STRATEGIC MGMT. J., 1827, 1828-29 (2017).
  22. See DOMINIC BARTON ET AL., MCKINSEY GLOB. INST., MEASURING THE ECONOMIC IMPACT OF SHORT-TERMISM 6-7 (2017), <https://perma.cc/KP4M-D942>.
  23. See Graham et al., *supra* note 7, at 32-35; DOMINIC BARTON ET AL., FCLT GLOBAL, RISING TO THE CHALLENGE OF SHORT-TERMISM 3 (2016), <https://perma.cc/WT5W-U6H4>.
  24. David Autor et al., *The Fall of the Labor Share and the Rise of Superstar Firms* 26 (Nat'l Bureau of Econ. Research, Working Paper No. 23396, 2017) (using patents as a proxy for innovation).
  25. JAMES MANYIKA ET AL., MCKINSEY GLOB. INST., SUPERSTARS: THE DYNAMICS OF FIRMS, SECTORS, AND CITIES LEADING THE GLOBAL ECONOMY 26 (2018), <https://perma.cc/MJV9-D93S>.
  26. See Kelly et al., *supra* note 16, at 28-29.
  27. Analysis on file with author. Includes R&D reported for 217 S&P 500 companies and 2,700 North American public companies reporting 2017 R&D greater than zero in the FactSet database. For 2018, these firms accounted for 29% percent of S&P 500 R&D and 21% of North American R&D for companies reporting R&D greater than zero (199 and 2,147 companies reporting, respectively). All data accessed April 11, 2019.
  28. See JONATHAN HASKEL & STIAN WESTLAKE, CAPITALISM WITHOUT CAPITAL: THE RISE OF THE INTANGIBLE ECONOMY 23-24 (2018); TIM KOLLER ET AL., VALUATION: MEASURING AND MANAGING THE VALUE OF COMPANIES 700 (6th ed. 2015) (“Most business require significant

but—if their public statements on strategy are to be taken at face value—to create new products and technologies “that could eventually become the *next* Google.”<sup>29</sup> Those sorts of breakthroughs are essential for long-term productivity growth and job creation, although productivity-driven economic shifts pose other questions of cost and adverse redistribution beyond the scope of this Essay.<sup>30</sup>

The short-termism hypothesis is not without its detractors. Critics argue that there is no short-termism effect;<sup>31</sup> that even if there is some short-termism distortion, it is worth it for the discipline imposed by the shareholder regime of quarterly reporting;<sup>32</sup> that other markets with less shareholder-centric corporate governance—especially Germany and Japan—have not outperformed the U.S.;<sup>33</sup> and that any observed relationship between performance and short-termism may be simple correlation or a case of reverse causation.<sup>34</sup> But much of this criticism rests on non-falsifiable comparisons to a hypothesized market free of undisciplined managers. Critics cannot prove that alleged disciplinary effects of short-termism outweigh its costs. Moreover, these arguments fail to explain why big tech firms appear immune from short-termism, or least behave differently. The correlation criticism similarly does not address innovation-

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capital to grow. This is not the case for Internet companies.”); John Melloy, *Warren Buffett: It Doesn't Really Take Any Money To Run the Largest Companies in America*, CNBC (May 6, 2017, 1:19 PM EDT), <https://perma.cc/59HB-XVU7>.

29. Thompson, *supra* note 13; see also Richard Waters, *FT Interview with Google Co-Founder and CEO Larry Page*, FIN. TIMES (Oct. 31, 2014), <https://perma.cc/95CQ-4893>.

30. Productivity growth driven by superstar firms must be weighed against the potential downward pressure these firms and market concentration put on labor share of income and against the distributional effects of new technologies. See Daron Acemoglu & Pascual Restrepo, *Automation and New Tasks: How Technology Displaces and Reinstates Labor* 3-5, 15-16 (Mar. 5, 2019) (unpublished manuscript), <https://perma.cc/6YUT-6CGF>; Autor et al., *supra* note 24, at 3, 11-12, 23-24; Suresh Naidu et al., *Antitrust Remedies for Labor Market Power*, 132 HARV. L. REV. 536, 553-69 (2018). It remains an open question exactly how much market concentration, assuming it is pro-innovative and productivity-enhancing, should be tolerated when it comes at the cost of technology-driven job displacement and declining demand for low-skilled labor. The traditional view holds that jobs lost to technology will ultimately be replaced as productive technologies create new opportunities. But aggregate evidence has masked underlying distributional effects that leave lower-skilled workers worse off, even if aggregate labor demand remains unchanged. See David Autor & Anna Salomons, *Does Productivity Growth Threaten Employment?* 4-6 (June 19, 2017) (paper prepared for European Central Bank Forum on Central Banking), <https://perma.cc/D2FZ-EBQW>.

