

Building on What Works: An Analysis of U.S. Broadband Policy

Jonathan E. Nuechterlein*
Howard Shelanski

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* Jonathan Nuechterlein is partner at Sidley Austin LLP and previously served as General Counsel of the FTC (2013-16) and Deputy General Counsel of the FCC (2000-01). Howard Shelanski is Professor of Law at Georgetown University and partner at Davis Polk & Wardwell LLP. He previously served as Administrator of the Office for Information and Regulatory Affairs (2013-17), Director of the FTC’s Bureau of Economics (2012-13), Chief Economist of the FCC (1999-2000), and Senior Economist for the President’s Council of Economic Advisors (1998-99). Over the course of our careers, we have represented both the federal government and broadband providers on issues relevant to this article, and we gratefully acknowledge the support of USTelecom–The Broadband Association and NCTA–The Internet and Television Association in funding this research. All views expressed here are our own and do not necessarily reflect the views of USTelecom, NCTA, or their members.

I. INTRODUCTION AND SUMMARY

This year marks three milestones in telecom policy. Each conveys an important lesson for policymakers as they contemplate broadband regulation for the 2020s and beyond.

First, it has been ten years since the Obama FCC released the *National Broadband Plan*, which surveyed the U.S. broadband landscape in 2010 and offered policy recommendations for boosting deployment and adoption. In many respects, the *Broadband Plan* was a case study in regulatory humility. It recognized that broadband progress was “[f]ueled primarily by private sector investment and innovation”; that “government cannot predict the future”; that “the role of government is and should remain limited”; and that policymakers should thus focus not on imposing price controls or behavioral restrictions, but on “encourag[ing] more private innovation and investment.”¹ This advice, which the FCC has generally followed, has fared well under the test of time. Ten years and hundreds of billions of investment dollars later, the broadband marketplace now offers consumers more choices and exponentially faster speeds than it did then. The *Plan* was also eerily prescient. In one passage, it anticipated “surge[s] in residential broadband network use during a pandemic” and the need for “high standards of reliability, resiliency and security.”² Those are standards that U.S. networks have more than met during the COVID-19 pandemic, as broadband usage has surged.³

Second, it has been twenty years since the FCC issued the 2000 *Notice of Inquiry* seeking comment for the first time on “the appropriate legal classification of cable modem service” and “what regulatory treatment, if any, should be accorded” to it.⁴ As the *NOI* noted, the FCC had consistently “taken a ‘hands-off’ policy” for cable broadband services,⁵ then the dominant form

1. FCC, CONNECTING AMERICA: THE NATIONAL BROADBAND PLAN, at XI, 5 (2010) [hereinafter *National Broadband Plan* or *Plan*].

2. *Id.* at 313, 322.

3. See Tyler Cooper, *Internet Performance Around the World Amid COVID-19*, BROADBANDNOW (May 6, 2020), <https://broadbandnow.com/report/international-internet-performance/> [<https://perma.cc/HB8Z-MWP4>] (“Of the top 10 countries in the world by population, the U.S. is the only that recorded no download speed degradation on average in the month of April.”); SamKnows *Critical Services Report: Fixed Speed (USA)*, SAMKNOWS (Apr. 14, 2020), <https://samknows.com/blog/samknows-critical-services-report-fixed-speed-usa> [<https://perma.cc/RGE4-4SNM>] (“Broadband infrastructure in the US is holding up generally very well given the dramatic increase in internet usage.”); see also Roger Entner, *Industry Voices – Entner: A Tale of Two Continents and the Internet During COVID-19*, FIERCE TELECOMM. (Apr. 29, 2020), <https://www.fiercetelecom.com/telecom/industry-voices-entner-a-tale-two-continents-and-internet-during-covid-19> [<https://perma.cc/F88Z-XZXK>]; Doug Brake, *Lessons From the Pandemic: Broadband Policy After COVID-19*, INFO. TECH. & INNOVATION FOUND’N (July 2020), <https://itif.org/sites/default/files/2020-broadband-lessons-from-pandemic.pdf> [<https://perma.cc/B5LZ-7NH3>].

4. Inquiry Concerning High-Speed Access to the Internet Over Cable and Other Facilities, *Notice of Proposed Rulemaking*, 17 FCC Rcd 4798 (7), paras. 1, 5 (2000) [hereinafter *2000 FCC NOI*].

5. *Id.* ¶ 4; see also Section III.B.4, *infra*.

of broadband Internet access. The basis for that policy, which the FCC reaffirmed in later orders, was best summed up by then-FCC Chairman Bill Kennard, for whom we both worked at the end of the Clinton Administration. As he explained:

We sometimes get so caught up in the policy debates about broadband . . . that we forget what we need to do to serve the American public. . . . *We have to get these pipes built. But how do we do it? We let the marketplace do it.* . . . [T]he best decision government ever made with respect to the Internet was the decision that the FCC made . . . NOT to impose regulation on it. This was not a dodge; it was a decision NOT to act. It was intentional restraint born of humility. Humility that we can't predict where this market is going.⁶

Twenty years later, private enterprise has invested more than a trillion dollars to “build the pipes.” As a result, the typical American can now choose among multiple competing broadband services—both fixed-line and mobile—at speeds nearly unimaginable in 2000. And broadband ISPs made these investments against the backdrop of a light-touch regime that, with rare exceptions, declined to apply significant economic regulation for two decades. It is difficult to prove causal links between regulatory choices and specific investment decisions, but as a matter of economic logic, more intrusive forms of regulatory intervention would likely have reduced, not increased, incentives to commit private risk capital to broadband infrastructure and innovation.

Third, it has been 25 years since the House and Senate issued the bills that became the Telecommunications Act of 1996.⁷ Much has been written about that legislation, both positive and negative. Among its undeniable achievements, the 1996 Act eliminated anticompetitive exclusive franchises, began rationalizing universal service mechanisms, and consolidated competition policy at the federal level at a time when technology had begun blurring the traditional distinctions between “intrastate” and “interstate” services.⁸ But the 1996 Act is also notorious for launching years of unproductive regulatory churn, mainly surrounding the interventionist “unbundling” rules the FCC designed to mimic but not necessarily produce genuine facilities-based competition in landline telephone markets.⁹ Those rules show how even the smartest regulators can do more harm than good if they underestimate prospects for facilities-based entry—in that case, the looming ascendance of mobile networks and VoIP technologies over the

6. William E. Kennard, Chairman, FCC, Remarks before the National Cable Television Association: The Road Not Taken: Building a Broadband Future for America (June 15, 1999) [hereinafter 1999 Kennard Remarks] (emphasis added), <http://www.fcc.gov/Speeches/Kennard/spwek921.html> [<https://perma.cc/RJ6H-829F>].

7. Pub. L. No. 104-104, 110 Stat. 56 [hereinafter *1996 Act*].

8. See *AT&T Corp. v. Iowa Utils. Bd.*, 525 U.S. 366, 393–94 (1999).

9. See *infra* Section III.B.1.

landline telephone network—and overestimate the efficacy and administrability of complex regulatory obligations.

These three milestones should inform today's debates about broadband policy. The *National Broadband Plan* reflects the best traditions of the FCC's professional staff: focusing on the facts, recognizing the complexity of markets, and promoting policies that enhance rather than undermine private incentives for investment and innovation. Chairman Kennard's turn-of-the-millennium policy of "intentional restraint born of humility" reflects the same commitment to data-driven broadband policy. But the network-sharing regime adopted under the 1996 Act offers a more cautionary tale. It illustrates the costly detours that telecom policy can take when well-intentioned regulators pursue novel schemes of regulatory intervention on the mistaken assumption that markets would stagnate without them.

The broadband industry today is more technologically dynamic and competitive than the landline telephone industry of 1996, but the two share one similarity. Much like the turn-of-the-millennium telephony market, the broadband industry is in new period of technological transition. Fixed-line networks are deploying technologies that support increasingly mobile functionality, while mobile networks—first with LTE and now with 5G—are increasingly capable of cost-efficiently supporting high-bandwidth services that were once the unique province of fixed-line networks.¹⁰ If experience with the 1996 Act taught us nothing else, it is that policymakers must be careful neither to exaggerate the need for major intervention in such transitional markets nor to overlook the costs of doing so.

Unfortunately, current proposals for market intervention are often long on rhetoric and short on real analysis of likely tradeoffs and actual consequences. This paper thus analyzes the asserted need for, and likely consequences of, four types of proposals in recent circulation: (1) facilities-sharing obligations, (2) retail price controls, (3) Internet interconnection obligations, and (4) amorphous and open-ended ISP conduct rules like those the FCC imposed on consumer broadband services in 2015.¹¹ For the most part, we see little merit to any of these proposals under current market conditions. None of them addresses any identifiable market failure and each would impose significant costs, including the investment-chilling prospect of regulatory creep. That said, we support re-imposition of bright-line prohibitions on blocking or throttling to guard against any risks to the Internet's status as an open, positive-externalities-generating platform for communication and innovation. Although those risks appear remote, such bright-line rules would reduce them to zero and impose minimal costs because

10. See, e.g., *Wireless Strategies Beyond Wi-Fi for Fixed Network Service Providers*, BELL LABS CONSULTING (Apr. 26, 2016), https://media-bell-labs-com.s3.amazonaws.com/pages/20190111_1455/NokiaWirelessStrategiesBeyondWiFiforFixedNetworkServiceProviders.pdf [<https://perma.cc/8WVT-JGJ5>]; Don Reisinger, *Home Broadband Providers Face an Uncertain Future in the 5G Era*, FORTUNE (Feb. 13, 2020), <https://fortune.com/2020/02/13/5g-impact-on-broadband/> [<https://perma.cc/2H9G-Z52X>].

11. See generally Protecting and Promoting the Open Internet, *Report & Order on Remand, Declaratory Rule, and Order*, 30 FCC Rcd. 5601 (2015).

such rules would simply codify what have become industry norms in any event.

All this said, government retains a critical role to play in the broadband marketplace. Market forces are unmatched in their power to bring the greatest benefit to the greatest number. But market forces by themselves will not help America close two stubborn and unacceptable digital divides: between rich and poor, and between urban and rural.¹² As the COVID-19 pandemic underscores, broadband is critical to equal opportunity and to full participation in civic and economic life, but underemployment has made it unaffordable for many Americans. At the same time, many Americans in rural areas cannot buy the connectivity they need at any price. The great broadband challenge of the next decade is to close both divides by boosting *adoption* in low-income communities and *deployment* in high-cost areas.

These are real, universally acknowledged problems that call for real solutions. In particular, they call for expanded subsidy mechanisms—one directed to low-income subscribers and the other to broadband providers that commit to new infrastructure deployment in rural and other high-cost areas. But the challenge of closing these digital divides does not even logically support a call for more intrusive regulation of the broadband industry. To the contrary, such regulation would, if anything, make the underlying problems worse by placing a thumb on the scale against additional broadband investment.

* * *

This paper is divided into three main sections. Section II addresses the types of market conditions that do—and do not—call for economic regulation, the focus of this paper. By “economic regulation,” we mean rules intended to constrain the exercise of market power (*e.g.*, retail rate caps) or force firms to cooperate with other firms, including their rivals (*e.g.*, asset-sharing, interconnection, and “neutrality” obligations).¹³ As we discuss, a rigorous analysis of tradeoffs and consequences generally disfavors economic regulation in industries that, like broadband, are technologically dynamic and subject to competition. Section III then summarizes the history of light-touch broadband regulation in the U.S. before critiquing proposals for major

12. See Monica Anderson & Madhumitha Kumar, *Digital Divide Persists Even as Lower-Income Americans Make Gains in Tech Adoption*, PEW RES. CTR. (May 7, 2019), <https://www.pewresearch.org/fact-tank/2019/05/07/digital-divide-persists-even-as-lower-income-americans-make-gains-in-tech-adoption/> [<https://perma.cc/Z6NP-L6UQ>]; Andrew Perrin, *Digital Gap Between Rural and Nonrural America Persists*, PEW RES. CTR. (May 31, 2019), <https://www.pewresearch.org/fact-tank/2019/05/31/digital-gap-between-rural-and-nonrural-america-persists/> [<https://perma.cc/P2VY-APCS>].

13. Of course, telecommunications firms face many other types of regulation, including obligations relating to consumer privacy, truth in billing, network-management disclosures, and spectrum usage as well as conditions placed on participation in discretionary funding programs. This paper focuses on economic regulation, not these other types of market intervention.

intervention. Finally, Section IV addresses the imperative to reconcile competition policy with the demands of social equity.

II. THE COMPETITIVE DYNAMICS OF THE U.S. BROADBAND MARKETPLACE

Most markets, including very concentrated ones, are not subject to economic regulation at all.¹⁴ For example, the government does not regulate prices for iPhones, Microsoft Word, Intel microprocessors, or most pharmaceuticals. Nor, apart from the occasional antitrust case, does the government otherwise subject such products to economic regulation.

Instead, the government typically reserves such regulation for mature markets that are dominated by durable monopolies, lack serious prospects for competitive entry, and are subject to only gradual changes in technology or consumer demand. Quintessential examples include the electric power distribution market and the wireline telephone industry of the mid-20th century.¹⁵ In such settings, the cost-benefit calculus often tips sharply in favor of regulatory intervention. Absent regulation, the enduring lack of competition almost certainly pushes prices far above costs (however measured), with accompanying deadweight losses. The *benefits* of regulation in this scenario are straightforward: although a regulator may never be able to get prices exactly “right”—in the sense of replicating price levels in a genuinely competitive market—the regulator is likely to set prices closer to efficient levels than they would otherwise be.¹⁶

At the same time, the *costs* of imposing regulation on a stable monopoly market are low because by hypothesis, technological change is slow and the odds of competitive entry are slim. To see this point, consider the downside risks of regulation in markets characterized by actual or potential competition. In such markets, price regulation lowers profit margins for potential entrants because in order to win business, they must now undersell not the prices that an unregulated monopolist would have charged, but the substantially lower prices set by regulators. That revenue differential will obviously affect the risk-reward calculus for a potential entrant and, in some cases, may deter entry altogether. But in markets where competitive entry is unlikely, the incremental harm from forgone competition is small by hypothesis. Likewise, in highly stable markets where technological disruption is unlikely anyway, the entry-detering effects of regulation will probably cause little or no incremental harm to innovation.

