

# CONVERGENCE AND A CASE FOR BROADBAND RATE REGULATION

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## ABSTRACT

There is an important but underappreciated tension between transmission-layer services and application-layer services in the design of prior telecommunications statutes. These statutes were designed for a different technological era, one where discrete networks served distinct purposes—for example, coaxial cable for television or copper wires for telephony. But these distinct physical networks have since converged into a single multipurpose internet, making nonsense out of some statutory provisions. These rules, conflating applications with transmission services, yield illogical outcomes—including both deregulated monopoly markets and overregulated competitive ones.

One consequence of such persistent, deregulated monopolies is a stubborn digital divide, driven by higher costs for critical transmissions services like broadband carriage. Indeed, this Article's novel study suggests that consumers served by monopoly providers—about 20% of the American population—face substantially higher prices for comparatively worse internet access services. But this data also suggests that broadband rate regulation, where it exists, helps move rates and quality closer to competitive levels.

The next telecommunications statutes must thus better account for the convergence across physical networks, the distinctions between the applications layer and the broadband transmission layer, and the concomitant consequences for competition and regulation. Competition, where it exists (as in many applications markets), should thrive, and regulators should properly refrain from meddling in competitive markets for broadband carriage. Yet Congress and the Commission should protect consumers from monopoly carriers—including, most importantly, broadband carriers. Broadband rate regulation offers one promising path for doing so.

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### I. INTRODUCTION

Our modern media landscape consists of a wide range of video content providers: broadcasters, cable services, and internet-only streaming content providers, among others. Important policymakers and commentators have explained that this competitive marketplace requires a new regulatory infrastructure.<sup>1</sup> Each of these sorts of services currently faces a distinct regulatory regime, giving rise to a distinct set of obligations and privileges.<sup>2</sup> Yet

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1. *See, e.g.*, Ajit V. Pai, Chairman, Fed. Commc’ns Comm’n, Remarks to the Media Institute (Dec. 15, 2020).

2. *See* Promoting Innovation and Competition in the Provision of Multichannel Video Programming Distribution Service, 29 FCC Rcd. 15995 (2014) (Notice of Proposed Rulemaking) [hereinafter 2014 MVPD NPRM].

these services all seem to compete with each other within one market for viewership and revenue, and so, according to some such commentators, we should replace these rules and regulations with unrestrained market competition.

Such conversations about the competitive market for content services and applications have often overlooked conditions in the market for transmission. To access video content (no matter whether local news, live sports, or old sitcoms), that content must be transmitted to viewers—by spectrum or by wire, by a cable system operator or by a broadband carrier.<sup>3</sup> And competition among providers of transmission services has long been an important goal of communications statutes, including the Telecommunications Act of 1996.<sup>4</sup>

The Communications Act of 1934 (the Act) (as amended by the 1996 Act, the Cable Television Consumer Protection and Competition Act of 1992, and the Cable Communications Policy Act of 1984, among other intervening bills), however, has often conflated transmission-related rules with those regarding the services and applications sent over the infrastructure. Title VI of that Act, for example, includes provisions that pertain to both the transmission of cable service as well as the content offered by multichannel video programming distributors. Some provisions, for example, regard the technical standards for transmission over cable wires; other provisions govern the channels and content that cable providers must offer to consumers.<sup>5</sup> Title II similarly includes provisions pertaining to both telephone transmission and service.<sup>6</sup> Viewed in historical context, this structure makes sense, as different physical facilities were once used to transmit different sorts of services—copper wires for telephony, for example, or coaxial cable for television.<sup>7</sup> Hence, such provisions were enacted to address concerns related to monopoly power, on

3. I use the phrase “broadband carrier” (and “broadband carriage”) as I have used it elsewhere, to refer to a company providing broadband internet access services (or such services themselves). *See, e.g.*, Tejas N. Narechania & Erik Stallman, *Internet Federalism*, 34 HARV. J.L. & TECH 547 (2021). I use this terminology because the phrases “broadband carriage” and “broadband carrier” help to clarify and emphasize the core service offered, namely, the transmission—the *carriage*—of data from one internet location to another, regardless of the specific facility used to execute that service. *Cf.* 47 U.S.C. §§ 153(11), (50), (51), (53) (defining carriage).

4. *See, e.g.*, H.R. CONF. REP. 104–458, at 1 (1996) (explaining that the goal of the 1996 Act is to “ope[n] all telecommunications markets to competition”).

5. *Compare, e.g.*, 47 U.S.C. § 544(e) (setting out authority to issue technical standards for cable transmission) with 47 U.S.C. §§ 534–535 (prescribing scope of cable programming).

6. *Compare, e.g.*, 47 U.S.C. § 224 (setting rules for deploying network infrastructure) with 47 U.S.C. § 201 (confering general power to ensure that carrier practices are “just and reasonable”).

7. *See, e.g.*, JONATHAN E. NUECHTERLEIN & PHILIP J. WEISER, DIGITAL CROSSROADS 17 (“For most of the twentieth century, people closely identified . . . these categories of service with a particular medium of transmission.”).

the assumption that (natural) monopoly power in a particular facilities-based transmission market would necessarily imply monopoly power in a related applications market.<sup>8</sup> Title VI, for example, allows for the limited rate regulation of cable service, on the assumption that a monopoly in the market for transmission over cable facilities (i.e., the wired infrastructure) will also give rise to a monopoly over the video programming service (i.e., cable television).<sup>9</sup> In short, these rules provided for monopoly regulation in both transmission and applications markets.

But now various applications—video, voice, music, and teleconferencing, among others—have all converged onto the internet, a single platform mediating varied physical transmission facilities, thereby opening local networks to third-party applications providers.<sup>10</sup> Hence, it is no longer true that monopoly power in a certain transmission market will necessarily yield a monopoly in an associated applications market: Monopoly control over cable facilities still leaves cable television service susceptible, to an important but limited extent, to competition from providers like Hulu and YouTube TV.<sup>11</sup> Cable service providers must compete with streaming video providers along such dimensions as the breadth and quality of available programming.<sup>12</sup> It is this convergence onto the internet, and the concomitant competition, that has precipitated interest, noted *supra*, in reexamining the application-specific rules that apply to, say, cable channels and other video programming services.<sup>13</sup> It often no longer makes sense to subject such services, including their internet-delivered counterparts, to monopoly regulation.<sup>14</sup>

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8. I take no view here on whether local exchange carriers or cable systems are indeed natural monopolies. Rather, I simply mean to point out that such regulation was motivated by a legislative view, sometimes later upended, that such infrastructural platforms were indeed natural monopolies. *See* Narechania & Stallman, *supra* note 3.

For a brief word on transmissions providers that are not facilities-based, see *infra* note 19.

9. *See* 47 U.S.C. § 543(a)(2); *see also infra* notes 30–33, 131–136 (describing this regulatory scheme and its successes).

10. *See, e.g.,* Narechania & Stallman, *supra* note 3 (describing the internet’s interconnectedness across facilities).

11. *See infra* Part II.B.

12. *See, e.g.,* SNL KAGAN, CABLE TV INVESTOR: DEALS & FINANCE, Feb. 21, 2014, at 6–7; *see also* Annual Assessment of the Status of Competition in the Market for the Delivery of Video Programming, 30 FCC Rcd. 3253 ¶¶ 3, 96–100 (2015).

13. *See* Pai, *supra* note 1; *see also* 2014 MVPD NPRM, *supra* note 2, ¶¶ 1–8.

14. I do not, of course, mean to imply that such services should be wholly deregulated. Some regulation of both applications and transmission services is likely warranted no matter the competitive conditions, including, for example, to promote accessibility and to prohibit discrimination, to name only a few obvious examples. *See, e.g.,* 47 U.S.C. § 541(a)(3) (prohibiting income-based redlining); Closed Captioning for Video Programming, 29 FCC

Competition among application-layer providers, however, does not imply competition among transmission-layer providers.<sup>15</sup> The markets, though complementary, are distinct. Hulu and YouTube TV, for example, require but do not provide broadband internet access.<sup>16</sup> Rather, such access hinges on broadband infrastructure. Often, this is the very same infrastructure—the same physical transmission facilities, i.e., the cables, wires, and network components—that delivers cable television.

Moreover, companies that own broadband facilities and offer broadband carriage are frequently local monopolists.<sup>17</sup> Hence, claims that convergence undermines the case for the regulation are true only to a limited extent. They are true for the “intelligence” in the network, the now-competitively offered applications and content services.<sup>18</sup> But they are not true for the many facilities-based transmission services providers that retain their local monopoly, including, most importantly, broadband carriers.<sup>19</sup> Hence, while policymakers have long deregulated application-layer services in view of competition,<sup>20</sup> the vitality of this competition depends on internet access. Broadband internet access is, in many ways, the defining utility of today. Transmission-specific broadband regulation is thus more important than ever, especially where local markets for broadband carriage are controlled by monopoly providers.

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Rcd. 2221 (2014) (promulgating accessibility regulations for various video programming services).

15. *Cf.* *Vance v. Rumsfeld*, 701 F.3d 193, 207 (7th Cir. 2012) (en banc) (Wood., J. concurring) (describing converse fallacy).

16. *See, e.g., Getting Started with Hulu*, HULU, (Jan. 11, 2021), [https://help.hulu.com/s/article/getting-started?language=en\\_US](https://help.hulu.com/s/article/getting-started?language=en_US) (explaining that subscribers need “a supported device and a solid connection”). *See supra* note 3.

17. *See infra* Part III.A; *see also infra* note 19 (describing and setting aside one relatively rare complication to this finding).

18. *See, e.g.,* David P. Reed, Jerome H. Saltzer & David D. Clark, *Commentaries on “Active Networking and End-to-End Arguments,”* 12 IEEE NETWORK 66, 70, (May-June 1998); Mark A. Lemley & Lawrence Lessig, *The End of End-to-End: Preserving the Architecture of the Internet in the Broadband Era*, 48 UCLA L. Rev. 925, 930–31 (2001).