31. See Roe, *supra* note 10, at 980.

32. See Barzuza & Talley, *supra* note 19, at 4, 47-51; Fried, *supra* note 6, at 1565 (“[S]hort-term shareholders . . . may have greater incentives and ability to discipline managers . . . . [F]avoring long-term shareholders by impeding short-term shareholders may lead to higher managerial agency costs.”).

33. See Walter Frick, *Worries About Short-Termism Are 40 Years Old, But Are They Overblown?*, HARV. BUS. REV. (Aug. 23, 2017), <https://perma.cc/M2HC-QUBA>.

34. Lawrence Summers, *The Jury Is Still Out on Corporate Short-Termism*, FIN. TIMES (Feb. 9, 2017), <https://perma.cc/9UKT-L5YM>.

based concerns with breaking up long-term firms. It merely ascribes a Schumpeterian rationality to their differential performance. If they are long-term because they are better, not better because they are long-term, there are still risks in breaking them up.<sup>35</sup>

The importance of big tech cannot be understated in light of the short-termism hypothesis. If correct, that theory suggests that big tech firms are *unique* (or nearly so) in their ability to invest this way. Without high and relatively protected cashflows, investors do not seem to tolerate such behavior, which even big tech's detractors acknowledge.<sup>36</sup> Should big tech's positioning be undercut, these firms' contributions to innovation and productivity in their present forms could be difficult to replace.

It might be the case that other firms would step in to capture the opportunities left on the table without big tech. But the implications of the short-termism hypothesis and evidence from the superstars literature suggest that big tech's replaceability in the private sector is far from clear, at least in the near-term.<sup>37</sup> The answer, whether or not big tech firms are broken up, may lie in substantially increasing public sector investment.<sup>38</sup> Without government-funded R&D, however, a significant decline in big tech's investment spending could be damaging to economic growth.

By no means does this short Essay purport to resolve the longstanding debate on short-termism. My argument, to this point, is that the evidence suggests forced divestitures or other remedies that undercut big tech's innovative capacity entail underappreciated macroeconomic risks. The role of short-termism as a brake on innovation merits attention before major antitrust policy choices are made.

## II. What To Do About Big Tech

Here is where big tech's most ardent detractors encounter a puzzle when it comes to antitrust enforcement. The same characteristics—high cash flows and margins, concentrated markets, and entrenched positioning—that either stem

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35. See JOSEPH A. SCHUMPETER, *CAPITALISM, SOCIALISM, AND DEMOCRACY* 81-101 (3d ed. 1950) (explaining why large, integrated firms are best-positioned to succeed and innovate).

36. See, e.g., Khan, *supra* note 4, at 713 n.8, 748 n.195 ("In its 16 years as a public company, Amazon has received unique permission from Wall Street to concentrate on expanding its infrastructure, increasing revenue at the expense of profit." (quoting David Streitfield, *As Competition Wanes, Amazon Cuts Back Discounts*, N.Y. TIMES (July 4, 2013), <https://perma.cc/NS3X-MWAM>)).

37. See ATKINSON & LIND, *supra* note 12, at 209-12 (explaining "innovation industries" unique characteristics); Kogan et al., *supra* note 16, at 688-89, 702 (describing how innovation capacity is highly unequal in its distribution among firms).

38. See Ben S. Bernanke, *Promoting Research and Development The Government's Role*, ISSUES IN SCI. & TECH., Summer 2011, at 38-39; Steven J. Markovich, *Promoting Innovation Through R&D*, COUNCIL ON FOREIGN REL. (Nov. 2, 2012), <https://perma.cc/D67K-GHHX>.

from big tech's long-term orientation or allow its exemption from short-term shareholder pressure are the same ones that have put these firms in the crosshairs of the new antitrust movement. Enforcement efforts seeking to rein in big tech firms' burgeoning market power ought to at least consider their knock-on effects on innovation and growth.

If the short-termism hypothesis is correct, it means few firms will be able to fill the investment and innovation gap breaking up big tech might create. Short-termism's alleged effects are most felt by large companies subject to the most investor scrutiny—those with the scale to match big tech.<sup>39</sup> On this view, large innovators are indispensable because their peers experience the most short-term pressure. Although critics like Steven Kaplan and Mark Roe point to venture capital and other forms of private investment as solutions to the paucity of public company investment,<sup>40</sup> such vehicles will never be adequate substitutes for billions of dollars invested and managed under one roof. Large and small innovators constitute an ecosystem, each capturing innovations at different levels of capital intensity. They are not perfect substitutes.