For the same reasons, where markets *are* subject to competition or at least a real prospect of competitive entry, the cost-benefit analysis points in the opposite direction.¹⁷ Because competition by definition moves prices

14. See Howard A. Shelanski, *Adjusting Regulation to Competition: Toward a New Model for U.S. Telecommunications Policy*, 24 YALE J. REG. 55, 64–65 (2007).

15. See JONATHAN E. NUECHTERLEIN & PHILIP J. WEISER, *DIGITAL CROSSROADS: TELECOMMUNICATIONS LAW AND POLICY IN THE INTERNET AGE* 10–12, 32–35 (2d ed. 2013).

16. Shelanski, *supra* note 14, at 84.

17. *Id.* at 77–84.

closer to competitive levels, and because regulators are not omniscient, regulation is less likely to set prices more efficiently than market forces, and even when it does, the improvement will be smaller in magnitude. And as noted, economic regulation runs a greater risk of doing affirmative harm when applied to a potentially competitive market; because by lowering expected returns on investment, it makes competitive entry or expansion less attractive to a potential entrant than it otherwise would be and it blunts the incentives of incumbents to make risky investments of their own.¹⁸

As a general matter, the U.S. broadband industry falls into the category of competitive markets, for which economic regulation is normally inappropriate, rather than the category of technologically static monopolies, for which such regulation is often necessary. To begin with, broadband markets in the U.S. are generally not monopolistic. As discussed below, most consumers can choose among at least two competing providers of fixed-line broadband services, quite apart from their mobile broadband options.¹⁹ Indeed, fixed-line broadband markets in this country are often substantially more competitive—in the sense of featuring multiple facilities-based rivals—than those of comparable industrialized nations. As the *National Broadband Plan* recognized in 2010, “the U.S. market structure is relatively unique” in that “many countries have a single, dominant nationwide fixed telecommunications provider,” whereas “the United States has numerous providers,” including cable companies, which “play a more prominent role in our broadband system than in other countries.”²⁰

This feature of U.S. broadband markets stems from the early days of cable television, which has generally been more popular in the U.S. than abroad. In many OECD nations, residential broadband in most areas has long been provided over a single landline network owned and operated by legacy telephone monopolists, often state-owned or state-supported.²¹ In contrast, cable television companies in the U.S. (most of them privately owned) grew up independently of the major telephone companies (which also have been privately owned for the most part).²² U.S. cable companies enjoyed extraordinary success over the ensuing decades, in part because Americans are uniquely voracious consumers of television programming. Cable companies had thus deployed high-bandwidth transmission infrastructure throughout much of America by the time broadband took root at the turn of the 21st century.²³ Indeed, cable companies were generally the first home broadband providers out of the gate.²⁴ Legacy telephone companies had to play catch-up to match the speeds of their cable competitors, whose transmission pipes were fatter because they were originally designed to carry

18. *Id.* at 81–82.

19. *See infra* note 34 and accompanying text.

20. *National Broadband Plan*, *supra* note 2, at 4, 37.

21. *Id.* at 4.

22. *See History of Cable*, CAL. CABLE & TELECOMMS. ASS'N, <https://cable.org/learn/history-of-cable/> (last visited Dec. 1, 2020) [<https://perma.cc/Q4S5-CGUW>].

23. *National Broadband Plan*, *supra* note 2, at 37.

24. *See Nuechterlein & Weiser*, *supra* note 15, at 192.

high-bandwidth television programming rather than low-bandwidth voice calls.²⁵

Advocates for greater regulation have contended at various points over the past twenty years that these early advantages would make cable an enduring monopoly and that legacy telcos, supposedly unable to hold their own, would fade as broadband competitors.²⁶ But the facts have not borne out that prediction, which becomes less credible each time it is repeated. Consider the Open Technology Institute's prediction in 2012 that consumers "will likely face a near-monopoly from cable providers" and that this "erosion in competition" was "likely to reduce incentives for cable providers to upgrade their infrastructure to offer higher speeds."²⁷ OTI was right about one thing: if cable companies *were* natural monopolists and could thus rest easy, one would not expect to see them and other ISPs making enormous continuing investments in major facilities upgrades to improve service levels year after year, for that is a hallmark of competitive markets. But that is what we *do* see, contrary to OTI's prediction.

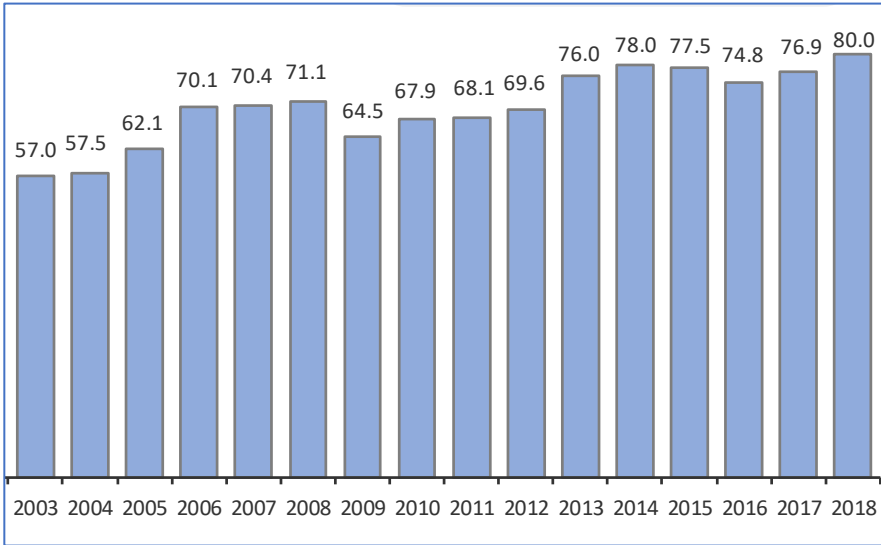
In particular, broadband providers have collectively invested more than \$1.7 trillion since 1996—and more than \$70 billion each year since 2013—to keep pace with their competitors and meet consumer demand for ever-increasing speeds:

25. *Id.*

26. *E.g.*, Christopher Jon Sprigman, *Net Neutrality Is Great, but It Won't Make Broadband Cheaper*, NEW YORKER (June 21, 2016), <https://www.newyorker.com/business/currency/net-neutrality-is-great-but-it-wont-make-broadband-cheaper> [<https://perma.cc/E3KT-5MGJ>] (proposing "local-loop unbundling" to address the "monopoly power" of cable companies); Susan P. Crawford, *The Communications Crisis in America*, 5 HARV. L. & POL'Y REV. 245, 248, 261 (2011) ("Given the tremendous economies of scale and cost advantages of the cable industry, being a wireline phone company is not a great business these days. . . . The emergence of a de facto cable monopoly in high-speed wired Internet access in most of the country cannot stay a secret.").

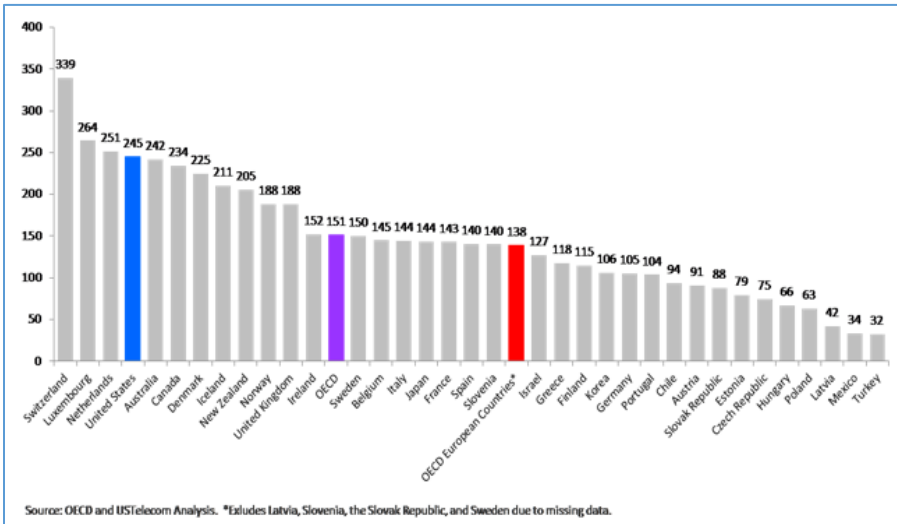
27. Hibah Hussain et al., Open Tech. Inst., New Am. Found., *The Cost of Connectivity* 10–11 (July 2012), <https://d1y8sb8igg2f8e.cloudfront.net/documents/the-cost-of-connectivity-2012.pdf> [<https://perma.cc/QU87-KN5F>].

U.S. Fixed and Mobile Broadband Capital Expenditures (\$ billions)²⁸



These numbers are large not only in absolute terms, but also when compared to foreign per-capita investment figures:

Average Annual Telecom Capital Investment Per Capita 2003-2015 (USD)²⁹



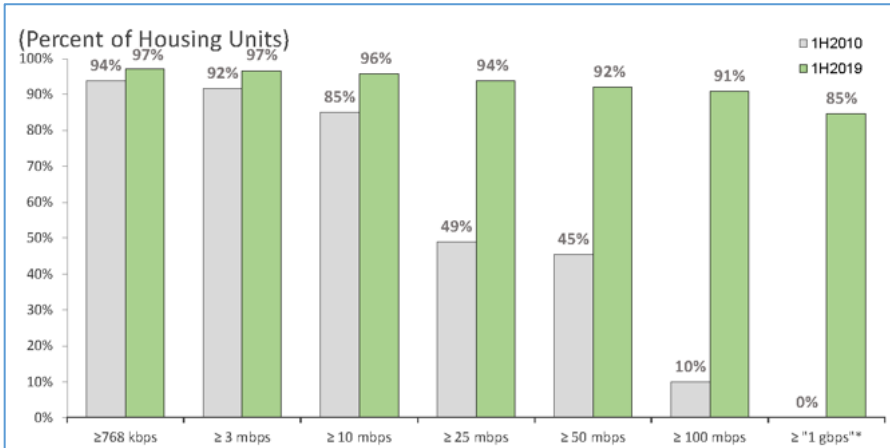
Broadband providers have made these continuing investments because they know that they face competition and must deliver ever-improving service

28. USTelecom Industry Metrics & Trends 2020, USTELECOM 7 (Apr. 2020), <https://www.ustelecom.org/wp-content/uploads/2020/04/USTelecom-State-of-Industry-2020-Update.pptx> [<https://perma.cc/EYR6-E4SW>].

29. *Id.* at 9.

to win and retain customers. Again, the numbers tell the story. The fixed broadband speeds available to the typical American household have skyrocketed over the past 10 years, as high-bandwidth applications such as streaming video and videoconferencing have surged in popularity:

Broadband Availability by Download Speed for Wired Technologies 2010-2019³⁰



And as broadband speeds soar, the average price per unit of consumption continues to plummet. According to one industry estimate, consumers in 2018 paid on average about \$0.76 per Mbps—a 92% decrease from the \$9.01 per Mbps they paid on average in 2008.³¹

The available direct statistics on competition, while imperfect,³² reaffirm that most American households can also choose among multiple fixed broadband providers. According to official FCC data, about 70% of the U.S. population lives in census blocks where two or more fixed providers

30. *Id.* at 15.

31. *The Shrinking Cost of a Megabit*, NCTA (Mar. 28, 2019), <https://www.ncta.com/whats-new/the-shrinking-cost-of-a-megabit> [<https://perma.cc/4RC7-N22U>]; see also *Industry Data*, NCTA, <https://www.ncta.com/industry-data> (last visited Sept. 20, 2020) [<https://perma.cc/P254-FCCG>] (“The price per Mbps has declined [98%] from an average of \$28.13 in 2000 to \$0.64 in 2020.”); Arthur Menko, *2020 Broadband Pricing Index*, USTELECOM (2020) <https://www.ustelecom.org/wp-content/uploads/2020/09/USTelecom-2020-Broadband-Pricing-Index.pdf> [<https://perma.cc/YPY3-BXZT>] (finding that, between 2015 and 2020, the real price per Mbps fell 56.1% for the fastest residential broadband speed tier and 37.9% for the most popular speed tier).

32. For many years, the FCC has required fixed-line broadband providers to report the census blocks in which they offer broadband services. The problem is that census blocks, while small in urban areas, can be very large in rural areas, and the fact that an ISP offers broadband in one part of a large census block does not necessarily mean that it offers service throughout the entire block. To address this concern, the FCC recently launched a “broadband mapping” initiative to obtain more granular data about the locations where broadband is and is not offered. See *Establishing the Digital Opportunity Data Collection; Modernizing the FCC Form 477 Data Program*, 85 Fed. Reg. 50,911 (Aug. 18, 2020).

offer at least 25/3 Mbps service.³³ The number rises to 83% of the population when the speed threshold is lowered to 10/1 Mbps, which, while now substandard, is still sufficient to stream two different Netflix shows simultaneously in high definition.³⁴

Advocates claiming that cable broadband is a monopoly tend to obscure the extent of competition by gerrymandering the definition of “broadband” to exclude any service that does not meet some arbitrarily defined speed benchmark (e.g., 100 Mbps or 1 Gbps).³⁵ But such abstract definitions are economically meaningless if divorced from the facts of what consumers actually want and need. It makes no more sense to pick an aggressive speed threshold as the *sine qua non* of “broadband” than it does to define a “car” by the ability to hit sixty miles per hour in under six seconds. Consumers do not buy broadband services on the basis of arbitrary metrics; they buy the available service that meets their needs and offers them the best value for the money. So a lower-speed service (e.g., 25 Mbps) can impose competitive discipline on a higher-speed service (e.g., 100 Mbps) in the same way that a car model with slower but still adequate acceleration imposes competitive discipline on a similar but more expensive model with faster acceleration. And that is true whether or not all or even most consumers view the two services as close substitutes. Because “competition takes place at the margin,” a lower-speed service can constrain prices for a somewhat faster-speed service even if a significant minority of consumers view the former as a good-enough substitute for the latter.³⁶

Recognizing these competitive realities, some regulatory advocates avoid “monopoly” rhetoric and contend instead that fixed broadband in the U.S. is a “duopoly,” consisting in each geographic market of one cable company and one telco. That description is less implausible than the “monopoly” label, but it too can be misleading. As an initial matter, it is plainly overbroad: many metropolitan areas feature competition from fixed providers in addition to the local telephone and cable companies, such as RCN

33. Specifically, as of June 2019, 69.59% of Americans lived in census blocks in which at least two terrestrial (*i.e.*, non-satellite) fixed (*i.e.*, non-mobile) providers offered speeds of at least 25/3 Mbps. See *Fixed Broadband Deployment – Area Summary*, FCC, <https://broadbandmap.fcc.gov/#/area-summary> (last visited Sept. 3, 2020) [<https://perma.cc/9CJL-CFTD>] (data from June 2019) (in Application Settings, uncheck the box labeled “Satellite”). Satellite-based services are generally not considered close substitutes for terrestrial fixed broadband because, given the finite speed of light, they are subject to significant latency, making real-time applications difficult.