19. For the purposes of this paper, I assume that most transmission services providers are also facilities owners, as is typically the case in U.S. broadband markets. *See, e.g.,* NÜECHTERLEIN & WEISER, *supra* note 7, at 196–97 (explaining that “a broadband subscriber today essentially equates her last-mile transmission provider . . . with her ISP”). Comparatively few markets enable competition among internet service providers over shared facilities. Of course, where there are competing non-facilities-based transmission services providers offering services over monopoly facilities, the economic story becomes more complicated, especially where one of the competing retail options is (or is affiliated with) the facilities owner, thus requiring a close look at the monopoly provider’s wholesale and retail prices and practices. *Cf.* *Pacific Bell Tel. Co. v. LinkLine Commc’ns*, 555 U.S. 438, 442–46, (2009). I set such (comparatively rare) complications to one side for the purposes of this Article.

20. *See, e.g.,* Tejas N. Narechania & Tim Wu, *Sender-Side Transmission Rules for the Internet*, 66 FED. COMM’NS L.J. 467, 470–76 (2014)

In this Article, I make a case for greater transmission-specific regulation, including, especially, rate regulation. I do so even knowing that broadband rate regulation remains something of a taboo in communications policy.<sup>21</sup> I do so because, these atmospherics notwithstanding, the persistence of local monopolies in the provision of broadband internet access, together with concomitant, enduring affordability concerns, suggests a need for some regulatory intervention.<sup>22</sup> Moreover, despite ratesetting's apparent status as a regulatory pariah, the Commission already engages in some—often overlooked and mischaracterized—forms of rate regulation (and service specification) for monopoly broadband carriers. In particular, where the Commission subsidizes broadband facilities and broadband carriage services with federal funds, it imposes rate and service conditions on retail broadband carriage.<sup>23</sup> By highlighting these pre-existing and well-accepted modes of broadband rate regulation, I hope to help reestablish and normalize retail ratesetting as one appropriate regulatory measure among several possibilities.<sup>24</sup>

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21. See, e.g., James B. Speta, *Supervising Discrimination*, 95 MARQUETTE L. REV. 1195, 1197 (2011) (explaining that “virtually no one” calls for broadband rate regulation); see also Jonathan E. Nuechterlein & Howard Shelanski, *Building on What Works*, 73 FED. COMM’NS L.J. 219, 239 (2021) (noting that “the FCC has always expressed opposition to broadband rate regulation”); cf. STEPHEN G. BREYER, *REGULATION AND ITS REFORM* 59, 70 (1982) (summarizing various objections to different forms of ratesetting). *But see infra* note 24 (noting other calls for broadband rate regulation).

22. See *infra* Parts III.A–III.B; see also, e.g., President Joseph R. Biden, Remarks on the American Jobs Plan (Mar. 31, 2021), <https://www.whitehouse.gov/briefing-room/speeches-remarks/2021/03/31/remarks-by-president-biden-on-the-american-jobs-plan/> (“Americans pay too much for Internet service. We’re going to drive down the price for families who have service now, and make it easier for families who don’t have affordable service to be able to get it now.”).

23. See Connect Am. Fund, 26 FCC Rcd. 17663 ¶ 86 (2011) (requiring that subsidized monopoly providers of broadband service meet standards of “reasonable comparability” with competitively-offered service).

24. See 47 U.S.C. § 1302(a) (directing the “[FCC] and each State commission with regulatory jurisdiction over telecommunications services” to use “price cap regulation” to encourage broadband deployment and adoption). While rate regulation has been something of a taboo among telecommunications authorities, see *supra* note 21 and accompanying text, I am far from the first or only scholar to breach this soft custom. See, e.g., Susan P. Crawford, *The Looming Cable Monopoly*, 29 YALE L. & POL’Y REV. 34, 39 (2010) [hereinafter Crawford, *Looming Monopoly*] (advocating in favor of “policies requiring line-sharing at regulated rates”); Susan P. Crawford, *The Communications Crisis in America*, 5 HARV. L. & POL’Y REV. 245, 261–62 (2011) [hereinafter Crawford, *Crisis*]; Gigi B. Sohn, *Keynote Address, Social Justice or Inequality: The Heart of the Net Neutrality Debate*, 80 U. PITT. L. REV. 779, 785 (2019) (contending that the Commission should “ensure affordable Internet access” and arguing that the Commission’s decision to define internet access as an information service, see 47 U.S.C. § 153(24), thus renouncing its powers over providers’ prices, is an abdication of that responsibility); see also Nuechterlein & Shelanski, *supra* note 21 (summarizing some calls for broadband rate regulation by states, policymakers, and commentators). I address some of these proposals in greater depth *infra* notes 139–145 and accompanying text.

Specifically, where Congress and the Commission have countenanced rate regulation for cable television service, they should consider relaxing those rules (which mistake a competitive applications market for a facilities-based monopoly), and they should issue rules targeting broadband carriers (who are often local transmission monopolists). In short, regulators should focus on broadband carriage monopolies.<sup>25</sup>

This Article proceeds in three parts. First, I elaborate on the perils of a statutory scheme that conflates transmission facilities with applications, drawing on the regulatory trail leading to *Massachusetts Department of Telecommunications and Cable v. Federal Communications Commission (MDTC)* as an exemplar.<sup>26</sup> A close look at *MDTC* and the Commission's underlying order reveals how the prevailing statutory regime can both permit application-layer rate regulation in the presence of competition and prevent transmission-layer rate regulation, even under monopoly conditions. Second, I elaborate on the need for greater regulation of the transmission services of facilities-based providers.<sup>27</sup> Specifically, I present the results of a novel study demonstrating that monopoly broadband carriers offer consumers significantly less value, and that existing modes of broadband rate regulation help to move prices and services closer to competitive levels. Finally, I propose a regulatory scheme, including, in Appendix A, a model statute to improve broadband quality and affordability, one that draws from the Commission's prior experience regulating broadband and cable service rates.

## II. EFFECTIVE COMPETITION?

As noted above, policymakers and commentators have sought to pare back the regulatory regime applying to the newly competitive markets for various applications (including, for example, "video programming" services).<sup>28</sup> But the Commission's ability to accomplish such deregulation is constrained by the bounds of the Act's vision, outlining (in this example of video) the limited

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25. *But see supra* note 14 (noting that some regulation of competitive markets may be justified to address, e.g., accessibility- and discrimination-related concerns).

26. *Mass. Dep't of Telecomms. & Cable v. FCC*, 983 F.3d 28 (1st Cir. 2020).

27. I focus intentionally on the effect of these statutory and regulatory errors on transmission markets. Other policymakers and scholars have already well-elaborated the problems of (and possible policy responses to) such errors' effects on applications markets. *See, e.g.,* Pai, *supra* note 1. I agree that some deregulation of these markets is probably warranted, though some of these proposals advocate for more deregulation than is likely desirable or warranted. *See, e.g., supra* note 14 (explaining that, at minimum, rules promoting accessibility and prohibiting discrimination seem appropriate, no matter the competitive conditions). I leave a more complete examination of such issues to future work.

28. *See* 47 U.S.C. § 522 (defining "video programming").

scope of “effective competition.”<sup>29</sup> These calls for deregulation, moreover, have often overlooked effects in complementary transmission markets. The results, in short, are a mess: The Act’s too-limited understanding of “effective competition” can both leave some competitive markets regulated and deregulate monopoly providers of broadband carriage, to significant adverse consumer effects. Stated similarly, the statutory design, which conflates the application and transmission layers, forces the Commission to either regulate a competitive applications market or deregulate a monopoly transmission market.

#### A. COMPETITION AMONG APPLICATIONS

The Act notes an important “preference for competition” among cable service providers, and so permits local authorities to regulate cable service rates only where such services are not subject to “effective competition.”<sup>30</sup> Specifically, the Act sets out four tests, which, if any is satisfied, allow cable service providers to escape local rate regulation—a “low penetration test,” a “competing provider test,” a “municipal provider test,” and, most important for present purposes, a “local exchange carrier test.”<sup>31</sup>

“Local exchange carrier” is telecommunications jargon for a local phone company. Accordingly, the local exchange carrier test asks whether the local phone company competes with the local cable service provider: Does that

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29. See 47 U.S.C. § 543(a)(1)-(2), (l)(1) (prohibiting rate regulation for the provision of cable services if the cable service is subject to effective competition).