This distinction between high- and low-capital-intensity innovation also matters for addressing the most significant innovation-related criticism of big tech: the "kill zone" thesis. Critics of big tech firms argue that they dampen some innovation by deterring investment and startup formation in areas of direct competition or where new innovations could be easily copied by them.<sup>41</sup> In essence, there is a "kill zone" around big tech. Although some argue the opposite is just as likely—the prospect of acquisition by a big tech firm may spur startup investment—recent economic evidence suggests the effect is real.<sup>42</sup> But even if the mounting evidence for the kill zone proves correct, it matters most for low-capital innovations. Where billions of dollars in R&D are required, however, it is hard to imagine VC-backed startups filling big tech's shoes.

This should give the new antitrust movement pause. If Neo-Brandeisians are right that consumer welfare alone is too narrow a standard (and I believe they are), surely the contribution of these companies to innovation and overall economic growth should be part of the picture. Antitrust enforcement must

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39. Analogously, analyst coverage—which tends to correlate with firm size—depresses innovation. See Jie (Jack) He & Xuan Tian, *The Dark Side of Analyst Coverage: The Case of Innovation*, 109 J. FIN. ECON. 856, 857-58 (2013) (discussing the relationship between analyst coverage, investment, and innovation).

40. See Steven N. Kaplan, *Are U.S. Companies Too Short-Term Oriented? Some Thoughts*, J. APPLIED CORP. FIN., Fall 2018, at 8, 10-11 (observing that venture capital could fill in the gap if U.S. companies underinvest, but concluding that there is no such underinvestment); Roe, *supra* note 10, at 980.

41. See *American Tech Giants Are Making Life Tough for Startups*, ECONOMIST (June 2, 2018), <https://perma.cc/ZM8S-6T54>; James Pethokoukis, *Incumbents vs. Startups: The Case that Big Tech Is Squashing Small Tech*, AEI IDEAS (June 4, 2018), <https://perma.cc/4GWW-UEDX>.

42. See, e.g., Wen Wen & Feng Zhu, *Threat of Platform-Owner Entry and Complementor Responses: Evidence from the Mobile App Market* 9-15 (Harvard Bus. Sch., Working Paper No. 18-036, 2017), <https://perma.cc/J3HL-MRXW>.



balance the need to curb excessive market power with the unique investment capacity of big tech firms. Unless that investment is replaced with public R&D funding, there are good reasons to believe consumers and workers will be better off if big tech's market power is tamed rather than destroyed.

I argue that the evidence suggests the case for breaking up big tech—antitrust's bluntest instrument—is strongest if it is paired with significant increases in government-funded R&D, on the order of tens of billions of dollars.<sup>43</sup> Without this policy pairing, the risk of undercutting investment and productivity growth must be addressed before moving forward.

This is not to rule out breaking up big tech entirely. Given the inconclusive evidence for the short-termism hypothesis, mixed evidence on the role of big tech in incentivizing or dampening small company innovation, and open debate over the magnitude of increased competition and consequent growth from breakups, my point is simply that this underappreciated relationship must be better understood before major policy decisions are made.

The rejoinder to this, of course, is that the 1984 breakup of AT&T did not undercut investment and innovation—it fomented it by unleashing competition. But the AT&T case may not be a suitable analog. The internet<sup>44</sup> and mobile phone service<sup>45</sup> hit the market around the same time that AT&T's telephone service monopoly was broken up, and the young cable industry was already thriving.<sup>46</sup> (And these innovations all relied to various extents on technology developed by Bell Labs years earlier).<sup>47</sup> This history makes it

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43. In 2017, U.S. public R&D funding stood at \$116 billion, or about 0.6% of GDP. See Sheila Campbell & Chad Shirley, *Estimating the Long-Term Effects of Federal R&D Spending: CBO's Current Approach and Research Needs*, CONG. BUDGET OFFICE (June 21, 2018), <https://perma.cc/NXK5-CMC6>. As a percentage of GDP, public R&D spending has steadily declined from more than 2% in the 1960s. See Caleb Foote & Robert D. Atkinson, *Dwindling Federal Support for R&D Is a Recipe for Economic and Strategic Decline*, INFO. TECH. & INNOVATION FOUND. (Dec. 14, 2018), <https://perma.cc/R3W2-H75X>. As many experts have concluded, there is room for growth. See, e.g., Bernanke, *supra* note 38, at 38-39; see also Matt Hourihan, Am. Ass'n for the Advancement of Sci., *If Government Scales Back Technology Research, Should We Expect Industry to Step In?* 5-7 (2017), <https://perma.cc/6PEY-JKUM> (arguing that if public R&D declined, private R&D would not correspondingly increase; the same may be true for a decline in private R&D—other investment may not replace it).