34. See *Internet Connection Speed Recommendations*, NETFLIX, <https://help.netflix.com/en/node/306> (last visited Sept. 20, 2020) [<https://perma.cc/EGR9-47A2>] (“5.0 Megabits per second . . . [r]ecommended for HD quality”).

35. See, e.g., Gabrielle Daley, *The Monopolies That No One Is Talking About*, PUB. KNOWLEDGE (Sept. 1, 2017), <https://www.publicknowledge.org/blog/the-monopolies-that-no-one-is-talking-about/> [<https://perma.cc/TUP7-JMBW>] (“In 2015 the FCC redefined broadband internet” to exclude services below 25/3 Mbps, and “this classification reflects that DSL is effectively no longer in the running, and consumers have limited choices for broadband.”).

36. Jerry Hausman & J. Gregory Sidak, *Telecommunications Regulation: Current Approaches with the End in Sight*, in *ECONOMIC REGULATION AND ITS REFORM: WHAT HAVE WE LEARNED?* 345, 400 (Nancy L. Rose ed. 2014).

and Google Fiber.³⁷ But even in areas without a third fixed competitor, “duopoly” rhetoric obscures more than it edifies, for two reasons.

First, the unusual cost structure of the broadband industry makes it more competitive than most other industries with similar levels of concentration. The “duopoly” label is typically invoked to describe classic market settings—such as two gas stations on opposite sides of a rural intersection—where prices stabilize high above competitive levels. Even in areas with only two fixed-line providers, the broadband market is much more competitive than that. In part because broadband ISPs and gas stations, like other classic retail businesses, differ in cost characteristics.³⁸ Gas stations have high marginal costs compared to their fixed costs; they must pay a substantial amount at wholesale for every unit of gasoline that they sell to consumers at a retail markup. For each sale that a gas station loses to its lone competitor across the highway, it saves a high percentage of the forgone retail revenues in the form of avoided costs. In contrast, broadband ISPs have small marginal costs compared to their fixed costs. Once they have made the large capital investments needed to deploy transmission lines throughout the residential neighborhoods within their geographic footprints, the marginal recurring costs of serving any particular household within those neighborhoods are very low by comparison.³⁹

As we and others have pointed out, that cost structure typically results in significant price competition even in duopoly broadband markets.⁴⁰ The reason is intuitive: suppose that two broadband ISPs have deployed similar networks in the same residential neighborhood, each sufficient to serve the full demand within that neighborhood. When one broadband provider loses a household to the other, it loses all revenues associated with that household but

37. As of June 2019, more than 25% of Americans lived in census blocks with three or more terrestrial fixed broadband providers offering speeds of 25 Mbps or more, and 37.49% lived in census blocks with three or more such providers offering speeds of 10 Mbps or more. See *Fixed Broadband Deployment – Area Summary*, *supra* note 34. All of these figures, of course, exclude mobile broadband services. *Id.*

38. See, e.g., Shelanski, *supra* note 14, at 89–93.

39. See Nuechterlein & Weiser, *supra* note 15, at 8–9.

40. See Shelanski, *supra* note 14, at 89–93; Nuechterlein & Weiser, *supra* note 15, at 220–21; Business Data Services in an Internet Protocol Environment, *Report and Order*, 32 FCC Rcd. 3459, para. 120 (2017) (“[T]he largest benefits from competition come from the presence of a second provider, with added benefits of additional providers falling thereafter, in part because, consistent with other industries with large sunk costs, the impact of a second provider is likely to be particularly profound in the case of wireline network providers.”) (footnote omitted), *aff’d*, *Citizens Telecomms. Co. of Minn., LLC v. FCC*, 901 F.3d 991 (8th Cir. 2018); Timothy J. Tardiff, *Changes in Industry Structure and Technological Convergence: Implications for Competition Policy and Regulation in Telecommunications*, 4 INT’L ECON. & ECON. POL’Y 109 (2007); Dennis L. Weisman, *When Can Regulation Defer to Competition for Constraining Market Power?: Complements and Critical Elasticities*, 2 J. COMPETITION L. & ECON. 101, 102 (2006) (“[P]rice increases that produce even small reductions in demand can generate large losses in contribution to joint and common costs because the firm’s revenues decline much more than the costs it can avoid. It is in this manner that high margins can serve to discipline the [de]regulated firm’s pricing behavior.”); see also Richard J. Gilbert, *Mobility Barriers and the Value of Incumbency*, in 1 HANDBOOK OF INDUSTRIAL ORGANIZATION 475, 520 (Richard Schmalensee & Robert Willig eds. 1989) (“[S]unk costs are likely to contribute to exit barriers.”).

saves very little in the form of avoided costs. That economic reality gives each provider unusually strong incentives to offer substantial discounts in order to win and retain as many households as possible within the neighborhood, resulting in reasonably competitive equilibrium prices.⁴¹

None of this is to say, of course, that two-provider broadband markets are always just as competitive as three-provider broadband markets. Our point instead is that two-provider broadband markets are substantially more competitive than either one-provider broadband markets or other types of two-provider markets with higher marginal costs and lower fixed costs. That fact necessarily reduces the potential benefits of regulatory intervention. Again, whereas price regulation is very likely to bring rates closer to competitive levels in stable monopolistic markets, it is less likely to have that effect—or to have it to the same degree—in markets characterized by even imperfect levels of competition.

The other reason that two-provider broadband markets are less competitively stable than the gasoline market at our hypothetical rural intersection is that the odds of technological disruption and thus new entry are higher. The ascendance of mobile over landline telephony in the early 21st century provides an instructive analogy. As recently as ten years ago, the FCC still argued with a straight face that landline telephone companies dominated some well-defined market for ordinary voice services, despite inroads made by mobile and VoIP competitors.⁴² No one could credibly make that claim today, now that the overwhelming majority of Americans rely mainly on their cellphones for voice service and most households no longer even have operational landlines.⁴³

Although it is too early to make confident predictions, we may see a similar paradigm shift for broadband within the next five to ten years. Today, mobile and fixed-line broadband are partial but imperfect substitutes. By definition, fixed-line services are not mobile, and consumers place a high premium on mobility. At the same time, mobile broadband is more costly than fixed-line broadband for the most bandwidth-intensive applications, such as streaming and videoconferencing. Although 4G LTE networks easily handle those applications in the absence of congestion, mobile users must share the necessary spectrum in any given cell, and mobile plans are therefore more likely to feature usage-based pricing arrangements that constrain a typical user's consumption habits. These key differences—the “mobility gap” for

41. In economic terms, the Cournot (less competitive) model of duopolistic behavior is more likely to characterize decisions about whether to build networks in the first place, whereas the Bertrand (more competitive) model is likely to describe competitive conditions once those networks are up and running. See Shelanski, *supra* note 14, at 90–91 (discussing David M. Kreps & José A. Scheinkman, *Quantity Precommitment and Bertrand Competition Yield Cournot Outcomes*, 14 BELL J. ECON. 326 (1983)).

42. Petition of Qwest Corp. for Forbearance Pursuant to 47 U.S.C. § 160(c) in the Phx., Ariz. Metro. Statistical Area, *Memorandum Opinion and Order*, 25 FCC Rcd. 8622, paras. 55–58 (2010), *aff'd*, Qwest Corp. v. FCC, 689 F.3d 1214 (10th Cir. 2012).

43. See Felix Richter, *Landline Phones Are a Dying Breed*, STATISTA (June 15, 2020), <https://www.statista.com/chart/2072/landline-phones-in-the-united-states/> [<https://perma.cc/AY3F-428H>].

fixed-line services and the “pricing gap” for mobile services—are the main reason why many consumers still view mobile and fixed-line broadband more as complements than as close substitutes.⁴⁴

The line between these two services may blur however, with the rise of 5G technology. Compared to prior-generation networks, 5G networks consist of much smaller and more numerous wireless cells, connected by dense webs of fiber backhaul lines.⁴⁵ Shrinking any wireless network’s cells reduces the number of users who must share spectrum in any given cell, thereby lessening the need to ration spectrum through usage-based pricing. If and when 5G network architecture enables mobile providers to close this “pricing gap” with fixed-line services, fixed-line providers may respond by accelerating the widespread deployment of wireless nodes within their own networks to close their own “mobility gap” with wireless providers.⁴⁶ That competitive dynamic would make fixed-line and mobile services closer substitutes than they are now.⁴⁷ At that point, many markets that have two competing providers today could have more than twice that number: the two legacy “fixed-line” networks plus multiple legacy “mobile” networks.

In sum, the U.S. broadband marketplace in most areas is significantly competitive today and may be poised for disruptive competitive entry within the foreseeable future. That conclusion has major implications for today’s debates about whether this industry, which has been lightly regulated since its inception, should now be subject to dramatically increased levels of intervention.

44. As the FCC summarized this point in early 2018, “[M]obile broadband is not a full substitute for fixed broadband connections” because “fixed and mobile Internet access have different characteristics and capabilities, for example, typically trading off speed and data caps limits against mobility,” but “increasing numbers of Internet access subscribers are relying on mobile services only,” and “[w]ith the advent of 5G technologies promising sharply increased mobile speeds in the near future, the pressure mobile exerts in the broadband market place will become even more significant.” Restoring Internet Freedom, *Declaratory Ruling, Report and Order, and Order*, 33 FCC Rcd. 311, paras. 9, 130 (2018) [hereinafter *RIF Order*], *aff’d in part and vacated in part*, Mozilla Corp. v. FCC, 940 F.3d 1 (D.C. Cir. 2019).

45. See Linda Hardesty, *Traditional Mobile Backhaul Won’t Suffice for 5G*, FIERCEWIRELESS (Apr. 7, 2020), <https://www.fiercewireless.com/5g/traditional-mobile-backhaul-won-t-suffice-for-5g> [https://perma.cc/Y4QY-6D63].

46. See Mike Dano, *An Inside Look at Cable’s MVNO Business Model*, LIGHTREADING (July 22, 2019), <https://www.lightreading.com/cable/cable-wi-fi/an-inside-look-at-cables-mvno-business-model/d/d-id/752938> [https://perma.cc/5PW5-NN8W] (“Comcast and Charter have positioned WiFi as a cornerstone of their mobile strategy. And based on new figures from network-monitoring company Tutela, their efforts so far appear to be bearing fruit. Tutela found that Comcast and Charter are moving substantial amounts of customer data off Verizon’s LTE network and onto WiFi networks, including their own hotspots.”); see also *5G Home*, VERIZON, <https://www.verizon.com/5g/home/> (last visited Sept. 3, 2020) [https://perma.cc/N93F-3UH2] (advertising “5G Home Internet Service”).

47. See Don Reisinger, *Home Broadband Providers Face an Uncertain Future in the 5G Era*, FORTUNE (Feb. 13, 2020, 4:00PM), <https://fortune.com/2020/02/13/5g-impact-on-broadband/> [https://perma.cc/8T99-3XAS]. Again, because competition occurs at the margin, mobile services will likely impose substantial competitive discipline on fixed-line services (and vice versa) even if only a subset of consumers view them as close substitutes. See Hausman & Sidak, *supra* note 37, at 400.

III. ASSESSING THE COSTS AND BENEFITS OF CURRENT PROPOSALS FOR BROADBAND REGULATION

As we have explained, the benefits of economic regulation are likely to be lowest, and the threats posed by such regulation to investment and innovation are likely to be greatest, in technologically dynamic industries subject to some competition today and a prospect of additional entry tomorrow. Broadband is such an industry, so cost-benefit analysis counsels against most forms of economic regulation. U.S. policymakers have generally adhered to that proposition for the past two decades and thus, with one arguable exception, have maintained a regime of light-touch regulatory oversight, as summarized in Section III.A below. Section III.B brings a cost-benefit analysis to bear on four distinct but overlapping types of proposals for ratcheting up the level of broadband regulation—facilities sharing, price regulation, interconnection obligations, and open-ended content nondiscrimination rules. Proposals in the fourth category, which often go by the “net neutrality” label, occupy an outsized share of attention in policy debates, and our discussion of them is accordingly outsized too. Finally, we turn in Section III.C to the special costs presented by state-level economic regulation of any kind.

A. A Brief History of the U.S. Approach to Broadband Regulation

Debates about economic regulation of consumer broadband services are as old as those services themselves, which began to take root in the late 1990s. At that time, cable modem services offered by local cable franchisees accounted for the great majority of U.S. broadband Internet connections, yet they were completely free of economic regulation.⁴⁸ The 2000 *NOI* sought public comment on that policy and, in particular, on so-called “open access” proposals, which would have required cable broadband providers to lease portions of their physical networks to third-party ISPs such as AOL and Earthlink.⁴⁹ Two years later, the FCC rejected those proposals on the ground (among others) that they would undermine incentives for continued broadband investment by cable companies and their facilities-based competitors.⁵⁰ That decision also reflected a degree of technological pragmatism: there was never an engineering consensus on how cable companies could feasibly “unbundle” the broadband transmission

48. See Nuechterlein & Weiser, *supra* note 15, at 192–96; see also Stephen Labaton, *Fight for Internet Access Creates Unusual Alliances*, N.Y. TIMES, Aug. 13, 1999, at A1.