30. See 47 U.S.C. §§ 543(a)(2), 522(6).

31. The effective competition test finds its roots in the Cable Communications Policy Act of 1984, which authorized the Commission to “prescribe and make effective regulations which authorize a franchising authority to regulate rates for the provision of basic cable service in circumstances in which a cable system is not subject to effective competition.” See MDTC, 983 F.3d at 31 (quoting the original provision). But this provision proved too broad to address cable rates as prices soared. *Id.* And so, in 1992, Congress clarified the definition of “effective competition,” by setting out three tests to determine if a market was sufficiently competitive. Under the low penetration test, a market is deemed sufficiently competitive if fewer than thirty percent of households in the area subscribe to cable television (no matter the number of competitors in the market). 47 U.S.C. § 543(l)(1)(A). Under the competing provider test, a market is deemed sufficiently competitive if there are two providers in an area, each of which offers service to at least fifty percent of households in that area, and each has a share of at least fifteen percent of the market. Under the municipal provider test, a market is deemed sufficiently competitive if the local government offers cable television service directly to its residents. In 1996, hopeful that competing telephone companies would increasingly invest in high-capacity networks, Congress added a fourth test—the local exchange carrier test. Under that test, a market is deemed sufficiently competitive where “a local exchange carrier or its affiliate” “offers video programming services directly to subscribers by any means (other than direct-to-home satellite services) in the franchise area” “if the video programming services so offered in that area are comparable to the video programming services provided by the unaffiliated cable operator in that area.” 47 U.S.C. § 543(l)(1)(D).



telephone company “offer[] video programming services directly to subscribers by any means”?<sup>32</sup> If so, then such competition obviates the need—and hence preempts the local authority—for cable service rate regulation.<sup>33</sup>

Some phone companies offer competing video programming services. AT&T, for example, launched U-verse in 2006 (since supplanted by AT&T TV).<sup>34</sup> But because such services typically demand significant network investments—for example, replacing low-capacity copper wires with high-capacity fiber optic cable—they have grown somewhat slowly and sporadically. By 2016, telephone-based providers had accrued only about 13 million subscribers (to the roughly 54 million subscribers to cable-system-based providers).<sup>35</sup> But these telephone-company-provided video programming services grew, however slowly, thereby offering competition to the video programming services of the incumbent cable service providers—leading to cable service deregulation in some regions.<sup>36</sup>

Such telephone-based video programming services are not the only competition to cable service. For example, Netflix earned 49 million domestic subscribers to its online streaming service (which launched in 2007) through 2016.<sup>37</sup> Countless other online streaming services have launched, too—Hulu, Sling TV, and YouTube TV, to name only a few.<sup>38</sup> These online streaming services offer a competitive challenge to cable service, as they have led some consumers to “cut the cord” and decline cable service in favor of these internet-delivered alternates, and they have induced some cable service providers to offer a wider range of more compelling programming.<sup>39</sup> But these online streaming services are essentially meaningless to the statute’s “effective competition” test: They neither are offered by a telephone company, nor

32. 47 U.S.C. § 543(l)(1)(D).

33. See, e.g., Tejas N. Narechania, *Machine Learning as Natural Monopoly*, 107 IOWA L. REV. 1543, 1560–63 (2022) (explaining how rate regulation substitutes for competition’s effects in monopoly markets).

34. See *U-verse Timeline*, AT&T, (2008), <https://www.att.com/Common/merger/files/pdf/U-verse%20Timeline41907.pdf>.

35. Annual Assessment of the Status of Competition in the Market for the Delivery of Video Programming, 30 FCC Rcd. 3253 ¶ 2 (2015); see also NÜECHTERLEIN & WEISER, *supra* note 7, at 27.

36. E.g., Coxcom, Inc., 25 FCC Rcd. 2106 (2010); see also Implementation of Section 3 of the Cable Television Consumer Protection and Competition Act of 1992, 33 FCC Rcd. 1268, at Attachment 1 (2018) (noting that the Commission “considers AT&T U-verse as a competing service for the purpose of findings of effective competition”) [hereinafter 2018 Cable Prices Report].

37. See NETFLIX INC., ANNUAL REPORT (FORM 10-K) FOR 2017 at 19.

38. See, e.g., 2014 MVPD NPRM, *supra* note 2, ¶ 13.

39. E.g., Annual Assessment of the Status of Competition in the Market for the Delivery of Video Programming, 30 FCC Rcd. 3253 ¶¶ 3, 96–100 (2015).

satisfy any other test for effective competition, and so none have led to the deregulation of local cable service rates.

B. *MDTC v. FCC*, OR THE COMMISSION'S TWO BAD OPTIONS

Cable service providers thus face growing competition from varied sources. In some locales, telephone companies invested in facilities improvements to offer video programming services over their upgraded networks. Nationwide, new online streaming services began to offer access to video content over existing internet connections.

In 2016, AT&T launched DirecTV Now, a novel service sitting at the intersection of these two classes of competitors.<sup>40</sup> Like U-verse, it is offered by a telephone company (namely, AT&T). But, like Hulu and YouTube TV, DirecTV Now is delivered over an existing internet connection, rather than provisioned over an improved telephone network.

Hence, when Charter filed a novel petition asking the Federal Communications Commission to deregulate cable service rates in view of DirecTV Now—contending that it now faced “effective competition” from a streaming competitor supplied by a local exchange carrier—it forced the Commission to confront deeper questions regarding the sorts of competition that count as “effective” and the nature of Charter’s core service.<sup>41</sup> Is Charter primarily in the business of offering the transmission of programming or the programming itself?<sup>42</sup> And which matters more—competition among video programming services and applications, or competition among transmission services?

Charter (now marketed to consumers under the brand Spectrum) was the sole provider of cable service across a range of communities in Massachusetts. In view of that monopoly, the state regulated Charter’s cable service rates in those locales.<sup>43</sup> In 2018, however, Charter sought to escape the state’s regime, filing a petition with the Commission contending that DirecTV Now effectively competed with its existing cable service, given DirecTV Now’s

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40. See Thomas Gryta, *As AT&T's DirecTV Now Streaming Service Is Unveiled, Watch the Details*, WALL ST. J. (Nov. 28, 2016).

41. See Petition for Determination of Effective Competition In 32 Massachusetts Communities and Kauai, HI (HI0011), 2019 WL 5558896, FCC No. 19-110, (Oct. 25, 2019) [hereinafter Charter Effective Competition Order].

42. This question echoes, of course, in a question that sits at the core of the legal network neutrality debates, namely, whether broadband carriage is primarily an internet transmission service or a transmission service bundled with associated information services. See, e.g., Nat'l Cable & Telecomms. Ass'n v. Brand X Internet Servs., 545 U.S. 967 (2005); see also Mozilla Corp. v. FCC, 940 F.3d 1 (D.C. Cir. 2019); U.S. Telecom Ass'n v. FCC, 825 F.3d 674 (D.C. Cir. 2016).

43. Charter Effective Competition Order, *supra* note 41, ¶ 3.

comparable service quality and the widespread availability of broadband internet access.<sup>44</sup> Other broadband-dependent services (like Hulu and YouTube TV) might also be thought to offer comparable service quality.<sup>45</sup> But DirecTV Now was different in one important—though perhaps accidental—respect: It was owned by a telephone company (AT&T). Hence, now that one of these online competitors, DirecTV Now, finally qualified under the Act’s relatively narrow conception of effective competition (as telephone-company-owned), Charter asked the Commission to at last acknowledge the fact of competition in the modern market for video programming services among cable services (like Charter’s) and online video applications (like Hulu and YouTube TV—and now DirecTV Now).

Massachusetts’s reply, however, drew a starkly different conclusion from the difference between Hulu and YouTube TV on the one hand, and DirecTV Now on the other: If Hulu and YouTube TV don’t count as effective competition, then neither should DirecTV Now.<sup>46</sup> This was because competition among transmission providers—not programming providers—is paramount, and AT&T had not deployed upgraded transmission facilities in these local Massachusetts communities to offer DirecTV Now.<sup>47</sup> Hence, the accident of DirecTV Now’s corporate structure could not, in the state’s view, adequately differentiate this service from the other streaming services that had so far mattered not at all.

Rather, Massachusetts explained that access to these competing video programming services hinged on Charter’s monopoly over local cable facilities. Residents had to buy internet access from Charter before subscribing to

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44. In particular, the statute requires that an exchange carrier “offer” video programming services to subscribers “directly” “by any means.” Charter argued—and the Commission found—that AT&T indeed “offered” this service to its subscribers, that services offered over broadband facilities count as among those offered “by any means,” and that AT&T’s close advertising and billing relationship with subscribers meant that it was offered “directly.” Charter Effective Competition Order, *supra* note 41, ¶¶ 11–12, 16–21; *see also* Mass. Dep’t of Telecomms. & Cable v. FCC, 983 F.3d 28, 33 (1st Cir. 2020).

45. The Commission explains that a competitor offers comparable service if it offers “at least 12 channels of video programming, including at least one channel of non-broadcast service programming.” Charter Effective Competition Order, *supra* note 41, ¶ 13. Hulu’s Live TV service and YouTube TV meet that standard. *See Hulu + Live TV*, HULU, <https://www.hulu.com/live-tv> (last visited Sept. 26, 2022); *YouTubeTV*, YOUTUBE, <https://tv.youtube.com/welcome/> (last visited Sept. 26, 2022).

46. Specifically, Massachusetts contended that “directly” modifies the statutory phrase “by any means,” requiring that the telephone company offer its video programming by some direct means—e.g., telephone facilities—rather than indirectly, over a third-party connection. *See* Brief for MDTC at 24–25, MDTC v. FCC, 983 F.3d 28 (1st Cir. 2020) (No. 19-2282).

47. *See, e.g.*, Charter Effective Competition Order, *supra* note 41, ¶ 18.

DirecTV Now (or Hulu, or YouTube TV).<sup>48</sup> Massachusetts thus suggested that, in view of the 1996 Act's broader purpose in inducing facilities investment and spurring competition among transmissions services providers, the local exchange carrier test for effective competition is best understood as requiring facilities-based competition: Charter's cable service offered over Charter's cable facilities versus AT&T's video programming service offered over AT&T's upgraded telephone network.<sup>49</sup> But Charter's petition, said Massachusetts, asks the Commission to find effective competition in a monopoly market—Charter's cable service offered over Charter's facilities versus Charter's internet service (and a separate subscription to DirecTV Now) offered over Charter's facilities. Market competition is hardly effective if only

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48. *See infra* Part III.A (noting that Charter retains its monopoly status as to broadband carriage, just as with cable service).

49. *See, e.g.*, MDTC's Petition for Rehearing *En Banc* at 8–9, 19–20, MDTC v. FCC, 983 F.3d 28 (1st Cir. 2020) (No. 19-2282).