44. See LAURA DENARDIS, *THE GLOBAL WAR FOR INTERNET GOVERNANCE* 66-70 (2014).

45. See Pagan Kennedy, *Who Made That Cellphone?*, N.Y. TIMES MAG. (Mar. 15, 2013), <https://perma.cc/7FYG-HHGZ>.

46. See Stanley M. Besen & Robert W. Crandall, *The Deregulation of Cable Television*, 44 L. & CONTEMP. PROBS. 77, 78-80 (1981).

47. Bell Labs was instrumental in the development of the Unix operating system that was the foundation for the open internet. See Linda A. Johnson, *Bell Labs' History of Inventions*, WASH. POST (Nov. 30, 2006, 4:56 PM), <https://perma.cc/CSP3-LYMK>. It was also instrumental in developing the first coaxial cable that would be the basis of cable television, the telephone, and the internet. See Brian X. Chen, *Dec. 8, 1931: Coaxial Cable Patented*, WIRED (Dec. 8, 2009, 12:00 AM), <https://perma.cc/YT97-ZRXL>.

difficult to definitively isolate the asserted pro-innovative effects of the breakup, given other emerging sources of innovation and economic dynamism.

For those who believe structural remedies and forced separation are necessary to curb big tech's market and political power, government-sponsored investment is an essential complement. For those open to other approaches, the question is what alternatives are available to address big tech's indubitable dominance with fewer macroeconomic risks. At a minimum, stronger merger review to avoid anti-innovative acquisitions will be crucial.<sup>48</sup> Although far too broad to fully explicate in this short Essay, I sketch the application of my argument to three possible approaches (which, crucially, are not mutually exclusive).

#### A. Alternatives Within Antitrust

Beyond merger review and fines for anticompetitive practices, existing litigation opportunities and conduct remedies offer some options to constrain big tech while preserving its innovative capacity. Lina Khan, for example, has proposed instituting a presumption of predation for predatory pricing claims against dominant platforms, making cross-applicable data an automatic element of merger review, and banning certain forms of vertical integration by dominant platforms.<sup>49</sup>

One option tailored to innovation policy is a “policemen at the elbow” approach: for the Department of Justice to make clear that the status quo for these companies will only be tolerated so long as they avoid anticompetitive practices while maintaining their high levels of investment.<sup>50</sup> Otherwise, enforcement and possible conduct remedies will be forthcoming. Even if it is unclear enforcement will succeed, companies may be willing to maintain high investment levels to avoid litigation costs and public scrutiny.<sup>51</sup> Another option is to offer consent decrees mandating compulsory patent licensing of patents for products with concentrated markets to firms that would otherwise face forced divestitures or large fines. This approach is premised on the notion that big tech's generative capacity can and should be preserved while the fruits of that capacity should be shared. AT&T's 1956 consent decree, which settled an antitrust suit brought by the Department of Justice, forced them to freely

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48. See, e.g., Steven C. Salop, *Invigorating Vertical Merger Enforcement*, 127 YALE L.J. 1962, 1974-93 (2018); Tim Wu, *The Case for Breaking Up Facebook and Instagram*, WASH. POST (Sept. 28, 2018), <https://perma.cc/QV83-JYZ7>. But see Peter Lee, *Innovation and the Firm: A New Synthesis*, 70 STAN. L. REV. 1431, 1472-76 (2018) (describing the pro-innovative effects of big tech's acquisitions).

49. Khan, *supra* note 4, at 791-97.

50. Wu, *supra* note 5, at 112; Tim Wu, *Tech Dominance and the Policemen at the Elbow* 2-4 (Columbia Law Sch. Research Paper No. 14-623, 2019), <https://perma.cc/A4M6-R2BY>.

51. See William E. Kovacic, *Designing Antitrust Remedies for Dominant Firm Misconduct*, 31 CONN. L. REV. 1285, 1288-92 (1999) (discussing litigation costs that dominant firms will seek to avoid).

license 7,820 patents, or 1.3% of all unexpired patents.<sup>52</sup> The effect on external follow-on innovations was positive and dramatic.<sup>53</sup>

#### B. Utility-Style Regulation

A completely different regulatory approach would be to treat large technology firms—especially platform operators—as public utilities.<sup>54</sup> For example, they might be subject to investment *requirements* and mandated to provide nondiscriminatory access to their platforms for competitors, app developers, content providers, and the like.