49. 2000 FCC *NOI*, *supra* note 5.

50. Inquiry Concerning High-Speed Access to the Internet Over Cable and Other Facilities, *Declaratory Ruling and Notice of Proposed Rulemaking*, 17 FCC Rcd. 4798, paras. 4–5 (2002), *aff'd*, Nat'l Cable & Telecomms. Ass'n v. Brand X Internet Servs., 545 U.S. 967 (2005).

components of their networks, which were heterogeneous and not designed with such sharing obligations in mind.⁵¹

Ironically, legacy FCC rules at the time did impose the type of unbundling obligations on telephone companies that the FCC declined to impose on cable companies, even though the former lagged well behind the latter in share of broadband connections. In particular, wireline telephone companies were subject to the *Computer Inquiry* rules, which the FCC originally adopted in the 1970s and 80s before the advent of cable broadband, when the telephone system was the only means of access to online data services.⁵² These legacy rules did not regulate the *retail* broadband Internet access service sold by telephone companies to consumers, and those services were mostly unregulated at both the state and federal level. But the rules did require any telco offering such a service to “unbundle” the transmission component (usually a DSL line), tariff it as a common carrier service, and offer it for sale on a wholesale basis to any third-party ISP.⁵³ In 2005, the FCC eliminated that requirement as it applied to these residential broadband services, citing the investment disincentives of such regulation and noting the paradox that those rules never applied to cable companies, with their larger

51. That lack of consensus manifested itself when the FTC sought to implement an “open access” merger condition it had imposed on AOL’s acquisition of Time Warner Cable in 2000. Christopher Yoo wrote at the time:

Contrary to the original expectations of the FTC, the unaffiliated ISPs that have obtained access to AOL-Time Warner’s cable modem systems under the FTC’s merger clearance order have not placed their own packet network and backbone access facilities within AOL-Time Warner’s headends. Instead, traffic bound for these unaffiliated ISPs exits the headend via AOL-Time Warner’s backbone and is handed off to the unaffiliated ISP at some external location. It is hard to see how consumers benefit from such arrangements, given that they necessarily use the same equipment and thus provide the same speed, services, and access to content regardless of the identity of their nominal ISP. The fact that these unaffiliated ISPs have found it more economical to share AOL Time Warner’s existing ISP facilities rather than build their own strongly suggests that integrating ISP and last-mile operations does in fact yield real efficiencies.

Christopher S. Yoo, *Would Mandating Broadband Network Neutrality Help or Hurt Competition? A Comment on the End-to-End Debate*, 3 J. TELECOMM. & HIGH TECH. L. 23, 55–56 (2004) (footnote omitted).

52. See Appropriate Framework for Broadband Access to the Internet Over Wireline Facilities, *Report and Order and Notice of Proposed Rulemaking*, 20 FCC Rcd. 14853, paras. 21–31 (2005) [hereinafter *Wireline Broadband Order*], *aff’d*, Time Warner Telecom, Inc. v. FCC, 507 F.3d 205 (3d Cir. 2007).

53. See *id.*; see also Nuechterlein & Weiser, *supra* note 15, at 69–71. For a time, the FCC separately required incumbent local exchange carriers under the 1996 Act to lease the “high frequency portion” of last-mile copper lines (*i.e.*, the frequency range used for data rather than voice transmissions) to telecommunications carriers associated with third-party ISPs. The FCC moved to eliminate such “line-sharing” obligations in 2003 after the D.C. Circuit expressed skepticism that it made sense to impose them on telephone companies but not the market-leading cable companies.

broadband shares.⁵⁴ Two years later, the FCC extended the same deregulatory approach to the emerging class of mobile broadband networks.⁵⁵

Subsequent years have seen only modest upticks in the degree of regulation imposed on broadband providers. Of course, in determining how “heavy” or “light” any broadband regulatory scheme may have been, the relevant question is not how many lines of text appeared in the Code of Federal Regulations. Instead, the question is whether a given regulatory scheme actually altered, or threatened to alter, the conduct that ISPs otherwise would have undertaken. Viewed from that perspective, the FCC has, for the most part, regulated broadband lightly. It has never subjected broadband ISPs to retail rate caps or any of the other hallmarks of traditional telephony regulation. Nor, since the sunset of the *Computer Inquiry* rules fifteen years ago, has it required any ISP to lease its broadband assets to competitors. True, the FCC has periodically subjected ISPs to various forms of net neutrality oversight. But apart from the brief “Title II” interlude discussed below, it has done so with a light touch and has rarely disrupted the actual business plans of ISPs.

In broad strokes, then, U.S. broadband regulation has been exceptionally light since the turn of the millennium. And as explained in Section II, that light touch approach has coincided with extraordinary investments in broadband infrastructure and a proliferation of increasingly high-speed fixed-line and mobile broadband services. That history is important because, despite these market successes, there are today rising calls for substantially ratcheting up the level of regulation—either by picking up where the Title II regime left off in 2016 and following through on its potential for regulatory creep (as discussed below) or, more radically, by imposing full-blown price controls or facilities-sharing obligations on broadband providers. In the discussion that follows, we weigh the ostensible benefits of such proposals against the potential costs.

B. The Costs and Benefits of Proposals for New Broadband Regulation

1. Facilities-Sharing Obligations

For many years, advocates of greater regulation have claimed that the U.S. has “fallen behind” other major industrialized nations in broadband performance metrics, such as throughput speeds and quality-adjusted price. These critics attribute that perceived performance gap to the less regulated nature of U.S. broadband markets and contend that it can be closed by

54. See *Wireline Broadband Order*, *supra* note 53, ¶¶ 44, 51–52. The FCC nonetheless permitted carriers, if they so chose, to continue tariffing a bare DSL transmission service, unbundled from internet access. A number of small rural telephone companies had requested that option so that they could continue availing themselves of certain benefits under the legacy regulatory regimes applicable to such companies. *Id.* ¶¶ 89–95, 48 n.269.

55. See *Appropriate Regulatory Treatment for Broadband Access to the Internet Over Wireless Networks*, *Declaratory Ruling*, 22 FCC Rcd. 5901 (2007).

importing the facilities-sharing (or “structural separation”) regime found in (for example) the United Kingdom or Australia, where the dominant network is formally separated from any retail operations and must lease capacity on regulated wholesale terms to third-party ISPs. That approach, these critics say, is the key to greater competition and, with it, faster speeds and lower prices.⁵⁶

As a threshold matter, these proposals rest on the empirical premise that the U.S. actually is, in some relevant sense, “behind” its international peers in terms of broadband speeds and quality-adjusted prices. But that premise is fiercely contested, in part because many confounding variables complicate true apples-to-apples comparisons.⁵⁷ For example, network costs per consumer and thus retail prices depend in large part on economies of density, and the countries subject to these comparisons have vastly different population densities—the U.S. averages eighty-seven people per square mile, whereas the U.K. averages 725 and South Korea averages 1,338.⁵⁸ And some international comparisons, including the FCC’s, have found that U.S. fixed-line broadband metrics are in fact superior to those of most peer nations once appropriate adjustments are taken into account.⁵⁹ The peer nations with

56. For example, writing in *The New Yorker* in 2016, NYU Professor Chris Sprigman argued that the recently imposed Title II net neutrality rules were insufficient to address the broadband’s putative “monopoly” problem and that the FCC should “mandate what telecom geeks refer to as ‘local-loop unbundling.’” Sprigman, *supra* note 27. “If that happened, new companies would arise to connect to the cable giants’ networks and vie to provide broadband access. That new competition would push down prices, improve service, spark innovation, and also ease the concerns about discrimination that provoked the F.C.C.’s net-neutrality mandate in the first place.” *Id.*; see also Ian Bogost, *Net Neutrality Was Never Enough*, THE ATLANTIC (Dec. 15, 2017), <https://www.theatlantic.com/technology/archive/2017/12/net-neutrality-was-never-enough/548549/> [<https://perma.cc/9ZV6-YJUJ>]; Peter Bright, *We Don’t Need Net Neutrality; We Need Competition*, ARS TECHNICA (June 26, 2014), <https://arstechnica.com/tech-policy/2014/06/we-dont-need-net-neutrality-we-need-competition/> [<https://perma.cc/3DPX-HGWV>].

57. Compare, e.g., Becky Chao & Claire Park, *The Cost of Connectivity*, NEW AM. 32–38 (2020), https://d1y8sb8igg2f8e.cloudfront.net/documents/The_Cost_of_Connectivity_2020_XatkXnf.pdf [<https://perma.cc/M3NY-7MAV>], with Michael J. Santorelli & Alexander Karras, *The Value of Context and Rigor: A Review of OTI’s Cost of Connectivity 2020 Report*, ADVANCED COMM’NS L. & POL’Y INST. AT N.Y. LAW SCH. 6–7, 12–13 (July, 2020), <http://comms.nyls.edu/ACLP/ACLP-Review-of-OTI-COC-2020-Report-July-2020.pdf> [<https://perma.cc/3Y3J-9WAX>].

58. *List of Countries and Dependencies by Population Density*, WIKIPEDIA, https://en.wikipedia.org/wiki/List_of_countries_and_dependencies_by_population_density (last visited Sept. 20, 2020) [<https://perma.cc/4Q5U-4HPC>].

59. See Int’l Comparison Requirements Pursuant to the Broadband Data Improvement Act, *Sixth Report*, 33 FCC Rcd. 978, paras. 11, 14 (2018) (finding (1) that U.S. fixed-line broadband “speeds and international rank have been on a rising trend since 2012” and have “risen to 10th fastest of 28 countries in 2016” and (2) that after “adjust[ing] for cost, demographic, and quality differences across the countries . . . the United States ranks 7th out of the 29 countries” in broadband pricing).

reportedly inferior network performance include the U.K. and Australia, two countries with oft-cited facilities-sharing regimes.⁶⁰

It is beyond the scope of our paper to resolve these empirical disputes. Our main point here is that *even if* the U.S. lagged peer nations in broadband metrics, it could not possibly narrow that gap by subjecting broadband ISPs to a new battery of facilities-sharing obligations, with all the attendant operational costs, business risks, and regulatory uncertainty. To the contrary, such obligations would undermine incentives for new broadband investment and harm the very consumers they are meant to benefit.

To begin with, the potential benefits of facilities-sharing obligations are both limited and generally confined to monopoly markets without facilities-based competition. As we have discussed, that description does not generally fit U.S. broadband markets, but it does fit broadband markets in some OECD countries, which are typically dominated by one facilities-based fixed broadband provider (the legacy telephone system). Regulators in some of those OECD jurisdictions have indeed promoted a form of resale competition by entitling non-facilities-based ISPs to lease the incumbent telco's network facilities at regulated wholesale rates. These network sharing regimes, however, are a pale substitute for facilities-based competition, and they can make sense (if at all) only when policymakers see no real prospect of such competition.

Although network-sharing regimes do create some competition at the retail level, that competition is limited because the competitors by definition all share the same underlying network assets. For example, although the incumbent and the competitors using its network do compete on the basis of retail prices, the competitors' prices are largely a function of whatever wholesale rate regulators prescribe. Instead of capping retail rates, regulators cap wholesale rates, which are then passed through to consumers in the form of higher or lower retail rates. Ultimately, retail prices are kept in check not so much by competitive dynamics as by an indirect form of rate regulation. The non-price dimensions of competition are similarly limited by the deployment and engineering decisions the incumbent has made. It is thus illogical to suppose that network-sharing obligations would usher in a new era of ever-faster speeds and lower quality-adjusted prices. And on the other side of the cost-benefit ledger, such obligations impose major costs, as discussed below, which cannot be justified in the absence of durable monopoly power. In Justice Stephen Breyer's words, "[r]egulatory rules that go too far, expanding the definition of what must be shared beyond that which

60. See *id.* at app.B, tbl.2; see also Robert D. Atkinson & Doug Brake, *How Broadband Populists Are Pushing for Government-Run Internet One Step at a Time*, INFO. TECH. & INNOVATION FOUND. 8 (Jan. 2017), <http://www2.itif.org/2017-broadband-populism.pdf> [<https://perma.cc/8EEX-LLPX>] (noting that "Australia is actually pursuing the model espoused by many broadband populists—full structural separation, with government ownership of the underlying infrastructure and retail competition on top" and that, "on average, Australia continues to have relatively high prices and low speeds compared with other countries").

is essential to that which merely proves advantageous to a single competitor, risk costs that . . . may make the game not worth the candle.”⁶¹

A page of history here is worth a pound of logic because the U.S. has already had a largely unsuccessful experience with this very type of regime—the FCC’s “local competition” rules implementing the Telecommunications Act of 1996. The purpose of those rules may seem quaint now. In 1996, policymakers focused mainly on boosting competition among local providers of landline telephone service, which they viewed as an entrenched monopoly.⁶² As its tool of choice for opening those markets, the FCC required incumbents to lease to any new entrant the piece parts of their telephone networks, known as “unbundled network elements” or “UNEs.” The big questions of the day included the regulated terms by which a new entrant (*e.g.*, a “long distance” carrier such as AT&T Corp. or MCI) could lease copper loops and circuit-switching capacity from incumbent local telcos (*e.g.*, Bell Atlantic and Southwestern Bell).⁶³ For many years, the FCC ordered incumbents to lease to an aspiring rival *all* of the network elements it needed to provide circuit-switched telephony, including shared access to the circuit switch itself—an arrangement known as “UNE-P” (for “unbundled network element platform”).⁶⁴ In a series of decisions in the early-to-mid 2000s, the D.C. Circuit finally invalidated that maximally regulatory approach on the ground that it produced no more than “completely synthetic competition” and came “at a cost, including disincentives to research and development by both [incumbents] and [entrants] and the tangled management inherent in shared use of a common resource.”⁶⁵

Of course, sharing obligations require regulators not only to identify which facilities must be leased to rivals, but also to set the rates that incumbents may charge for leasing them. To that end, the FCC directed state public utility commissions to base wholesale rates for all network elements on an arcane cost methodology known as “total element long-run incremental cost,” or TELRIC.⁶⁶ A generation of lawyers and economists got rich arguing about how to implement that methodology, which required modeling how a hypothetical efficient firm would build a new wireline telephone network, taking as given only the locations of the “wire centers” the incumbent telephone monopolist chose many decades previously for the routing of circuit-switched voice calls.⁶⁷ One of the many conundrums in applying this methodology was that no efficient firm at the turn of the millennium would have built such a network in the first place because circuit-switched landline telephony was a technology in decline.