For evidence that Massachusetts's view better reflects Congress's intent, *see, e.g.*, H.R. Rep. 102-628 (1992) at 43–44 (emphasizing competition among “delivery systems” for video programming); *id.*, at 44 (explaining that “the public interest is served by ... competition” among different facilities operators, and thus aiming to “encourage ... robust competition” from “wireless and private cable systems, cable overbuilds, and [satellite-based providers].”); *see also* 141 Cong. Rec. S8225-01, S8243, 1995 WL 353211 (June 13, 1995) (statement of Sen. Pressler) (emphasizing the capacity of telephone networks to deliver video programming); H.R. Rep. No. 102-862 (1992) (Conf. Rep.) (stating that the “conferees intend that the Commission shall encourage arrangements which promote the development of new technologies providing facilities-based competition to cable and extending programming to areas not served by cable”); Implementation of Sections 12 and 19 of the Cable Television Consumer Protection and Competition Act of 1992: Development of Competition and Diversity in Video Programming Distribution and Carriage, 8 FCC Rcd. 3359, 3384, n.79 (1993) (finding that “[f]acilities-based competition” is a term used in the legislative history of the Act to emphasize that program competition can only become possible if alternative facilities to deliver programming to subscribers are first created. The focus in the 1992 Cable Act is on assuring that facilities-based competition develops”).

against oneself.<sup>50</sup> Indeed, freeing Charter of Massachusetts’s regulations threatened to double prices for some consumers.<sup>51</sup>

In all, both Charter and Massachusetts asked the Commission to reach an unsatisfying and incomplete conclusion. Charter asked the Commission to finally recognize competition among video programming services, cable and online alike—but, in so doing, asked the Commission to ignore its monopoly over the communications facilities necessary to access those services. Massachusetts asked the Commission to recognize Charter’s persistent facilities-based monopoly over certain transmissions services (including broadband carriage)—but, in so doing, asked the Commission to ignore the ever-increasing variety of video programming services beyond cable. In short, the Commission had to choose between subjecting one service in a competitive market to continued regulation and deregulating a monopoly provider of transmission services, all because the statutory design conflates these distinct services.

### C. CONSOLIDATION IN TRANSMISSION

The Commission chose to grant Charter’s petition, deregulating the monopoly provider,<sup>52</sup> and the Commission subsequently granted similar petitions from Comcast and Cox, finding it “irrelevant” that each of “th[os]e incumbent cable operator[s] [was] the only entity providing broadband internet

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50. *But see* FCC, COMMUNICATIONS MARKETPLACE REPORT, GN Docket No. 20-60, 2020 WL 8025117, \*40 ¶ 45 (Dec. 31, 2020) (contending, rather implausibly, that “competitive pressures often have spillover effects across a given provider” such that providers “will tend to treat customers that do not have a competitive choice as if they do”); Restoring Internet Freedom, 33 FCC Rcd. 311, 383–85, ¶¶ 126–27 (2017); *but see also* Mozilla v. FCC, 940 F.3d 1, 58 (D.C. Cir. 2019) (similarly suggesting that consumers in markets “with fewer than two providers,” i.e., markets with only one provider, “may also reap the benefits of competition” because of intrafirm spillover effects). Of course, policymakers have not seen it that way in other contexts. *See, e.g.*, Impact of Consolidation on the Aviation Industry, with a Focus on the Proposed Merger Between Delta Air Lines and Northwest Airlines, Hearing Before the Subcomm. on Aviation of the H. Comm. on Transp. & Infrastructure, 110th Cong. (2008) (statement of James J. O’Connell) (explaining that the Justice Department’s Antitrust Division evaluates the competition effects of airline mergers on the basis of city-pairs (nonstop routes), rather than on a nationwide basis); *see also* Amended Complaint ¶ 31, United States v. Nw. Airlines Corp., No. 98-CV-74611 (E.D. Mich. Dec. 18, 1998). Indeed, the data presented in this Article, *infra* Tables 2–3, suggests that, even within a single locality, broadband carriers offer different prices based on competitive conditions, undermining the Commission’s thesis (which *Mozilla* adopts) of intrafirm spillover effects.

51. *See* Charter Effective Competition Order, *supra* note 41, at \*16 (Rosenworcel, Comm’r, concurring) (“According to the record in this proceeding, some consumers in the states affected by this proceeding can expect that rates for the basic cable service tier will double.”).

52. Charter Effective Competition Order, *supra* note 41, ¶ 29.

access enabling the [competing] streaming service” in its respective footprint.<sup>53</sup> In short, the Commission found that competition among applications, rather than among facilities, mattered more.

Even if the Commission’s choice is a plausibly defensible interpretation of the Act’s bare terms, that choice may seem inconsistent with the Act’s legislative purpose, particularly in view of its adverse social consequences (namely, reducing access to communications facilities by way of higher prices).<sup>54</sup> The U.S. Court of Appeals for the First Circuit affirmed the Commission’s decision, finding, under *Chevron’s* deferential approach, that the Commission reasonably concluded that DirecTV Now is “offer[ed] ... directly to subscribers by any means” by interpreting this text to require only a direct commercial relationship (rather than a direct physical link through, say, an upgraded telephone network).<sup>55</sup> But, as noted *supra*, Massachusetts’s approach to assessing the effectiveness of competition better embodies the purposes of the Communications Act’s 1992 and 1996 amendments, which emphasized facilities-based competition.<sup>56</sup> And so the Commission’s approach may seem unreasonable when viewed through the lens of those amendments’ legislative purposes.<sup>57</sup>

But my present project is not to relitigate Massachusetts’s dispute with Charter. Rather, I aim to more squarely address the conceptual difficulty at the core of the Commission’s conclusion that DirecTV Now competes effectively

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53. See, e.g., Charter Effective Competition Order, *supra* note 41, ¶ 23; Petition of Comcast Cable Commc’ns, LLC for a Determination of Effective Competition in Mass. Communities Listed in Appendix A; Petition of Coxcom, LLC d/b/a Cox Commc’ns for a Determination of Effective Competition in Holland, Mass. (MA0321), 2020 WL 7258817, ¶¶ 11–12 (MB Docket Nos. 19-385, 20-10) (Dec. 7, 2020).

54. See Charter Effective Competition Order, *supra* note 41, at \*15 (Rosenworcel, Comm’r, concurring) (“To the extent that the relief requested in the petition before us fits within the law, then the law, frankly, is showing its age.”); *id.* at \*16 (Starks, Comm’r, concurring).

55. MDTC v. FCC, 983 F.3d 28 (1st Cir. 2020); 47 U.S.C. § 543.

56. See *supra* notes 49, 54 and accompanying text.

57. See *supra* note 49 (suggesting that Massachusetts’s view better models Congress’s intent) and, collectively, *INS v. Cardoza-Fonseca*, 480 U.S. 421, 432 & n.12 (1987) (using legislative intent to determine whether a provision is ambiguous for purposes of *Chevron’s* Step One inquiry); *Barnhart v. Walton*, 535 U.S. 212, 222 (2002) (using legislative intent to determine whether an agency regulation is reasonable for purposes of *Chevron’s* Step Two inquiry). In short, when accounting for legislative intent, the Commission’s interpretation of the Act may seem unreasonable, even under *Chevron*. But see MDTC, 983 F.3d at 34–36 (agreeing with the Commission’s view that a direct commercial (for example, advertising and billing) relationship was sufficient to satisfy the “offer[ed] ... directly” prong of the statute, notwithstanding Massachusetts’s contention that only video programming services offered by “direc[t] ... means” should count); compare *supra* note 44 (describing Charter’s statutory arguments) with *supra* note 46 (describing Massachusetts’s).

with Charter: DirecTV Now may indeed compete with Charter's video programming service, but it also relies on Charter's transmission service, namely, its broadband carriage service. In short, there is some competition in the application layer, but none in the transmission layer. Charter thus controls the price of both competitive options in the applications market, since no matter whether a subscriber in Massachusetts chooses to watch cable or DirecTV Now (or, for that matter, Hulu or YouTube TV), she must pay Charter, either for cable service or for internet service. Hence, in terms of price, Charter's cable service need only compete with its own internet service (combined with the costs of a subscription to an online streaming service).<sup>58</sup> Notwithstanding competition among application-layer video programming services, Charter thus retains significant monopoly power over the relevant transmission facilities. Such monopoly power gives Charter power over both consumers and competitors.<sup>59</sup>

### III. A CASE FOR BROADBAND FACILITIES REGULATION

Charter remains a local monopolist, notwithstanding the Commission's conclusion that it faces effective competition from services like DirecTV Now. I do not mean to suggest that online streaming services do not compete with cable service—they can, as I note above, present a threat to cable television service and induce improvements in cable programming.<sup>60</sup> But where Charter, for example, retains monopoly control over local cable facilities—facilities used to deliver cable television content as well as a wide range of internet-based content (from video to voice and beyond)—it holds significant power to charge supracompetitive rates for internet access service, and thereby also avoid competition to its cable service. In short, Charter can charge high prices for broadband carriage, and this power over these transmission rates also gives

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58. I do not mean to suggest that price competition is entirely apart from quality competition. *Cf. infra* text accompanying note 169 (noting that, consumer welfare may decrease, even when prices fall, if quality falls too). Rather, I simply mean to point out that Charter exerts control over the price-dimension of competition for both sets of competitive options in the market, traditional cable television and internet-enabled video programming applications.

59. I focus in this Article on broadband monopolists' power over consumers. Their power over competitors in adjacent (e.g., applications) markets (through, say, exclusionary behavior) is at issue in other policy debates, including network neutrality debates. *See generally*, Tim Wu, *Network Neutrality, Broadband Discrimination*, 2 J. TELECOMM. & HIGH TECH. L. 141, 142 (2003) (proposing network neutrality protections); *see also* Tim Wu & Christopher S. Yoo, *Keeping the Internet Neutral? Tim Wu and Christopher Yoo Debate*, 59 FED. COMM'NS L.J. 575, (2007) (debating the need for network neutrality protections).

60. *See supra* note 38 and accompanying text (citing Annual Assessment of the Status of Competition in the Market for the Delivery of Video Programming, 30 FCC Rcd. 3253 ¶¶ 3, 96–100 (2015)).

it significant power to escape price competition with online video applications (because these high broadband carriage rates make online video services even more expensive), thereby distorting competition in the applications market.