Utility-style regulation implies an acceptance of size and (at least partial) monopolization of a market in exchange for regulatory conditions that ensure equal access and limit opportunities rent-seeking. K. Sabeel Rahman argues that utility-style regulation makes sense for companies that produce “infrastructural” goods (1) with high barriers to entry and increasing returns to scale (i.e., network effects), (2) that enable significant downstream economic activity, and (3) that are socially necessary and the denial of which would produce significant harms to welfare.<sup>55</sup>

If innovation is understood as a public good, the application of this framework seems apt. There are returns to scale when it comes to innovation, and it obviously foment downstream activity. Moreover, the Schumpeterian model (which predicts innovation will be highest among large firms with significant market power), combined with the short-termism hypothesis, suggests there may be high barriers to innovation and a risk of under-provision for at least certain kinds of innovation. If one buys neoclassical models of economic growth, innovation and its effects on welfare also satisfy the third condition. The absence of innovation harms welfare.<sup>56</sup>

Because it embraces size in its exertion of control, utility-style regulation may be better-suited than antitrust remedies to preserving big tech's innovation. This rationale for utility-style regulations is especially strong today, with U.S. public investment at its lowest level since the 1960s.<sup>57</sup> Unless that changes, and perhaps regardless, private investment is a necessity.

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52. See Martin Watzinger et al., *How Antitrust Enforcement Can Spur Innovation: Bell Labs and the 1956 Consent Decree 1-2* (Jan. 9, 2017) (unpublished manuscript), <https://perma.cc/XZ39-XSMU>. But see ATKINSON & LIND, *supra* note 12, at 184-85.

53. See Watzinger, *supra* note 52, at 3.

54. See Khan, *supra* note 4, at 797-802; see generally Rahman, *supra* note 14.

55. See Rahman, *supra* note 14, at 1641-43.

56. See generally Robert M. Solow, *A Contribution to the Theory of Economic Growth*, 70 Q.J. ECON. 65 (1956) (explaining the Solow Model of economic growth).

57. See JAMES MANYIKA ET AL., MCKINSEY GLOB. INST., *THE U.S. ECONOMY: AN AGENDA FOR INCLUSIVE GROWTH* 26 (2016), <https://perma.cc/GS2A-LXR3>; Justin Fox, *It's Never Infrastructure Week*, BLOOMBERG (Sept. 6, 2018, 11:40 AM PDT), <https://perma.cc/D8T8-2X4H> (reporting that “U.S. government investment spending is the lowest it's been in 70 years”).

### C. Tax Policy as Industrial Policy

A third option is to use tax policy to incentivize the tech giants to invest and create jobs while arresting their dominance. For example, altering corporate taxation to impose higher marginal rates as profits rise could be paired with aggressive tax breaks for R&D spending in certain areas (e.g., artificial intelligence or clean energy) and for pro-labor policies. The logic of such a policy pairing would be to make “bigness” expensive absent job creation and high investment spending.

The downside of tax-based industrial policy is that targeting big tech alone may be difficult. It is an open question whether broad-based innovation incentives make sense when it isn't clear that many large companies have the capacity to produce meaningful innovations.

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Of course, these options far from exhaust the scope of potential alternatives to breakups. They are intended as illustrative examples to demonstrate only that the thrust of my argument entails actionable policy implications.

### Conclusion

The greatest contribution of the new antitrust movement has been to point out the inadequacy of the consumer welfare standard in the digital age. But just as a broader aperture admits of new rationales for antitrust enforcement, it must also make room for new reasons to tailor or withhold it. The evidence suggests it is at least possible that short-term pressure is inhibiting long-term investment for many public companies. The exceptions—big tech firms with high cash flows and dominant market positioning—have found themselves in the crosshairs of the new antitrust movement for reasons analytically similar to those behind their ability to buck one of shareholder capitalism's most pernicious trends.

This Essay contends these arguments cannot be assessed in isolation. If taken seriously, these conclusions suggest that the modern antitrust movement must account for the production of innovation in our short-term, shareholder-centric economy. What remedies are appropriate to redress anticompetitive conditions in the technology sector ought to depend, in part, on the macroeconomic role these companies play in driving innovation and growth. The best-case scenario for advocates of breaking up big tech is to fill this potential void directly by increasing public R&D spending. Absent that, however, big tech's market power should first be tamed, rather than destroyed. Without alternative sources of investment, we cannot yet be certain the U.S. economy would be better off without them.