61. AT&T Corp. v. Iowa Utils. Bd., 525 U.S. 366, 430 (1999) (Breyer, J., concurring in relevant part and dissenting on other grounds).

62. See Nuechterlein & Weiser, *supra* note 15, at 51–53.

63. See *id.* at 58–60.

64. See *id.* at 62–66.

65. U.S. Telecom. Ass’n v. FCC (USTA I), 290 F.3d 415, 424, 429 (D.C. Cir. 2002); see also U.S. Telecom Ass’n v. FCC, 359 F.3d 554 (D.C. Cir. 2004); Covad Commc’ns Co. v. FCC, 450 F.3d 528 (D.C. Cir. 2006).

66. 47 C.F.R. § 51.505.

67. *Id.*

In the end, the main entrants that had based their business plans on leasing last-mile telco facilities collapsed when consumers and investors saw that the future of communications lay elsewhere.⁶⁸ Meanwhile, the competitors that built new cellular and broadband networks, which bypassed last-mile telco infrastructure completely, were the ones that brought real competition and innovation to U.S. telecommunications markets, without reliance on the FCC's elaborate regulatory apparatus. The great irony of this era was that, by allowing those services to grow with minimal regulation, policymakers refuted their own premise that highly disruptive regulation was needed to bring competition to legacy wireline technologies.

If “[t]hose who cannot remember the past are condemned to repeat it,”⁶⁹ the rise and fall of UNE-based local exchange competition serves as a cautionary tale for broadband policymakers today, as they consider arguments that broadband is inadequately competitive and that the solution lies in complex facilities-sharing rules. Indeed, such rules would be even less appropriate for the broadband marketplace of today than for the telephone market of 1996. Whereas local exchange markets in 1996 were true (if declining) monopolies, today's fixed broadband market already exhibits significant facilities-based competition, as we have discussed. And today's fixed broadband providers also face a realistic near-term prospect of additional disruptive competition, as mobile providers deploy 5G networks. Those considerations reduce the need for, and magnify the risks of, elective regulatory surgery in the form of rules designed to promote *non*-facilities-based competition. Again, the benefits of such “completely synthetic competition” are meager, particularly when a market already features facilities-based competition, and they come “at a cost, including disincentives to research and development by both [incumbents] and [entrants] and the tangled management inherent in shared use of a common resource.”⁷⁰

2. Rate Regulation

As discussed in Section III.B.4 below, the FCC has always expressed opposition to broadband rate regulation, even during the relatively interventionist Title II era of 2015-2016. But there have been increasing calls to impose such regulation anyway.

For example, as a presidential candidate in 2019, Senator Bernie Sanders vowed to “regulate [broadband ISPs] like a utility” and direct the FCC to “review prices and regulate rates where necessary.”⁷¹ In 2018, Senator Chuck Schumer likewise suggested that broadband ISPs are “essential . . . [u]tilities” and that policymakers should no longer “let them

68. See Nuechterlein & Weiser, *supra* note 15, at 53, 66–67.

69. 1 GEORGE SANTAYANA, *THE LIFE OF REASON* 284 (1905).

70. USTA I, 290 F.3d at 424, 429 (citing *Iowa Utils. Bd.*, 525 U.S. at 428–29).

71. Jon Brodtkin, *Bernie Sanders Vows to Break Up Huge ISPs and Regulate Broadband Prices*, ARS TECHNICA (Dec. 7, 2019), <https://arstechnica.com/tech-policy/2019/12/bernie-sanders-vows-to-break-up-huge-isps-and-regulate-broadband-prices/> [<https://perma.cc/3RMG-C5TR>].

charge whatever they want.”⁷² The *Los Angeles Times* business columnist writes that “[s]ervice providers should have to justify rate increases just like other utilities. If higher prices are warranted by legitimate operating costs, so be it. If not, go pound sand. . . . Give state public utilities commissions the power to oversee internet pricing.”⁷³ And some states are proposing to do precisely that by requiring ISPs to offer “affordable” broadband service in a variety of circumstances.⁷⁴

Here, it is important to distinguish between means and ends. Few dispute that all Americans should have access to high-quality broadband at affordable rates. The question is whether to meet that objective by expanding public subsidy programs or instead, by capping ISP retail rates, analogous to price controls imposed by the FCC and states on telephone monopolists in the 20th century. The former approach is appropriate and indeed critical, as we discuss in Section IV below. The latter approach, however, would be exceptionally counterproductive.

By limiting returns on a regulated firm’s capital investments, price regulation necessarily reduces that firm’s incentives to make such investments. While it might be fashionable to scoff at that proposition, the link between a firm’s expected returns and investment decisions is hard to dispute. In durable monopoly markets, society might well have good reasons for reducing the already minimal investment incentives of an entrenched monopolist in exchange for low, regulated prices. But the costs of price regulation are much greater, and the societal benefits much lower, where some degree of competition already disciplines prices and gives firms incentives to keep up with rivals through massive, ongoing investments.

Much like facilities-sharing rules, rate caps would also undermine prospects for competitive entry and expansion in such dynamic markets. Even

72. John Eggerton, *Schumer: Consumers May Need Internet Affordability Protections*, MULTICHANNEL NEWS (May 9, 2018), <https://www.multichannel.com/news/schumer-consumers-may-need-internet-price-protections> [<https://perma.cc/86YW-KG3G>]; see also Karl Bode, *Schumer: Broadband Is a Utility That May Require Price Caps*, DSLREPORTS (May 10, 2018), <http://www.dslreports.com/shownews/Schumer-Broadband-is-a-Utility-That-May-Require-Price-Caps-141803> [<https://perma.cc/2SHP-ESPH>] (“During his floor argument for a Congressional Review Act resolution that would restore net neutrality, Schumer stated that he believes that broadband should be viewed as an essential utility, and that we may need to eventually explore price caps to prevent monopolies from over-charging for services thanks to limited competition.”).

73. David Lazarus, *Column, It’s Time to Regulate Internet Service Like Any Other Utility*, L.A. TIMES (Feb. 25, 2020), <https://www.latimes.com/business/story/2020-02-25/regulating-internet-service-utility> [<https://perma.cc/H6RD-53TC>]; see also Steve Andriole, *It’s Time for an Internet-for-All Public Utility (Before Corona Crashes It)*, FORBES (Mar. 30, 2020), <https://www.forbes.com/sites/steveandriole/2020/03/30/its-time-for-an-internet-for-all-public-utility-before-corona-crashes-it/#141b5dc9af95> [<https://perma.cc/UN5Y-V97G>] (“As a public utility, service providers should be required to offer affordable high-speed broadband to all Americans[.] Sure, this is controversial, but it is really?”).

74. See, e.g., S. 1058, sec. 3, 2019-20 Leg., Reg. Sess. (Cal. introduced Feb. 18, 2020) (proposing, on a permanent basis, to “direct every internet service provider . . . to file emergency operations plans” that would include “an affordable class of broadband internet service” that the ISP “shall offer as emergency relief within its service footprint for any individual displaced by a disaster or under guidance to stay at home during a state or local emergency”).

if the caps apply only to “incumbent” or “dominant” providers (however defined), they would still lower the revenue expectations of any new entrant, which would have to undersell not what the incumbents would have charged, but the substantially lower rates that regulators impose. For example, capping the retail prices of fixed-line providers would inevitably chill any mobile provider’s incentives to make the risky investments needed to compete head-to-head with them because those price caps would reduce the mobile provider’s own expected revenues. As was the case when the FCC issued the *National Broadband Plan* ten years ago, the major challenges facing broadband policymakers today still involve creating adequate incentives for private enterprise to invest risk capital in faster and more widespread broadband networks. Price controls would undermine that objective.

These concerns, moreover, apply not only to rate regulation that is explicitly styled as such, but also to other forms of regulation that ultimately amount to rate regulation. For example, under the unbundling regimes discussed earlier, the rates charged by new entrants are largely a function of the wholesale lease rates charged by the incumbent. And because the incumbent often does not wish to lease its network assets in the first place, regulators must cap wholesale rates. Unbundling obligations can thus be conceptualized as an indirect form of retail rate regulation, but at an even greater level of complexity, given the need for regulators and market participants to manage the non-price details of compulsory asset-sharing obligations.

Finally, but no less important, the line between “price” and “non-price” regulation is thin, and regulatory obligations can amount to rate regulation even when regulators do not perceive themselves as setting rates at either the retail or wholesale level. We address that point in detail below, where we analyze proposals to require interconnection at a regulated rate of zero (Section III.B.3) and to ban “zero-rating” programs, the economic equivalent of bundled discounts (Section III.B.4).

3. Interconnection Obligations

The Internet is composed of many different IP networks, most of them privately owned, and each network must find some way to connect its users with the users on every other network, either directly or indirectly. Since the inception of the commercial Internet, the government has left the terms of these “interconnection” arrangements to market forces, in the form of

unregulated, privately negotiated peering and transit agreements.⁷⁵ The government's hands-off approach to these *Internet* interconnection arrangements has always stood in stark contrast to the FCC's pervasive regulation of interconnection on the public switched *telephone* network ("PSTN"). For decades, regulators have determined when one telephone company must physically interconnect with others, on what terms, and with what exchange of "intercarrier compensation."⁷⁶ As every telecom lawyer knows, the resulting regulatory disputes have been nearly unrivaled in their byzantine complexity for four decades.⁷⁷

Over the past dozen years, Netflix and other senders of high-bandwidth, one-way Internet traffic ("content networks") have urged the FCC to take a page from the PSTN rulebook and regulate Internet interconnection arrangements for the first time.⁷⁸ In particular, these advocates seek "bill and keep" rules that would entitle content networks to demand direct interconnection with residential ("eyeball") ISP networks without any exchange of compensation. They begin with the premise that any residential ISP, however small, enjoys a "terminating access monopoly" that enables it to extract supracompetitive rates from interconnecting content providers. And they conclude that the optimal solution is not a regulated positive rate, but a universal price of zero for interconnection.⁷⁹ Under that approach, any residential ISP would have to recover from its retail customers, rather than from interconnecting networks, all of the incremental costs it incurs for handling the incremental traffic loads sent by those networks.

75. "Peering" and "transit" describe forms of *direct* and *indirect* interconnection, respectively, between IP networks. Two IP networks enter into a peering arrangement if they interconnect *directly* and if each IP network provides the other with access *only to its own customers* (including transit customers that serve end users of their own) rather than to the entire internet. If no peering agreement enables Network X to reach a customer on Network Y, it will typically buy a transit service from intermediary Network Z to reach that customer; Z essentially acts as X's agent in ensuring *indirect* connectivity between X and Y. See generally Michael Kende, *The Digital Handshake: Connecting Internet Backbones 5-7* (Off. of Plans & Pol'y, FCC, Working Paper No. 32, 2000), <https://www.fcc.gov/reports-research/working-papers/digital-handshake-connecting-internet-backbones> [<https://perma.cc/Q2X9-9UZA>]. Transit arrangements always involve the payment of compensation; peering arrangements may or may not. Over time, interconnection agreements among IP networks have grown more complex and now involve more types of direct interconnection than before, but the basic economic relationships remain similar to those found in traditional peering and transit arrangements. See generally Peyman Faratin et al., *The Growing Complexity of Internet Interconnection*, 72 COMM. & STRATEGIES 51 (2008); Stanley M. Besen & Mark A. Israel, *The Evolution of Internet Interconnection from Hierarchy to "Mesh": Implications for Government Regulation*, 25 INFO. ECON. & POL'Y 235 (2013).

76. See Nuechterlein & Weiser, *supra* note 15, at 243-93.

77. *Id.*

78. See, e.g., Reply Comments of Incompas at Ex. B, Restoring Internet Freedom, WC Docket No. 17-108 (Aug. 30, 2017) (economic analysis of David S. Evans), <https://www.incompas.org/files/INCOMPAS%20RIF%20Reply%20Comments-30Aug%20FINAL.pdf> [<https://perma.cc/LUG7-S6Z4>]. For a response to Dr. Evans' advocacy, see Attachment to Letter of AT&T Services Inc., *Restoring Internet Freedom*, WC Docket No. 17-108 (Oct. 31, 2017) (economic analysis of Mark Israel and Bryan Keating), <https://ecfsapi.fcc.gov/file/1031716115908/Israel-Keating%20FINAL%20103117.pdf>.

79. See Nuechterlein & Weiser, *supra* note 15, at 287-90.

The FCC has consistently rejected such proposals, including in the 2015 *Title II Order*, which—as discussed below—set the high-water mark for regulatory intervention. The FCC found there that “the best approach [to Internet interconnection disputes] is to watch, learn, and act as required, but not intervene now, especially not with prescriptive rules.”⁸⁰ That is the correct policy call, for reasons that we have elsewhere explained in depth.⁸¹ Although the details are complex and beyond the scope of this paper, a few points warrant emphasis.

First, a content network has competitive alternatives to direct interconnection and, indeed, does not need to deal with an ISP at all to ensure the delivery of its traffic to that ISP’s customers. Instead, it can purchase transit or similar services from one or more third-party networks that do interconnect with the ISP’s network, and the market for such services appears highly competitive.⁸² As long as it remains so, the availability of transit alternatives will substantially constrain the fees that ISPs can charge for direct interconnection. *Second*, for the same reason, it is meaningless to describe an ISP as a “terminating monopolist”; so long as it offers its customers access to the Internet, it will have to interconnect with many other networks, and those networks thus remain available to any content provider as indirect paths to the ISP’s end users. Again, those alternative paths deprive the ISP of “bottleneck”

80. Protecting and Promoting the Open Internet, *Report and Order on Remand, Declaratory Ruling, and Order*, 30 FCC Rcd. 5601, para. 31 (2015) [hereinafter *Title II Order*], *aff’d*, U.S. Telecom Ass’n v. FCC, 825 F.3d 674 (D.C. Cir. 2016).