One longstanding policy response to such monopoly power over communications facilities has been rate regulation.<sup>61</sup> Indeed, broadband rate regulation helps to address the difficulty at the heart of *MDTC* by addressing monopoly power in the transmission market, while leaving alone the competitive market for applications. Ratesetting is a highly-contested policy, raising concerns about capture, depressed investment, information asymmetries, and regulatory failure, among others.<sup>62</sup> But these concerns notwithstanding, rate regulation has proved effective at advancing communications policy's most basic aim—facilitating communication—by increasing connectivity through affordability.<sup>63</sup> By controlling monopoly prices, rate regulation makes communication cheaper across a wide range of contexts.<sup>64</sup> Expanding the reach of these communications systems, moreover, increases the social value of our communications networks through, say, positive network effects. And, as I elaborate below, forms of rate regulation have already proved effective in some broadband contexts. We should thus consider similar solutions to the problems of monopoly control over broadband facilities and the persistent affordability concerns for broadband carriage—concerns that have been thrown into stark relief in the wake of the COVID-19 pandemic.<sup>65</sup>

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61. NUECHTERLEIN & WEISER, *supra* note 7, at 32–33.

62. *See, e.g.*, NUECHTERLEIN & WEISER, *supra* note 7, at 32–35; Nuechterlein & Shelanski, *supra* note 21. I address such concerns *infra* Part IV.B.4.

63. *See, e.g.*, *Turner Broadcasting Sys. v. FCC*, 512 U.S. 622, 663–64 (1994) (describing as “a basic tenet of national communications policy” “the widest possible dissemination of information from diverse and antagonistic sources”); *see also* Susan P. Crawford, *The Internet and the Project of Communications Law*, 55 UCLA L. REV. 359, 364 (2007) (“[T]he highest priority of communications policy should be to facilitate human online communications....”).

64. Recently, for example, the Commission has sought to regulate the rates charged by providers of inmate calling services, both to address the market failures in that market and to improve the affordability of this vitally important communications service. *See, e.g.*, *Global Tel\*Link v. FCC*, 866 F.3d 397 (D.C. Cir. 2017) (reviewing some such regulations). Much commentary—including my own—has focused on the Commission's failure to address rates for intrastate service. *See, e.g.*, Jon Brodtkin, *Ajit Pai Urges States to Cap Prison Phone Rates After He Helped Kill FCC Caps*, ARSTECHNICA (July 21, 2020, 10:49 AM). And so, I should also give credit where it is due: The Commission's efforts to address rates for interstate service have been successful. *See, e.g.*, Jon Brodtkin, *FCC Lowers Some Prison Phone Rates After Blaming States for High Prices*, ARSTECHNICA (Aug. 6, 2020, 12:58 PM) (describing the successes, if partial, of the FCC's regulation of interstate rates charged by providers of inmate calling services providers).

65. *See, e.g.*, Eileen Guo, *The High Price of Broadband Is Keeping People Offline During the Pandemic*, MIT TECH. REV. (Feb. 3, 2021).



## A. BROADBAND MONOPOLISTS

Before I consider questions of monopoly effects and concomitant policy responses, it is worth interrogating the premise of monopoly status: Is, say, Charter a broadband carriage monopolist in those locales where its cable service would be rate regulated (as a cable monopolist) but for the Commission's DirecTV Now decision? It is.

Charter was subject to rate regulation as a cable monopolist in thirty-two Massachusetts communities, home to over a half-million residents.<sup>66</sup> Where a provider is a local cable service monopolist, it is likely also a broadband carriage monopolist. This is due to cable's growing dominance in the market for broadband carriage: "The cable companies' wires [are] capable of transmitting high volumes of video data (such as multiple television channels), and so are comparatively well-suited to transmit high volumes of internet data, too."<sup>67</sup>

Other communications facilities providers are, by contrast, generally less adapted to provide reliable broadband carriage. As noted *supra*, telephone providers have only sporadically upgraded their networks to incorporate high-capacity facilities (for example, those capable of delivering a competing video programming service, or a broadband internet connection), and thus offer reliable broadband carriage in only some locales.<sup>68</sup> Indeed, in some communities, telephone companies such as AT&T have stopped selling broadband carriage altogether.<sup>69</sup> And the Federal Communications Commission has repeatedly explained that satellite- and wireless-based broadband services are not (or, at least, not yet) functional substitutes for fixed wireline services (for example, cable-based internet access).<sup>70</sup>

66. Charter Effective Competition Order, *supra* note 41, ¶ 1.

67. Narechania & Stallman, *supra* note 3 (citing Richard R. Green, *Cable Television Technology Deployment*, in THE UNPREDICTABLE CERTAINTY: INFORMATION INFRASTRUCTURE THROUGH 2000, NAT'L RSCH. COUNCIL COMPUT. SCI. AND TELECOMMS. BD. 263 (1997), <https://www.nap.edu/read/6062/chapter/34#263> [<https://perma.cc/5LA3-5HJV>]).

68. See *supra* note 34–35 and accompanying text.

69. Rob Pegoraro, *AT&T Shelving DSL May Leave Hundreds of Thousands Hanging by a Phone Line*, USA TODAY (Oct. 3, 2020 11:53 AM). Often, a phone company's decision to invest in upgraded facilities is shaped by the existence of other competition. See, e.g., NUECHTERLEIN & WEISER, *supra* note 7, at 26. Such investments may tend to aggravate the digital divide. Locations already served by high-capacity providers are overbuilt, directing available funds for capital investments away from unserved and underserved communities and leading companies such as AT&T to retire service in such communities instead. See Jon Brodtkin, *AT&T Kills DSL, Leaves Tens of Millions of Homes Without Fiber Internet*, ARSTECHNICA (Oct. 5, 2020).

70. In respect to satellite services, the Commission has explained that "[w]hile satellite signal coverage may enable operators to offer services to wide swaths of the country, overall satellite capacity may limit the number of consumers that can actually subscribe to satellite service at any one time." Indeed, the true adoption rate of satellite internet access service, as

A detailed examination of the Commission's broadband competition data regarding Charter's formerly rate-regulated footprint helps to confirm the view that cable service monopolists are typically also broadband monopolists. As Table 1 demonstrates,<sup>71</sup> about 502,000 out of the approximately 512,000 residents in the thirty-two formerly rate-regulated communities have only one

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compared against all comparable internet access subscriptions, is about 1% (notwithstanding coverage that spans over 99% of the nation). *See, e.g.*, FCC, FOURTEENTH BROADBAND DEPLOYMENT REPORT (2021) ¶ 27 n. 121 (noting that the FCC's data shows the "adoption rate for satellite services (residential subscriptions divided by deployed households) for 10/1 Mbps [to be] 1%" (citation omitted)); *see also* Nilay Patel, *Starlink Review: Broadband Dreams Fall To Earth*, THE VERGE (May 14, 2021 10:00 AM EDT) (describing "Starlink, a new satellite internet service from SpaceX," as a "beta product that is unreliable, inconsistent, and foiled by even the merest suggestion of trees"). Moreover, this figure may be close to the ceiling for a satellite-based broadband service. Leading industry analysts have found that, given Starlink's "available capacity and anticipated usage," the service can likely accommodate between "300,000 to 800,000 households, or less than 1% of the US market." Even accounting for "aggressive assumptions" on future expansion, the service could expand to only "6 million customers" or about 5.7% of the total existing market for fixed broadband subscriptions. *See* Jeff Baumgartner, *Starlink's Threat To Wired Broadband 'Minimal'—Analyst*, LIGHT READING (Apr. 5, 2021), <https://www.lightreading.com/satellite/starlinks-threat-to-wired-broadband-minimal—analyst-/d/d-id/768528> (citing Craig Moffett's analysis); *see also* FCC, COMMC'NS MARKETPLACE REPORT, GN Docket No. 20-60, 2020 WL 8025117, \*37 Fig. II.B.8 (2020) (estimating 104.68 million fixed residential broadband subscriptions).

In respect to wireless broadband, the Commission has suggested that the availability of fixed wireless broadband service, when accounting for capacity, is—like satellite service—overstated. *See, e.g.*, FCC, FOURTEENTH BROADBAND DEPLOYMENT REPORT (2021) ¶ 28 & n. 123 (finding that, though fixed wireless services appear to be "widely available," "the adoption rate for fixed wireless services of at least 10/1 Mbps was 2%," and so concluding that the deployment data may overstate the availability of fixed wireless broadband carriage); *see also* NAT'L TELECOMMS. INFO. ADMIN, NOTICE OF FUNDING OPPORTUNITY—BROADBAND EQUITY, ACCESS, AND DEPLOYMENT PROGRAM, <https://www.internetforall.gov/program/broadband-equity-access-and-deployment-bead-program> (last visited Sept. 26, 2022) (classifying only some fixed wireless providers as a "reliable broadband service," namely, drawing a distinction between services that use licensed spectrum and those that use only unlicensed spectrum); *Charter, Like Comcast, See Sputtering Broadband Growth* COMMC'NS DAILY (Aug. 1, 2022) (explaining that fixed wireline providers consider competition from fixed wireless services to be "relatively small" and unlikely to "have a big impact"). And the Commission has repeatedly determined that "fixed and mobile services are not full substitutes" but rather that "users generally treat fixed and mobile services as complements rather than substitutes," particularly in light of the vast differences in capacity allowances (i.e., data caps) between the services. *See, e.g.*, FCC, FOURTEENTH BROADBAND DEPLOYMENT REPORT (2021) ¶ 10–11.

I concur with the Commission's assessment that these services are not yet functional substitutes for fixed wireline broadband carriage, though I consider the possibility that they may eventually evolve to become competitive substitutes *infra* Part IV.B.3 and Appendix A.