81. See Nuechterlein & Weiser, *supra* note 15, at 284–90; Jonathan E. Nuechterlein & Christopher S. Yoo, *A Market-Oriented Analysis of the “Terminating Access Monopoly” Concept*, 14 COLO. TECH. L.J. 21 (2015); see also Besen & Israel, *supra* note 76.

82. See Applications of XO Holdings and Verizon Communications Inc. for Consent to Transfer Control of Licenses and Authorizations, *Memorandum Opinion and Order* 31 FCC Rcd. 12501, para. 44 n.156 (2016) (“[T]ransit prices have fallen by more than 90 percent in the last five years alone[.]”); see also Dan Rayburn, *North American Transit Pricing From Major Providers Down 10%*, STREAMING MEDIA (July 25, 2016), <https://www.streamingmedia.com/Articles/Editorial/Featured-Articles/North-American-Transit-Pricing-From-Major-Providers-Down-10-112398.aspx> [<https://perma.cc/2VMU-NPMS>] (“North American transit pricing, on average, is down about 10 percent, year-over-year.”); William B. Norton, *What Are the Historical Transit Pricing Trends?*, DRPEERING INT’L, <http://drpeering.net/FAQ/What-are-the-historical-transit-pricing-trends.php> (last visited Sept. 17, 2020) [<https://perma.cc/Q647-AU86>] (showing double-digit annual percentage declines in transit prices).

or “monopoly” power in negotiating direct interconnection agreements.⁸³ *Third*, there is no evidence that the fees charged for indirect interconnection are particularly large, let alone supra-competitive, and the limited data available to the public suggest that such fees are generally small and competitively immaterial.⁸⁴

Fourth, contrary to some advocacy for Internet interconnection regulation, the mere fact that one network pays another as part of direct interconnection agreements is not a sign of market failure; to the contrary, such payments can be highly efficient. An ISP network acts as an intermediary in an essentially double-sided market between its retail customers and content networks and may efficiently recover its costs from either side of the market or from both. Under well-established economic principles, whatever payments the ISP receives from content networks on one side of that market impose downward pressure on the retail rates that the ISP charges to consumers on the other side.⁸⁵ There is no reason to suppose that consumers would be better off or that the relevant markets would function more efficiently, if an ISP were forced to recover all of its costs from

83. The widespread availability of many indirect routes into any given ISP’s network is one of several factors that distinguishes Internet interconnection from PSTN interconnection and makes efficient outcomes more likely in the absence of regulation. *See* Nuechterlein & Yoo, *supra* note 82. Significantly, it is the content network that chooses an indirect path into an ISP’s network, not the ISP network (which has no control over the content network’s choice of intermediary network), and content networks often “multihomed” their traffic among several intermediaries simultaneously. An ISP therefore could not force content providers into a direct interconnection agreement unless it simultaneously degraded all of those alternative paths into (and out of) its network, thereby destroying the value of its service to its own retail customers. Regulatory advocacy on these issues tends to obscure that technological reality—and also to overlook the possibility that content networks themselves have created congestion in hopes of obtaining regulatory intervention. *See, e.g.,* Dan Rayburn, *Cogent Now Admits They Slowed Down Netflix’s Traffic, Creating A Fast Lane & Slow Lane*, STREAMINGMEDIA (Nov. 5, 2014), <https://www.streamingmediablog.com/2014/11/cogent-now-admits-slowed-netflixs-traffic-creating-fast-lane-slow-lane.html> [<https://perma.cc/SMC3-K6X3>].

84. *See* Applications of Comcast Corp., Time Warner Cable Inc., Charter Communications, Inc., and SpinCo for Consent to Assign or Transfer Control of Licenses and Authorizations, *Opposition to Petitions to Deny and Response to Comments*, MB Docket No. 14-57, FCC, para. 44, Ex. 4 (2014) (reporting that Netflix executive thanked Comcast for finding “middle ground on our [interconnection] issues that worked well for both of us for the long term, and works great for consumers” and that Comcast “made paid peering affordable for us.”); *Edited Transcript, Q2 2014 Netflix Inc Earnings Call*, REUTERS 6 (July 21, 2014), https://s22.q4cdn.com/959853165/files/doc_financials/quarterly_reports/2014/q2/NFLX-Transcript-2014-07-21.pdf [<https://perma.cc/B3QS-GGYB>] (Analyst question: “If . . . we don’t have strong net neutrality [rules] going forward, how do investors get assurances that the business is protected, in terms of cost, perhaps interconnection costs over time?” Netflix answer: “Well on a short-term basis, I think there’s great assurances in the sense that we’ve been able to sign these immediate interconnect deals, and still able to achieve our margin targets. . . . [F]or Netflix, content is our largest cost. It dwarfs all of the other costs[.]”).

85. *See, e.g.,* ROBERT E. LITAN & HAL J. SINGER, *THE NEED FOR SPEED: A NEW FRAMEWORK FOR TELECOMMUNICATIONS POLICY FOR THE 21ST CENTURY* 43 (2013) (addressing “see-saw principle”).

consumers and none from interconnecting content networks.⁸⁶ To the contrary, allowing an ISP to recover some costs from such networks would increase efficiency and benefit consumers if it creates additional incentives for those networks to economize on the traffic loads they send into ISP networks—for example, by using more efficient forms of digital compression.

In short, as with the other forms of regulatory intervention we have discussed, creating a new set of IP interconnection rules would serve no apparent purpose and might foreclose efficient arrangements for ISP cost recovery. In addition, such rules would embroil the industry in a new generation of regulatory disputes. There would be nothing simple about imposing a bill-and-keep scheme on interconnection arrangements. Although the price (zero) is obviously straightforward, regulators would find themselves mired in obscure controversies about exactly when to mandate direct interconnection between any two networks, where on one network the other network could demand interconnection, who must pay for capacity upgrades, and so forth. These are not details that regulators are well-equipped to resolve, and as discussed, there is no need for them to do so in the first place.

4. Open-Ended ISP Conduct Rules

The term “net neutrality” describes a loose set of policy concerns that focus not on the horizontal dimension of competition among rival broadband ISPs, but on the vertical relationships between each ISP (whether it faces competition or not) and providers of complementary Internet content and applications. For example, all forms of net neutrality regulation would prohibit any mass market broadband ISP from blocking or degrading disfavored Internet traffic without a reasonable “network management” justification.⁸⁷

Judging solely from newspaper headlines and partisan vote counts, net neutrality would appear to be one of the most divisive issues in regulatory policy today. But there is far more consensus about the underlying policy

86. See Nuechterlein & Yoo, *supra* note 82, at 32 n.27 (“Large volumes of incoming traffic impose costs on ISP networks. ISPs could efficiently recover those costs by charging higher retail rates to their heaviest data users or, alternatively, by charging wholesale rates to the networks that offload high volumes of unidirectional traffic. Suppose that, in the latter scenario, the interconnecting network that pays these wholesale charges is a CDN operated by a subscription streaming-video provider such as Netflix. Ultimately, the video provider will pass some or all of the charges through to its subscribers in the form of higher rates for its service, and it can vary those rates explicitly depending on each subscriber’s ISP and the wholesale rates that ISP charges for interconnection. Under either scenario, the costs caused by the extra streaming video traffic will be paid by the end users that benefit from that traffic and cause it to be transmitted. There is no reason in principle why either of these cost-recovery models is inherently more efficient than the other.”).

87. Net neutrality issues are related to, but distinct from, questions about Internet interconnection. Whereas interconnection issues address whether an ISP should be compelled to interconnect directly (rather than indirectly) with other networks and on what terms, net neutrality issues generally address whether and when an ISP may discriminate among packets already on its network.

questions than all the angry rhetoric would suggest and ISPs have publicly disavowed the conduct that core net neutrality rules are designed to prohibit.⁸⁸ Indeed, one might be tempted to think that, like academic politics, the politics of net neutrality is “the most vicious and bitter form of politics, because the stakes are so low.”⁸⁹ That observation however, is subject to an important caveat, which we address below: open-ended “nondiscrimination” obligations for consumer broadband services, if unaccompanied by economically sensible limiting principles, can do real harm by shading into rate regulation, creating regulatory uncertainty, and ultimately deterring broadband investment and innovation.

a. Some economic context is important at the outset. Vertical relationships among firms at different levels of the value chain are ubiquitous in the modern economy, and most of them are completely unregulated.⁹⁰ Such relationships typically warrant antitrust or regulatory intervention only when one firm dominates the market at one level, potentially—though not inevitably or even usually—to the detriment of competition at other levels.⁹¹ But advocates of net neutrality rules would not restrict those rules to circumstances where one ISP dominates a local broadband market; instead, they would apply net neutrality rules to all ISPs, irrespective of competitive conditions. As justification, they cite, among other things, the positive externalities generated by the Internet as an open and ubiquitously accessible platform for communication and innovation. Under this analysis, private actors could pursue their own rational self-interest, even in highly competitive markets, yet act in ways that threaten to fragment the Internet and reduce its positive externalities.⁹²

That point is theoretically plausible and might well justify regulatory intervention if unregulated ISPs acted in ways that threaten the essential openness of the Internet. But the risk of such outcomes seems attenuated today because core net neutrality principles are now industry norms bolstered by strong consumer expectations. For example, from 2010 until 2017, the FCC’s net neutrality regime included a bright-line prohibition on blocking or throttling by ISPs of disfavored Internet content without a network

88. See, e.g., *ISPs Commit to an Open Internet*, NCTA, https://www.ncta.com/chart/isps-commit-an-open-internet?share_redirect=%2Ftopics#colorbox=node-3292 (last visited Dec. 5, 2020) [<https://perma.cc/8TLJ-8BNZ>].

89. This quote about academic politics has been attributed to Columbia political science professor Wallace Stanley Sayre and is sometimes known as “Sayre’s Law.”

90. See generally Francine Lafontaine & Margaret Slade, *Vertical Integration and Firm Boundaries: The Evidence*, 45 J. ECON. LITERATURE 629 (2007); James C. Cooper et al., *Vertical Antitrust Policy as a Problem of Inference*, 23 INT’L J. INDUS. ORG. 639 (2005).

91. See Joseph Farrell & Philip J. Weiser, *Modularity, Vertical Integration, and Open Access Policies: Towards a Convergence of Antitrust and Regulation in the Internet Age*, 17 HARV. J.L. & TECH. 85, 107 (2003).

92. See, e.g., BRETT M. FRISCHMANN, *INFRASTRUCTURE: THE SOCIAL VALUE OF SHARED RESOURCES* 331 (2012) (arguing that the “social value of the Internet greatly exceeds [the] market value” that would be reflected in consumers decisions even in fully competitive markets); see also *Title II Order*, *supra* note 81, ¶¶ 76–77, 83, 151 (discussing “spillover” effects of open Internet).

management justification.⁹³ Such practices might indeed have posed serious public policy concerns about Internet fragmentation had they been common. But except for a few well-publicized incidents many years ago, ISPs in the U.S. have avoided content-based blocking or throttling, presumably because they see little commercial upside to the practice and much potential downside in the form of a consumer backlash and mass customer defections to fixed-line or mobile rivals.⁹⁴ Indeed, after the FCC rescinded the prohibitions on content-based blocking and throttling in 2017, no ISP to our knowledge began engaging in such practices, and all major ISPs publicly committed not to. Of course, the same market realities that reduce the *need* for no-blocking and no-throttling rules also reduce the *costs* of such rules, and for that reason such rules would likely survive a cost-benefit analysis.

Other net neutrality rules too, have typically mirrored rather than altered existing industry practices. Consider the virtual and then total ban on “paid prioritization” that the FCC imposed in separate orders issued in 2010 and 2015.⁹⁵ This highly touted prohibition had absolutely no effect on the broadband industry because, to our knowledge, no ISP engaged in the prohibited practices or had any plans to do so. Although the details often get lost in broad-brush rhetoric, the FCC always narrowly cabined this prohibition to avoid disrupting any of the techniques that broadband providers have actually used to “prioritize” latency-sensitive traffic. For example, the FCC studiously avoided banning ISPs from (1) accepting compensation for direct interconnection with content networks or (2) reserving dedicated capacity for IP-based multichannel video services over the same last-mile

93. See *Title II Order*, *supra* note 81, at 5646, ¶¶ 105–06.

94. See *Mozilla Corp. v. FCC*, 940 F.3d 72 (D.C. Cir. 2019) (“Petitioners do nothing to refute the agency’s claim that ‘since 2008, few tangible threats to the openness of the Internet have arisen.’”) (quoting *RIF Order*, *supra* note 45, ¶ 113). For rhetorical effect, some advocates mischaracterize incidents that have nothing to do with net neutrality as episodes of “blocking” or “throttling.” For example, they sometimes use the term “throttling” to describe the slower speeds that customers on tiered data plans sometimes experience after they have exceeded their monthly data allowances. But that practice has nothing to do with discriminating among content sources or preserving an open Internet, and it has always been lawful, even under the now-repealed Title II regime. See *Title II Order*, *supra* note 81, at 5668, ¶ 153 (recognizing that consumers should have lower-priced alternatives to unlimited data plans and that usage allowances, accompanied by lower speeds after those allowances are exceeded, “may benefit consumers by offering them more choices over a greater range of service options”).

95. See Preserving the Open Internet, *Report & Order*, 25 FCC Rcd. 17905, para. 76 (2010), *aff’d in part and vacated in part*, *Verizon v. FCC*, 740 F.3d 623 (D.C. Cir. 2014); *Title II Order*, *supra* note 81, ¶ 18.

pipes used for Internet access.⁹⁶ And when the FCC lifted the “paid prioritization” ban entirely in 2017, ISPs did not react by engaging in the narrow categories of non-existent conduct that were once prohibited. To the contrary, “paid prioritization,” in the limited sense defined by the prior rules, remains a dead letter, presumably because existing, long-permitted network management practices have so far remained equal to the task of ensuring quality of service for latency-sensitive traffic.

b. All this said, aspects of the FCC’s 2015 regime, announced in the *Title II Order*, did open the door to much more interventionist forms of regulation. The concern here lay not so much in the literal substance of the rules as initially adopted in 2015 as in their open-endedness and potential for regulatory creep.

Specifically, in asserting legal authority for the net neutrality rules discussed above, the *Title II Order* classified broadband as a Title II “telecommunications service” for the first time, ending more than a dozen years of broadband’s classification as a mostly unregulated Title I “information service.” Title II of the Communications Act applies to “common carriers” and subjects them by default to price controls and various other forms of economic regulation, although the FCC has broad authority to “forbear” from any Title II requirement that it deems inappropriate in particular contexts.⁹⁷ Of course, labels and roman numerals matter less than the actual details of a regulatory scheme. Title II classification can produce extremely interventionist regulation, as it did when applied to local exchange monopolies in the 20th century, or it can produce more permissive regimes, as it did when the FCC forbore from most forms of prescriptive regulation for mobile telephony services around the turn of the millennium.⁹⁸ The *Title II Order* itself claimed to follow the latter approach. For example, the FCC recognized that Title II classification exposed broadband ISPs to a threat of prescriptive rate regulation—*e.g.*, price caps—but disavowed any interest in

96. The FCC’s *Title II Order* in 2015 defined “paid prioritization” as the compensated “management of a broadband provider’s network”—*i.e.*, over last mile connections—“to directly or indirectly favor some traffic” exchanged over the public Internet—*i.e.*, across more than one IP network. *Title II Order*, *supra* note 81, ¶ 18 (italics omitted). ISPs have rarely if ever engaged in that practice, in part because it would present substantial engineering and collective-action challenges. See Nuechterlein & Weiser, *supra* note 15, at 208–09. At the same time, the *Title II Order* explicitly preserved all existing forms of IP traffic prioritization. For example, it declined to prohibit paid direct interconnection between ISPs and content delivery networks, which act as agents for their content provider customers. See *Title II Order*, *supra* note 81, ¶ 128. And it reaffirmed exemptions for “specialized” services, allowing ISPs to dedicate capacity for IP-based cable TV signals on the same pipes used for ordinary Internet traffic, thereby ensuring quality of service for (“prioritizing”) the former but not the latter. See *Title II Order*, *supra* note 81, ¶¶ 207–13.

97. 47 U.S.C. § 160.

98. See generally *Orloff v. FCC*, 352 F.3d 415 (D.C. Cir. 2003).

such regulation and thus forbore from the relevant Title II provisions to the extent they would impose it.⁹⁹

Despite these forbearance decisions, broadband ISPs expressed concern about the potential for regulatory creep now that the FCC had unlocked the legal mechanism for applying any form of common carrier regulation it deemed appropriate. Fueling those concerns was the FCC's concurrent decision in the *Title II Order* to adopt an amorphous "'no-unreasonable interference/disadvantage' standard," which supplemented the bright-line bans on blocking, throttling, and paid prioritization. This new rule prohibited broadband providers from "unreasonably interfer[ing] with or unreasonably disadvantage[ing] . . . end users' ability" to access edge providers or "edge providers' ability to make [their content or services] available to end users."¹⁰⁰ That prohibition was hardly self-revealing, and the FCC did not try to specify what types of conduct the ban might someday be found to forbid. Instead, the FCC announced a "non-exhaustive list" of seven nebulous factors it would use in applying this new rule, including "end-user control," "consumer protection," "effect on innovation," and "free expression."¹⁰¹

Industry concerns about how the FCC would apply this open-ended new rule grew in 2016, as it began investigating the "zero-rating" practices of mobile providers. Those investigations are worth recounting in some detail because they illustrate the phenomenon of regulatory creep in general and the elusive distinction between price and non-price regulation in particular.

Zero-rating arrangements ordinarily arise in the context of mobile data plans with designated usage allowances (e.g., 10 GB per month). After a consumer reaches her allowance, the ISP typically charges her an overage fee or reduces her data speeds for the duration of the billing cycle. An ISP is said to "zero-rate" certain content if it excludes that content from a customer's data allowance. For example, AT&T offered tiered data plans that enabled its mobile customers to stream the content of its affiliate DirecTV on a zero-rated basis; although YouTube videos would count against their data allowances, online DirecTV streaming would not.¹⁰²

In economic structure, a zero-rating arrangement is equivalent to a bundled discount. A consumer opting into such an arrangement is typically buying two products: a subscription to streaming content and a mobile broadband service. She pays both a subscription fee to the content provider and a wireless ISP bill that is discounted because it omits the overage fee the consumer *would* have paid as a result of streaming the provider's content in the absence of zero-rating. The consumer is indifferent as to how that discount is structured. Specifically, she does not care whether (1) her ISP charges her overage fees that the content provider then reimburses her for or (2) her ISP

99. *Title II Order*, *supra* note 81, ¶ 451–52. Notably, however, the FCC preserved the ability of private complainants to bring *ex post* challenges to particular broadband rates as "unjust" or "unreasonable." *Id.*

100. *Id.* ¶¶ 136–37 (italics omitted).

101. *Id.* ¶¶ 138–45.

102. Colin Gibbs, *Verizon, AT&T Questioned Over Zero-Rated Data*, FIERCE WIRELESS, (Dec. 2, 2016), <https://www.fiercewireless.com/wireless/verizon-at-t-questioned-over-zero-rated-data> [<https://perma.cc/3QVX-AZZ3>].

negates the overage fees but charges the content provider the same amount behind the scenes (through either a direct or imputed payment). Either way, the consumer receives a discount for her simultaneous purchase of both products. And such bundled discounts are generally procompetitive except in limited circumstances where a firm with substantial market power for one product can use them as a form of predatory pricing to exclude equally efficient providers of the other bundled product.¹⁰³ Absent such market power, bundled discounts pose no competition concerns at all: they are all consumer upside with no competitive downside.¹⁰⁴

In autumn 2016, the FCC's staff, acting at the Chairman's direction, signaled that the agency would forbid many zero-rating arrangements as violations of the "no-unreasonable interference/disadvantage" rule.¹⁰⁵ It criticized such arrangements for encouraging consumers to view the video content zero-rated by a mobile carrier and thus deprived other providers of "a level playing field" when competing for the business of that carrier's mobile customers.¹⁰⁶

This critique is difficult to understand from an economic perspective. Firms across the economy favor their affiliates and business partners over third parties all the time, and the government does not normally require them to give equal treatment to all other firms that might want it. For example, Walmart may preference its house brands over independent brands in terms of price or shelf space, but customers do not have to shop at Walmart; they can take their business to Target or to any other retailer, all of which preference their own house brands. Self-preferencing is generally viewed as an efficient form of product differentiation, at least in the absence of substantial market power.¹⁰⁷ Here, the FCC did *not* predicate its criticism of zero-rating plans on a finding that any of the relevant firms (*e.g.*, AT&T or

103. See, *e.g.*, *Cascade Health Sols. v. PeaceHealth*, 515 F.3d 883 (9th Cir. 2008).

104. See generally Stan J. Liebowitz & Stephen E. Margolis, *Bundles of Joy: The Ubiquity and Efficiency of Bundles in New Technology Markets*, 5 J. COMP. L. & ECON. 1 (2009).

105. See Letter from Jon Wilkins, Chief, FCC Wireless Telecomm. Bureau, to Robert W. Quinn, Jr., Senior Exec. Vice President, External & Legis. Affs., AT&T 1 (Dec. 1, 2016), <https://cdn.arstechnica.net/wp-content/uploads/2016/12/Letter-to-R.-Quinn-12.1.16.pdf> [<https://perma.cc/FUD7-SK7J>]. The staff distinguished between plans that zero-rated all content of a particular type (*e.g.*, music streaming) and those that zero-rated the content of affiliates or designated business partners. It appeared poised to condone the first practice and condemn the second. Notably, the AT&T "sponsored data" program criticized by staff offered third parties the opportunity to purchase zero-rating treatment at the same price at which DirecTV paid AT&T Mobility for it in the form of intra-corporate transfers, but staff dismissed that policy on the ground that such transfers are not equivalent to cash payments between independent third parties. See *id.* at 1–2. That position is questionable as an economic matter, but it is irrelevant to our argument here, which would apply whether or not an ISP offered third parties an opportunity to purchase sponsored data on the same terms as its content affiliate.

106. See *id.*

107. Net neutrality advocates often try to justify freestanding "nondiscrimination" rules on the ground that, without them, smaller firms would find it difficult to enter and grow. But the government does not typically require even dominant firms to accommodate undercapitalized new entrants that wish to compete with them. Instead, apart from programs administered by the Small Business Administration and similar agencies, it normally relies on the capital markets to give new entrants whatever financial resources they need to succeed if their products have commercial promise.

DirecTV) had market power in any relevant market (*i.e.*, mobile broadband or streaming content). Instead, the FCC expressed an essentially non-economic concern that these zero-rating arrangements violated abstract principles of neutrality. But the same could be said of bundled discount programs involving ISPs and their content affiliates, which the FCC had previously endorsed,¹⁰⁸ and which—as discussed—are economically equivalent to zero-rating arrangements and are almost always procompetitive in the absence of substantial market power.

Whatever the economic rationale, the FCC appeared to be taking the first steps towards regulating how ISPs charged consumers for broadband, despite prior assurances in the *Title II Order* that it would steer clear of rate regulation. That development coincided with advocacy for other types of regulation that also would have crossed the line into price regulation. For example, during this period, various consumer groups urged the FCC to restrict or prohibit tiered data plans altogether, effectively forcing ISPs to sell more unlimited-data plans and curbing any usage-sensitive component of retail broadband pricing.¹⁰⁹

c. The emerging prospect of rate regulation by another name, along with the FCC's contemporaneous adoption of ISP-specific consumer privacy rules stricter than the FTC's generally applicable rules,¹¹⁰ portended a major shift in U.S. broadband policy. Unlike the Title I regimes that preceded it, which largely codified existing industry practices, the new Title II regime now appeared likely to interfere with the settled business plans of broadband ISPs for the first time. That prospect was quickly overtaken by electoral events. In 2017, the FCC's new leadership pulled the plug on the zero-rating investigations and acted to restore broadband's prior classification as a Title I service,¹¹¹ while Congress nullified the broadband privacy rules under the Congressional Review Act.¹¹²

This history, however, teaches an enduring lesson about regulatory creep. The *Title II Order* of 2015 did not by its terms prohibit any existing ISP business practices; it adopted open-ended rules that might or might not have led to such prohibitions. Not until the following year did the FCC begin flexing its regulatory muscle to challenge prevailing practices. And when it did so, it appeared to open the door to some forms of rate regulation. Any ISP could reasonably have concluded in the fall of 2016 that this new common

108. See Applications of AT&T Inc. and DIRECTV for Consent to Assign or Transfer Control of Licenses and Authorizations, *Memorandum Opinion and Order*, 30 FCC Rcd. 9131, para. 4 (2015) [hereinafter *AT&T-DirectTV Merger Order*] (“[T]he combined AT&T-DIRECTV will increase competition for bundles of video and broadband, which, in turn, will stimulate lower prices, not only for the Applicants’ bundles, but also for competitors’ bundled products—benefiting consumers and serving the public interest.”).

109. See *Title II Order*, *supra* note 81, ¶ 153, n.373 (citing advocacy and deferring decision on whether to impose restrictions on data caps).

110. See Protecting the Privacy of Customers of Broadband and Other Telecomm. Services, *Report and Order*, 31 FCC Rcd. 13911, para. 36 (2016).

111. See generally *RIF Order*, *supra* note 45.

112. See Pub. L. No. 115-22, 131 Stat. 88 (2017).

carrier regime would evolve in one direction only—towards greater regulatory intervention in the broadband marketplace, including through types of intervention, such as rate regulation, that the *Title II Order* seemed to disclaim.

Of course, sometimes regulation is necessary even if it tends to depress investment incentives on the margin. But any regulatory scheme should reflect an economically informed cost-benefit analysis that accounts for effects on investment incentives, and it needs to contain limiting principles to guard against economically *ill*-informed regulatory creep. The Title II regime fell short in those respects. Net neutrality regulation can be sensible if it is calibrated to prevent either anticompetitive (*i.e.*, welfare-reducing) conduct by dominant firms or conduct that genuinely threatens the Internet's status as an open, externalities-generating platform for communication, expression, and innovation. But the Title II regime applied to all ISPs indiscriminately without regard to market power. It ultimately prohibited conduct (such as zero-rating) that posed no threat to the basic openness of the Internet. And it championed poorly defined “neutrality” and “nondiscrimination” principles that fueled populist rhetoric and regulatory creep but were detached from serious economic analysis.¹¹³ These are forms of regulatory overreach that we hope the FCC will avoid in future administrations.

C. State-Level Economic Regulation

We close this section by briefly noting the need for national consistency in any type of economic regulation for broadband. For decades, and until recently, policymakers of all political stripes agreed that basic decisions about such regulation should be set at the federal level and should not vary by state or locality. That consensus began in the 1970s and 1980s, when the FCC first preempted state regulation of online information services and the last-mile transmission services used to access them.¹¹⁴ And the same consensus has appeared in every FCC order concerning open access and net neutrality, no matter where the order in question came out on the proper level of regulation as a general matter. For example, the relatively pro-regulation *Title II Order* announced the FCC's “firm intention to exercise [its] preemption authority to preclude states from imposing obligations on broadband service that are inconsistent with [its] carefully tailored regulatory scheme,” including any state-level effort to “regulate the rates of broadband Internet access service.”¹¹⁵

For the first time, the consensus favoring national consistency in economic broadband regulation has broken down. That is not because anyone

113. Notably, “Timothy Brennan, the [FCC's] chief economist at the time the [Title II] Order was initially in production . . . called [it] ‘an economics-free zone.’” U.S. Telecom Ass'n v. FCC, 825 F.3d 764 (D.C. Cir. 2016) (Williams, J., dissenting in relevant part).

114. See generally *California v. FCC*, 39 F.3d 919, 931–33 (9th Cir. 1994) (describing FCC preemption decisions under the *Computer Inquiry* rules and upholding FCC preemption of state-level information service regulation, except as to purely “intrastate” services such as legacy voicemail).