71. I describe the data collection methods underlying Table 1 (as well as the Table's asterisk notations) in Appendix B.

option for broadband internet access—Charter.<sup>72</sup> About 1,000 are unserved entirely. Fewer than 9,000—less than two percent—can choose from multiple providers (and this likely overstates competition, as the Commission’s data is widely understood to be systematically overinclusive).<sup>73</sup>

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72. Here and throughout, I focus on fixed wireline providers. *See supra* note 70 and accompanying text. The Commission has taken an inconsistent approach to its treatment of satellite-based broadband services in its presentations of broadband-related data. In its congressionally mandated broadband deployment reports, the Commission has excluded satellite services from its analysis, reasoning that capacity constraints sharply limit the number of subscribers that such services may actually support. *See, e.g.*, FCC, FOURTEENTH BROADBAND DEPLOYMENT REPORT (2021) ¶ 50–51 & n. 148. But in other reports, the Commission has—largely without explanation—included satellite-based services. *See, e.g.*, FCC, WIRELINE COMPETITION BUREAU, INDUSTRY ANALYSIS AND TECHNOLOGY DIVISION, INTERNET ACCESS SERVICES: STATUS AS OF DECEMBER 31, 2018 (Sept. 2020) at 6 fig. 4. It seems that this is a relatively recent change in the Commission’s practice: In an analogous report issued in November 2018, the Wireline Competition Bureau seems to have excluded such data from its calculations. FCC, WIRELINE COMPETITION BUREAU, INDUSTRY ANALYSIS AND TECHNOLOGY DIVISION, INTERNET ACCESS SERVICES: STATUS AS OF JUNE 30, 2017 (2018) at 6 fig. 4. I follow the Commission’s reasoned practice of excluding satellite data from such tabulations, declining to adopt its more recent and unreasoned shift in selected reports.

73. *See generally* David Major, Ross Teixeira & Jonathan Mayer, No WAN’s Land: Mapping U.S. Broadband Coverage with Millions of Address Queries to ISPs, IMC 2020 - PROCEEDINGS OF THE 2020 ACM INTERNET MEASUREMENT CONFERENCE 393. If any one household in a census block is served by a provider, then the Commission counts the entire block as served by that provider, causing the Commission to overstate coverage. *See* FCC, FOURTEENTH BROADBAND DEPLOYMENT REPORT (2021) ¶ 22. Moreover, if two providers serve a single census block, that block is marked as competitive, even if the two providers do not compete to serve any given address within the census block (for example, if Provider 1 serves only the northern half of the block while Provider 2 serves only the southern half). *See* Michelle Andrews, Katie Kienbaum, Christopher Mitchell, Ny Ony Razafindrabe, H. Trostle, PROFILES OF MONOPOLY: BIG CABLE AND TELECOM (Aug. 2020) 3, [https://ilsr.org/wp-content/uploads/2020/08/2020\\_08\\_Profiles-of-Monopoly.pdf](https://ilsr.org/wp-content/uploads/2020/08/2020_08_Profiles-of-Monopoly.pdf).

**Table 1: Available Broadband Service for Residents in Charter's Formerly Regulated Footprint**

<u>Community</u>	<u>No Service</u> (Population)	<u>Monopoly Service</u> (Population)	<u>Competitive Service</u> (Population)
Auburn	5	15,659	375
Belchertown	18	15,478	470
Brimfield	2	3,529	78
Brookfield	4	3,366	15
Charlton	-	12,719	105
Chicopee	12	53,282	849
Dalton	-	6,276	378
Dudley	-	10,520	33
East Brookfield	-	2,183	-
East Longmeadow	7	14,707	563
Easthampton	-	4,496	309
Hadley	3	4,697	385
Hampden	11	5,035	-
Harvard*	2	4,996	230
Holden	10	16,476	721
Lee	-	5,739	43
Lenox	-	4,588	180
Ludlow	2	19,457	412
Paxton	2	4,289	-
Pepperell	2	11,297	189
Pittsfield	-	43,185	368
Richmond**	638	1,778	-
Southampton	-	5,792	-
Spencer	10	11,606	-
Stockbridge	-	1,808	-
Sturbridge	-	9,246	10
Upton	44	6,249	1,241
Uxbridge	-	13,356	49
West Boylston	-	6,361	-
West Brookfield	2	3,356	185
Wilbraham	4	13,944	11
Worcester	40	167,128	1,725
<b>TOTAL</b>	<b>818</b>	<b>502,598</b>	<b>8,924</b>

Such results are not limited to Charter. As noted above, shortly after the Commission agreed to deregulate Charter in view of DirecTV Now, it granted similar petitions from Comcast and Cox.<sup>74</sup> Here, too, we see that most residents must obtain broadband carriage through a local monopoly provider.<sup>75</sup> Comcast's formerly regulated footprint encompasses nearly two million residents, of which less than five percent enjoy the benefits of competition (concentrated primarily in Concord and Westfield, Massachusetts). Salem, meanwhile, is haunted by monopoly service: Only 53 (out of over 39,000) residents can choose from more than one broadband provider. Likewise, 94 percent of Cambridge residents have only one choice for broadband carriage. And in Cox's formerly regulated territory of Holland, Massachusetts, 93 percent of residents have only one available provider.

Broadband monopolies, moreover, are widespread, ranging far beyond the subset of communities across Massachusetts examined in detail above. Charter, for example, was (before its DirecTV Now petition) deemed a cable monopolist not only in Massachusetts, but in parts of Hawai'i as well—and so it is quite likely a broadband monopolist there, too.<sup>76</sup>

Generally, the Commission's broadband deployment estimates, which, as noted, tend to overstate competition, suggest that about 20 percent of the nation's population is served by a broadband monopolist.<sup>77</sup> Other estimates

74. See, e.g., Charter Effective Competition Order, *supra* note 43, ¶ 23; *Petition of Comcast Cable Communications, LLC for a Determination of Effective Competition in Massachusetts Communities Listed in Appendix A*; *Petition of Coxcom, LLC d/b/a Cox Communications for a Determination of Effective Competition in Holland, Massachusetts (MA0321)*, 2020 WL 7258817, ¶¶ 11–12 (MB Docket Nos. 19-385, 20-10) (Dec. 7, 2020) (Memorandum Opinion & Order) (finding it “irrelevant” that each of “th[os]e incumbent cable operator[s] [are] the only entity providing broadband internet access enabling the [competing] streaming service” in their respective footprints).

75. See *infra* Tables 4–5. But see *supra* note 73 (explaining how the Commission's broadband deployment estimates tend to systematically overstate coverage).

76. See Charter Effective Competition Order, *supra* note 41.

77. See, e.g., FCC, COMMUNICATIONS MARKETPLACE REPORT, GN Docket No. 20-60, 2020 WL 8025117, \*45 Fig. II.B.23 (2020) (estimating that 21.9% of the population is monopoly served (using the Commission's metric for broadband service)); see also FCC, WIRELINE COMPETITION BUREAU, INDUSTRY ANALYSIS AND TECHNOLOGY DIVISION, INTERNET ACCESS SERVICES: STATUS AS OF JUNE 30, 2017 (2018) at 6 fig. 4 (noting that 18 percent of inhabited census blocks are served by only one provider at broadband levels (excluding satellite providers)). I cite the Commission's 2018 release of this report in favor of the 2020 release of this report because of the unreasoned methodological changes to the Commission's analysis presented in its more recent version. See *supra* note 73.

Notably, the Commission's 2018 finding that the percentage of the monopoly-served population is greater than the percentage of the monopoly-served census blocks may suggest that monopoly service is a problem that extends beyond rural or other comparatively sparsely populated areas. See, e.g., Eduardo Porter, A Rural-Urban Broadband Divide, but Not the One You Think Of, N.Y. TIMES (June 1, 2021) (describing and challenging the longstanding

are more pessimistic, some suggesting that over 80 million Americans must turn to a monopolist for broadband carriage. Others, defining broadband somewhat more narrowly, find that over two-thirds of Americans “don’t have the option to switch to a second high-speed provider.”<sup>78</sup> Indeed, out of the approximately 30,000 communities served by cable television providers (and recall that cable television monopolists are likely broadband monopolists, too), as many as two-thirds, encompassing over half of all cable subscribers, were never found have an effective facilities-based competitor.<sup>79</sup> And this after two decades of policies aimed at boosting facilities-based competition in local cable markets. In short, notwithstanding the ever-increasing competition among application-layer services, there is a persistent and widespread problem of local

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assumption that rural communities are underserved, and highlighting access and affordability gaps in more densely-populated urban areas); John Hendel, Not-So-Remote Areas with Internet ‘Black Holes’ Renew Fight for Broadband, POLITICO (June 3, 2021) (explaining that though “[m]any people assume that America’s broadband problem is focused on far-flung areas,” in fact “the problem is also acute in . . . medium-sized cities” and in the “suburbs of cities like Philadelphia and Baltimore”).

78. See, respectively, Katie Kienbaum & Christopher Mitchell, *Report: Most Americans Have No Real Choice in Internet Providers*, (Aug. 12, 2020), <https://ilsr.org/report-most-americans-have-no-real-choice-in-internet-providers/> and Inti Pacheco & Shalini Ramachandran, *Do You Pay Too Much for Internet Service? See How Your Bill Compares*, WALL ST. J. (Dec. 24, 2019 10:00am ET), <https://www.wsj.com/articles/do-you-pay-too-much-for-internet-service-see-how-your-bill-compares-11577199600> (finding “that 68% of households in [its sample] don’t have the option to switch to a second high-speed provider,” where high speed providers are defined to encompass cable- and fiber-based providers while excluding DSL providers); see also JOHN BUSBY, JULIA TANBERK & TYLER COOPER, BROADBANDNOW RESEARCH, BROADBANDNOW ESTIMATES AVAILABILITY FOR ALL 50 STATES; CONFIRMS THAT MORE THAN 42 MILLION AMERICANS DO NOT HAVE ACCESS TO BROADBAND (May 5, 2021) (suggesting that the Commission overstates broadband availability by at least 6.5%); John Kahan, Chief Data Analytics Officer, Microsoft Corp., *It’s Time For a New Approach for Mapping Broadband Data to Better Serve Americans*, MICROSOFT BLOG (Apr. 8, 2019); Russell Brandom and William Joel, *This Is a Map of America’s Broadband Problem*, THE VERGE (May 21, 2021).

79. See 2018 Cable Prices Report, *supra* note 36, at Attachment 1. *But see* NATOA v. FCC, 862 F.3d 18 (D.C. Cir. 2017) (affirming the Commission’s decision to employ a rebuttable presumption that cable providers in all communities are subject to effective competition); Concerning Effective Competition, 80 Fed. Reg. 38001 (July 2, 2015) (explaining the decision to create such a rebuttable presumption by reasoning that the Commission had granted nearly all the petitions for effective competition it received, and speculating that no petitions were filed in many communities where competition existed because “the cable operator ha[d] not found it worthwhile to undertake the expense of filing an Effective Competition petition, perhaps because the vast majority of franchising authorities have chosen not to regulate rates”). That new rebuttable presumption, however, is based on the availability of satellite-based video programming services. See, e.g., NATOA, 862 F.3d 18 at 22–23. As I explain above, satellite-based broadband carriage—even if it were coterminous with satellite-based video programming services—is not a competitive substitute for fixed wireline broadband carriage. See *supra* note 70.

monopoly power in the most important modern transmission-layer service—broadband carriage.

## B. BROADBAND MONOPOLY EFFECTS

So what? What exactly does it mean that at least 60 million Americans (and perhaps many more) face a broadband Hobson’s choice: the local monopolist, or nothing at all?

### 1. *Broadband Monopoly Pricing*

The theoretical price effects of monopoly service provision are well-trod. A monopolist faces no price or quality competition, and so is likely to charge a profit-maximizing price—a price that not only has significant welfare-depressing effects (through deadweight loss), but that may also yield distributive harms (as a regressive wealth transfer, especially for price-inelastic services such as broadband carriage).<sup>80</sup> In short, monopolists charge too much.

Evidence confirms the existence of this price effect in various local broadband carriage markets.<sup>81</sup> For example, the Wall Street Journal found, in a notable study, that Comcast charges twelve percent less in regions where it is subject to broadband competition.<sup>82</sup> And while the Wall Street Journal’s study is impressive in its breadth (encompassing a sample of nearly 2,700 retail

80. For the welfare effects of deadweight loss, see, for example, W. Kip Viscusi, Joseph E. Harrington, Jr. & John M. Vernon, *ECONOMICS OF REGULATION AND ANTITRUST* 82–84 (4th ed. 2005). For distributive effects of monopoly pricing, see, for example, Clark C. Havighurst & Barak D. Richman, *Who Pays? Who Benefits? Distributive Injustice(s) in American Health Care*, 69 *LAW & CONTEMP. PROBS.* 7, 38 (2006) (explaining that a consequence of “monopoly pricing” is the “regressive redistribution of income from consumers to producers”) And for the price-inelasticity of broadband, see, for example, NTCA, *EXPERT REPORT OF MICHAEL A. WILLIAMS & WEI ZHAO*, ¶¶ 71, 74 (May 7, 2020) <https://www.ntca.org/sites/default/files/documents/2020-05/2020-05-07%20-%20Williams-Zhao%20report%20Final.pdf>.

81. Broadband carriage markets are local. See Narechania & Stallman, *supra* note 3, at 603–04 (citing Applications of Comcast Corp. and Time Warner Cable, Inc. for Consent Pursuant to Section 214 of the Communications Act, as Amended, to Transfer Control of Subsidiaries of Time Warner Cable Inc., MB Docket No. 14-57, Joint Application of Time Warner Cable Inc. and Comcast Corporation, MB Docket No. 14-57, Apr. 8, 2014, ¶ 158; In the Matter of Applications of Comcast Corp. and Time Warner Cable, Inc. for Consent to Transfer Control of Subsidiaries of Time Warner Cable Inc., MB Docket No. 14-57, Opposition to Petitions to Deny and Response to Comments, Sep. 23, 2014, at 116 (explaining “[b]roadband service is sold on a local basis” and “the correct geographic market for broadband services is local, not national or even regional[.]”); In the Matter of Applications of Charter Communications, Inc., Time Warner Cable Inc., and Advance/Newhouse Partnership for Consent to the Transfer of Control of Licenses and Authorizations, MB Docket No. 15-149, Opposition to Petitions to Deny and Response to Comments, Nov. 2, 2015, ¶ 32 (explaining that “[t]his consumer market is, of course, local because each consumer selects from options available at his or her location.”)).

82. Pacheco & Ramachandran, *supra* note 78.

bills), these analyses combine a wide range of locales—from Michigan to Massachusetts—before comparing prices across competitive conditions. The Commission has suggested that it can be difficult to systematically compare broadband carriage prices in this way, given the range in deployment costs across geographies.<sup>83</sup> But we can nevertheless get a sense of the effects of competition by comparing the rates charged and service quality offered by a single provider across geographically concentrated sets of locales.<sup>84</sup> My such study, elaborated below, reports similar findings: Monopolists charge more.<sup>85</sup>

Using the Commission's data on broadband deployment, we can identify sets of reasonably proximate locales that are similar in salient respects except one—competitive conditions. Across such locales in neighboring California towns, for example, AT&T offers only one package, priced at \$45 per month for the first twelve months (and \$55 per month thereafter). But the service quality offered at this rate varies widely: Where AT&T is the only provider, that package offers, on average, download speeds of about 15 mbps—a service standard that falls below the Commission's 25 mbps benchmark for broadband. Nearby, where AT&T faces competition, that package yields average download speeds that are more than three times faster—50 mbps. Frontier's California offerings follow a similar pattern. Where Frontier is the sole provider, consumers pay about \$3.75 per mbps in download speeds. Faced with competition, Frontier charges consumers significantly less—approximately \$1.00—for similar service.<sup>86</sup>

We see similar results for these providers even within a single community in Georgia. AT&T both operates as a monopolist and faces competition across

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83. *See, e.g.*, International Broadband Data Report, 33 FCC Rcd. 978, Appendix C ¶¶ 7–8 (2018) ; *cf.* Narechania & Stallman, *supra* note 3 (describing how access network deployment varies across geographies).

84. Appendix B describes the data collection methods underlying these results in more detail.

85. Another study has uncovered results similar to those presented below, but for a provider not included in my data sample—Charter. That study, which examines prices in Rochester, NY, found that though Charter purported to offer standard prices nationwide, it offered discounts on those standard prices that varied substantially by competitive conditions. *See* Jon Brodtkin, *Charter Charges More Money for Slower Internet on Streets with No Competition*, ARSTECHNICA (May 27, 2021 1:32 PM), [https://arstechnica.com/tech-policy/2021/05/charter-charges-more-money-for-slower-internet-on-streets-with-no-competition/?utm\\_brand=arstechnica](https://arstechnica.com/tech-policy/2021/05/charter-charges-more-money-for-slower-internet-on-streets-with-no-competition/?utm_brand=arstechnica).

86. Moreover, Frontier explains that the advertised monthly prices are subject to change after a 12-month promotional period—but declines to provide additional detail on pricing. I asked a research assistant to investigate further, but Frontier's customer service representative told the research assistant that she'd have to perform a credit check before offering additional information about rates and services. I told the research assistant to avoid that process, and I also avoided a seemingly needless credit check in order to obtain post-promotional rate information



varying census blocks in Watkinsville, a town of about 3,000. Where AT&T is a monopolist, it offers 5 mbps download speeds for \$55 per month. But four minutes away, where AT&T competes with Charter, it sells a 100 mbps service at the same price. Likewise, in Fairmount (Population: 900), monopoly-served customers pay Frontier \$3.75 per mbps in download speeds; less than two miles to the south, where Frontier competes with AT&T and Comcast, residents pay only \$0.48 per mbps.

These patterns remain consistent within communities in other states, too. Consider two residential addresses located less than a mile apart in Flagstaff, Arizona: where CenturyLink is a monopolist, consumers pay \$49 per month for 1.5 mbps download speeds; where CenturyLink faces competition, consumers pay the same price for download speeds of 40 mbps—more than 26 times as fast. Likewise, in Port Angeles, a coastal town northwest of the Seattle-Tacoma metropolitan area, CenturyLink offers a single package, sold at \$49 per month (a rate that includes discounts, perhaps ironic, for online orders). Where CenturyLink is the only provider, the \$49 package offers, on average, download speeds of up to 12 mbps; where CenturyLink faces competition, the \$49 package offers average download speeds more than twice as fast—30 mbps.

There is, to be sure, some variability in these findings. In Minnesota, for example, competition seems to have a somewhat muted effect on the quality of local broadband carriage. Where Frontier is a local transmission monopolist, consumers receive, on average, speeds of 12 mbps for a monthly price of \$44.99; where Frontier faces competition, consumers fare only slightly better with speeds of 20 mbps for the same price.<sup>87</sup>

I could go on. Table 2, and Figures 1 and 2, summarize all these findings.<sup>88</sup> And for consistency's sake, Table 2 compares service by monopoly providers with service by providers facing competition using a “broadband carriage

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87. It is possible that Frontier *advertises* higher speeds in competitive markets, without respect to whether it can actually deliver on those advertised promises. Mike Hughlett, *Frontier Communications Settles with Minnesota, Agrees to \$10M Upgrade To Broadband Network*, Minn. Star Tribune (July 14, 2020) (reporting Frontier agreed to settle claims that it failed to deliver on advertised broadband speeds for \$10 million); *see also* Complaint ¶ 61, *FTC v. Frontier Commc'ns*, No. 21-CV-04155 (C.D. Cal. May 19, 2021) (No. 1) (alleging that “Frontier has in numerous instances advertised, marketed, offered, or sold DSL Internet service at tiers corresponding to speeds that Frontier did not, and often could not, provide to consumers”).