115. *Title II Order*, *supra* note 81, at 5804, ¶ 433.

particularly welcomes state-by-state regulatory balkanization, but because critics of the FCC's current deregulatory approach have concluded that greater regulation at the state level is worth the price of such balkanization.¹¹⁶ In our view, that position is short-sighted: if the current federal scheme is too permissive, the solution is to make it less so, not to open the door to 50 different schemes of state-level Internet regulation.

The Internet is designed by its nature to transcend geographic and political boundaries.¹¹⁷ In a variety of contexts, state-by-state regulation would lead to intractable implementation problems. Internet peering agreements offer one instructive example. As discussed in Section III.B.3, the FCC has declined for decades to regulate the terms of interconnection arrangements between ISPs and the Internet's other constituent networks, leaving those arrangements instead to market forces. Now suppose that a state reaches a contrary policy conclusion and decides to regulate interconnection arrangements on a state-level basis for the first time. Would that state-level regulation apply (1) only to interconnection arrangements physically located within the state or (2) to all interconnection arrangements, wherever located, that might affect traffic flows within the state? Under the former approach, the restricted geographic scope of each state's scheme would artificially induce network operators to alter the Internet's physical architecture, not for sound engineering reasons, but simply to avoid (or take advantage of) state-level regulation. But under the latter approach, any state with the most interventionist scheme would effectively set regulatory policy for all states, given that centralized interconnection arrangements can affect traffic flows in many states.

More generally, state-by-state (or locality-by-locality) Internet regulation would likely have one of two consequences: (1) a regime in which industry participants must inefficiently rearrange their operations to conform to the disparate rules of many different states or (2) a regime in which the state or locality with the most interventionist approach sets nationwide policy by default, even if there is a consensus elsewhere that the state's approach is unduly burdensome. Either outcome would be highly undesirable. Again, if federal regulation is inadequate in some respect, the proper remedy is to modify it, not to fill the perceived regulatory gap with a state-by-state hodgepodge.

116. See, e.g., Tom Wheeler, *Opinion: California Will Have an Open Internet*, N.Y. TIMES (Oct. 2, 2019), <https://www.nytimes.com/2019/10/02/opinion/net-neutrality-fcc-wheeler.html> [<https://perma.cc/DB4P-UUD6>].

117. See generally *Am. Booksellers Found. v. Dean*, 342 F.3d 96, 103–04 (2d Cir. 2003) (it is “difficult, if not impossible, for a state to regulate internet activities without ‘project[ing] its legislation into other states,’” and such activities as a categorical matter may thus fall “within the class of subjects that are protected from State regulation because they ‘imperatively demand[] a single uniform rule’”) (alterations in original) (quoting *Healy v. Beer Inst.*, 491 U.S. 324, 334 (1989), and *Cooley v. Bd. of Wardens*, 53 U.S. 299, 319 (1852)).

IV. RECONCILING COMPETITION POLICY WITH SOCIAL EQUITY

As discussed, private enterprise, subject only to light-touch oversight, invested the \$1.7 trillion needed to transform the dial-up “worldwide wait” of the late 1990s into the world-class broadband experience most Americans enjoy today. And private enterprise is on the path to committing another trillion dollars (or more) in at-risk capital to deliver on the promise of ubiquitous gigabit connectivity for the next generation of Internet applications and devices. In this industry, as in most other dynamic markets characterized by substantial investment and innovation, the opportunity to earn profitable returns creates the high-powered incentives needed to produce the most value for the most consumers, efficiently and on a gigantic scale.

But speed, scale, and efficiency do not guarantee equity. Without governmental support, market forces alone will not solve the two greatest policy challenges of the coming decade: boosting (1) greater broadband *adoption* among low-income users, many of whom are priced out of online connectivity,¹¹⁸ and (2) greater broadband *deployment* in sparsely populated areas, where unusually low economies of density can make private investment uneconomical in the absence of subsidies.¹¹⁹ There is nearly universal consensus that the government should intervene to help close these twin digital divides—between rich and poor and between urban and rural. Those divides are more unacceptable than ever precisely because private industry has made the massive investments needed to convert high-speed Internet access from a discretionary luxury for a few into the pervasive communications platform it has become. What the *National Broadband Plan* observed in 2010 is all the more true today: “As more aspects of daily life move online and offline alternatives disappear, the range of choices available to people without broadband narrows. Digital exclusion compounds inequities for historically marginalized groups.”¹²⁰

The question is not *whether* government should intervene to meet these challenges, but *how* it should intervene. As we have discussed, the solution does not lie in rate caps, facilities-sharing obligations, or other forms of economic regulation, which would only make the problem worse by discouraging the private investment needed to expand broadband’s reach. Instead, the way to close America’s broadband gaps is the most obvious and direct one: the use of explicit subsidy programs to (1) reduce monthly broadband bills for low-income subscribers and (2) help broadband providers defray the costs of deployment in rural and other high-cost areas in exchange for commitments to provide specified levels of service in those areas.

The FCC has already laid the groundwork for these solutions by reorienting the focus of its longstanding universal service programs—Lifeline

118. See generally Lifeline & Link Up Reform and Modernization, *Third Report and Order*, 31 FCC Rcd. 3962, para. 5 (2016) [hereinafter *Lifeline Modernization Order*].

119. See Nuechterlein & Weiser, *supra* note 15, at 8–10, 307–14.

120. *National Broadband Plan*, *supra* note 2, at 129.

for low-income consumers and various support mechanisms for rural investment—away from voice telephone service towards broadband.¹²¹ In the long run, however, Congress will need to revise the underlying statutory scheme to meet the challenges of 21st century communications. The existing statutory provisions governing “universal service,” enacted before the advent of residential broadband, were drafted to support affordable dial-tone service by “eligible telecommunications carriers.”¹²² Although the FCC has found creative ways to square the statutory definition of that term with broadband-focused initiatives,¹²³ the language does impose real and arbitrary limits on the FCC’s discretion. For example, it is by no means clear that the FCC could legally extend Lifeline support to anchor institutions, even if doing so is sometimes the most cost-effective means of increasing broadband adoption within low-income communities.¹²⁴ More broadly, closing the digital divide will require not only affordable *services*, but also affordable computing *devices*, along with greater levels of digital literacy in today’s underserved communities.¹²⁵ These challenges, which post-date the telephone-centric “universal service” provisions of the Communications Act, all cry out for new federal legislation.

So, too, do the mechanisms for funding today’s subsidy programs. Most of those programs are underwritten not by general tax revenues, but by mandatory “contributions” from telecommunications providers. These contributions are based on the providers’ “interstate” revenues for specified services (mainly voice and data-transport) and are ultimately passed on to consumers in the form of increasingly bloated universal service fees, which appear as line items on telephone bills.¹²⁶ That system not only poses implementation issues of baroque complexity, but, worse, suppresses marginal demand for the assessed services by raising their effective price to consumers.¹²⁷ Indeed, the “contribution factor” on those services—in effect,

121. See Nuechterlein & Weiser, *supra* note 15, at 307–14 (describing replacement of High Cost Fund with Connect America Fund).

122. 47 U.S.C. § 214(e)(1), (6).

123. See, e.g., *Lifeline Modernization Order*, *supra* note 119, ¶¶ 259–73.

124. See Jonathan Sallet, *Broadband for America’s Future: A Vision for the 2020s*, BENTON INST. FOR BROADBAND & SOC’Y 67 (Oct. 2019), https://www.benton.org/sites/default/files/BBA_full_F5_10.30.pdf [<https://perma.cc/V79J-5XMK>] (explaining that the FCC “not[ed] a question about its legal authority” in 2016 to adopt proposals “to expand [Lifeline Broadband Provider status] . . . to community anchor institutions”).

125. See *id.* at 64–77.

126. See Nuechterlein & Weiser, *supra* note 15, at 316, 321–25. Although in need of reform, today’s contribution scheme is a major improvement over its predecessor. Under the schemes in place before the 1996 Act, incumbent telephone companies were expected to charge some customer groups—particularly business customers and households in metropolitan areas—rates far above the relatively low cost of serving them in order to subsidize below-cost rates for consumers who lived in higher cost areas. That “implicit subsidy” approach was unsustainable once competition emerged and new entrants cherry-picked the urban customers who would otherwise pay above-cost rates to the erstwhile monopolists. See *id.* at 298–300.

127. *Id.* at 316, 321–25.

an excise tax—has now swelled to 31.8%.¹²⁸ Such product-specific assessments might make sense where the government *wishes* to suppress demand, as in the case of taxes on alcohol or tobacco. But they make no sense when the objective is to *increase* demand and output in the communications sector. Congress appears to have recognized this point when it relied on general tax revenues to underwrite the broadband subsidies administered by the Departments of Agriculture and Commerce.¹²⁹ But the most important broadband subsidy programs are those administered by the FCC, and it is time for Congress to replace existing contribution mechanisms for those programs with general tax revenues as well.

Finally, however universal service programs may evolve, policymakers should continue to harmonize them with sound competition policy. Broadband subsidies can raise serious competition policy concerns if they are implemented without competitive neutrality in mind—for example, if they are disbursed to one provider but not to its rivals in the same market. In effect, these subsidies require consumers or taxpayers generally to pay for services most of them do not receive while disadvantaging firms that receive no subsidies and must therefore recover all of their costs from their own actual customers. This competitive bias distorts price signals and impairs market efficiency: a less efficient but subsidized ISP can easily win more business than a more efficient but unsubsidized ISP simply by charging less to its actual customers and forcing other consumers, who are *not* its customers, to make up the difference. That arrangement would also threaten to reduce competition if the downward pricing pressure created by subsidized entry keeps unsubsidized firms from recovering the costs of new investments. Carried to its logical conclusion, such asymmetric subsidies would leave no firms in the market other than the ones that rely most heavily on compulsory subsidies from consumers to whom they are not accountable.

This point may seem obvious, but it sometimes gets lost in policy debates about municipal broadband networks. Such a network can offer invaluable consumer benefits in many circumstances—for example, where it is the only broadband ISP in a market, or where it does not materially rely on taxpayer dollars or other exogenous sources of revenue (such as monopoly electric utility fees) to fund its operations. Concerns can arise, however, when

128 PROPOSED FIRST QUARTER 2021 USF CONTRIBUTION FACTOR, DA 20-1480 (Dec. 14, 2020), <https://docs.fcc.gov/public/attachments/DA-20-1480A1.pdf> (“[T]he proposed universal service contribution factor for the first quarter of 2020 is 0.318 or 31.8 percent.”).

129. See *Reconnect Loan and Grant Program: Program Overview*, U.S. DEP’T OF AGRIC., <https://www.usda.gov/reconnect/program-overview> (last visited Sep. 20, 2020) [<https://perma.cc/VB55-WE24>] (noting that 2018 legislation “appropriated a budget authority of \$600,000,000 to be used on an expedited basis”); *Broadband Technology Opportunities Program (BTOP) Quarterly Program Status Report*, U.S. DEP’T OF COM. 1 (July 2017), https://www.ntia.doc.gov/files/ntia/publications/ntia_btop_33rd_qtrly_report.pdf [<https://perma.cc/92FD-N4TJ>] (noting that the American Recovery and Reinvestment Act of 2009, Pub. L. No. 111-5, “appropriated \$4.7 billion for NTIA to establish BTOP [the Broadband Technology Opportunities Program] to increase broadband access and adoption; provide broadband access, training and support to schools, libraries, healthcare providers, and other organizations; improve broadband access to public safety agencies; and stimulate demand for broadband”).

municipal broadband networks both compete with private ISPs and receive material subsidies that those private ISPs do not. For example, one prominent advocate of “publicly incentivized competition” in “localit[ies] with an existing network” appears to support subsidies for new entrants but not incumbents competing in the same market.¹³⁰ In his view, “what some call ‘overbuilding’ should be called by a more familiar term: ‘Competition.’”¹³¹ In fact, competitively biased subsidy schemes are most aptly described by a different term: “predation.” By shifting a portion of cost-recovery from users to taxpayers, they may create attractively low—*i.e.*, predatory—retail prices in the short term. But over the longer term, they suppress the investment incentives of all unsubsidized competitors and potentially drive them from the market, leaving taxpayers holding the bag.

An analogy helps illustrate the irrationality of such schemes. Suppose that a rural town with a lone country store wants to attract new retailers. But rather than achieving that objective through competitively neutral tax incentives, the town decides to open its own store and starts selling products at below-cost prices subsidized by tax revenues, in competition with the incumbent country store. Such predatory pricing might be politically popular for a time, but eventually the incumbent would close up shop, the government store would be the only retailer in town, and market forces would give way to taxpayer-supported central planning. Policymakers should bear similar concerns in mind when contemplating competitively asymmetric subsidies for municipal broadband systems.

* * *

Broadband policy debates tend to generate more heat than light, and many end in online flame wars. That is unfortunate because the participants usually have similar policy objectives. Almost everyone wants to promote broadband deployment, to see more facilities-based competition, to maintain an open Internet, and to close the digital divides between rich and poor and urban and rural. The debate is instead about the proper means to those ends.

By any meaningful metric, the U.S. broadband market is more vibrant and competitive than most of its foreign counterparts. Not coincidentally, it has become so without the substantial economic regulation that many of those counterparts have implemented. We would continue that light-touch approach and supplement it with limited types of regulatory intervention that survive an economic cost-benefit analysis, such as baseline net neutrality rules and competitively neutral subsidy programs. Perhaps more aggressive forms of economic regulation will someday become warranted. But the burden is on the proponents of such regulation to justify it—not by populist rhetoric, but by a genuine cost-benefit analysis of their own. In particular, they will need to identify a genuine market failure, explain why less interventionist approaches are inadequate to the task, and show that the benefits of their proposed solution outweigh the costs, including the investment-chilling costs

130. Sallet, *supra* note 125, at 32–33.

131. *Id.* at 32.

of regulatory uncertainty and creep. Until then, what Bill Kennard said two decades ago still holds: “We have to get these pipes built. But how do we do it? We let the marketplace do it.”¹³²

132. Kennard, *supra* note 7, at 4.