88. I describe the data collection methods underlying Table 2 in Appendix B. Note that the horizontal axis in Figure 1 is truncated for readability. Truncated axes are sometimes used to misleadingly present data; for example, to exaggerate an otherwise minor change. Here, however, the truncated axis is used simply for readability purposes. My analysis does not depend on highlighting any one difference among the geographies studied and, in any event, highlights the significant difference between AT&T's service in competitive region in Georgia from the other studied locales.

value” metric, measured as average download speed per dollar.<sup>89</sup> Specifically, Table 2 reports the average broadband carriage value for packages offered within the specified communities at monopoly-served locales and at distinct competitively served locales. As I elaborate in Appendix B, which describes the data and methods underlying the findings presented throughout this Article, these prices generally exclude short-term (usually twelve-month) promotional discounts, and hence are based on monthly post-promotion prices, where such prices were available.<sup>90</sup>

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89. This measure is similar to a metric used by one of the broadband industry’s leading trade associations. See NCTA - The Internet & Television Association, *Setting the Record Straight About Broadband Pricing* (May 11, 2021), <https://perma.cc/M6ZJ-AUCQ> (comparing broadband service across locales by normalizing to a “quality-adjusted Price per Megabit per second” basis, whereas my results are reported as the inverse of that measure (i.e., mbps per dollar)).

90. See *supra* note 86 (explaining how one provider obfuscated post-promotion prices).

Table 2: Broadband Carriage Value (Download Speed Per Dollar)

<u>State</u> (Provider)	<u>Unregulated</u> <u>Monopoly</u> (Communities Surveyed)	<u>Competition</u> ( <u>Communities</u> <u>Surveyed</u> )
Arizona (CenturyLink)	0.05 mbps / \$ (Flagstaff)	0.61 mbps / \$ (Flagstaff)
Arizona (Frontier)	0.20 mbps / \$ (Snowflake)	0.56 mbps / \$ (Snowflake)
California (AT&T)	0.28 mbps / \$ (Julian, Ramona)	0.91 mbps / \$ (Ramona)
California (Frontier)	0.27 mbps / \$ (Inyokern, Ridgecrest)	1.16 mbps / \$ (Inyokern)
Georgia (AT&T)	0.33 mbps / \$ (Bishop, Watkinsville)	6.31 mbps / \$ (Watkinsville)
Georgia (Frontier)	0.31 mbps / \$ (Fairmount, Ranger)	1.38 mbps / \$ (Fairmount, Ranger)
Minnesota (CenturyLink)	0.22 mbps / \$ (Cannon City, Faribault)	1.22 mbps / \$ (Faribault)
Minnesota (Frontier)	0.27 mbps / \$ (Green Isle, Henderson)	0.45 mbps / \$ (Henderson)
Montana (CenturyLink)	0.24 mbps / \$ (Bozeman)	1.43 mbps / \$ (Bozeman)
Montana (Ziply [formerly Frontier])	0.38 mbps / \$ (Troy)	0.61 mbps / \$ (Troy)
New York (Frontier)	0.30 mbps / \$ (Hemlock)	0.56 mbps / \$ (Hemlock)
New York (Windstream)	0.05 mbps / \$ (Kennedy)	1.12 mbps / \$ (Kennedy)
Washington (CenturyLink)	0.24 mbps / \$ (Port Angeles)	0.61 mbps / \$ (Port Angeles)
Washington (Ziply [formerly Frontier])	0.50 mbps / \$ (Kennewick)	1.37 mbps / \$ (Kennewick)
<u>Average</u> (across Geographies and Providers)	<b>0.26 mbps / \$</b>	<b>1.31 mbps / \$</b>

Figure 1: Broadband Carriage Value (Download Speed Per Dollar)

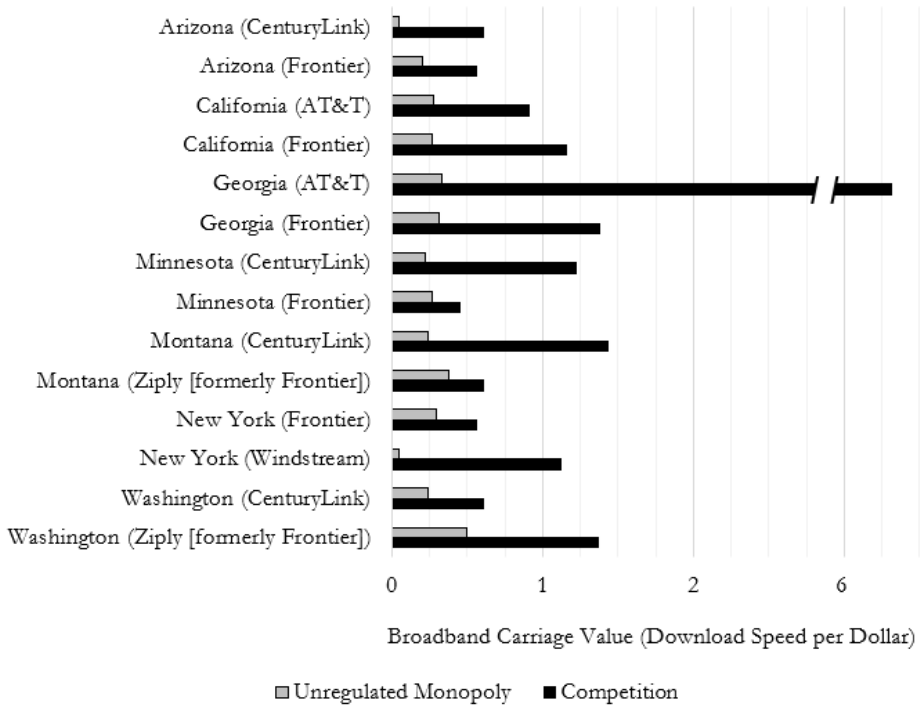
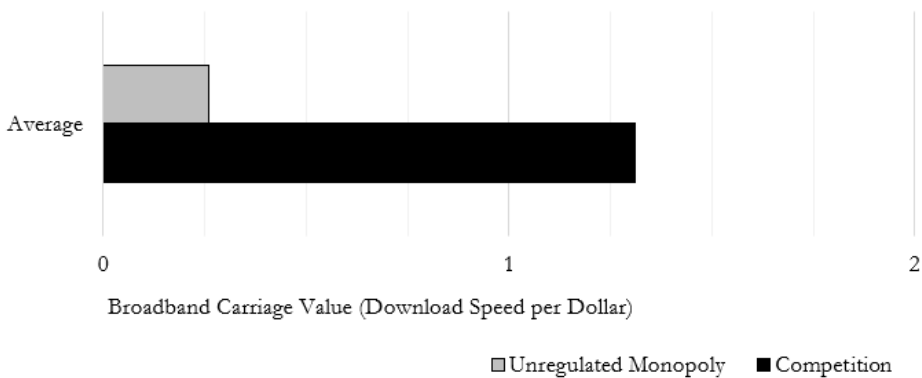


Figure 2: Broadband Carriage Value (Download Speed Per Dollar)



## 2. *On the Downstream Effects of Broadband Monopoly Pricing*

Such monopoly-informed price and service quality effects give rise to concrete implications for the millions of Americans who lack access to a competitive market for broadband carriage. One effect of this monopoly pricing is the loss of billions of dollars in consumer value.<sup>91</sup> But the consequences of these persistent carriage monopolies extend far beyond regressive and welfare-reducing prices in the broadband carriage market. If we understand competition to meaningfully increase broadband carriage value not only by reducing prices, but also by improving service quality and increasing connectivity, then competition-driven gains can advance a wide range of further social benefits through increased access to application-layer services.

Broadband access plays an exceptionally important role in our nation's economic, educational, health, and civic infrastructure.<sup>92</sup> Nearly twenty years ago, Peter Yu elaborated on the “unprecedented opportunities” made possible through internet access, including to both elevate the status of the indigent and

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91. We can estimate this value by calculating a consumer's costs of a broadband carriage subscription at the Commission's current definition of broadband, 25 mbps downstream (understanding that such service may not be available, given technical limitations, in all areas). Assuming such a package, the average subscription rate in monopoly markets is \$96.15 per month, while it is \$19.08 per month in competitive markets, see Table 2, for a difference in \$77.07 per month (or \$924.84 per year). Moreover, the Commission estimates that there are 104.68 million fixed residential broadband subscriptions, and that 21.9% of the population is served by a monopolist. See FCC, COMMUNICATIONS MARKETPLACE REPORT, GN Docket No. 20-60, 2020 WL 8025117, \*45 Figs. II.B.8, II.B.23 (2020) (estimating 104.68 million fixed residential broadband subscriptions and that 21.9% of the population is monopoly served (using the Commission's metric for broadband service)). Hence, about 22.9 million subscriptions cost \$924.84 higher (annually), totaling \$21,201,883,012.

I admit that this \$21 billion figure is a very rough estimate. It may be further refined by better estimating the actual connection speeds per subscription, and by estimating all these figures on a per state basis to better account for regional and geographic variation. Unfortunately, neither the Commission nor the industry appears to have made such data available, and so I rely on the Commission's most recent national data, together with my own average findings, for this estimate. In view of this uncertainty, I have tried to estimate conservatively, using low-end estimates for the total number of broadband subscriptions. Compare, for example, FCC, COMMUNICATIONS MARKETPLACE REPORT, GN Docket No. 20-60, 2020 WL 8025117, \*45 Figs. II.B.8 (2020) (estimating 104.68 million fixed residential broadband subscriptions) with, for example, FCC, WIRELINE COMPETITION BUREAU, INDUSTRY ANALYSIS AND TECHNOLOGY DIVISION INTERNET ACCESS SERVICES: STATUS AS OF DECEMBER 31, 2018 (2020) at 2 fig. 1 (reporting a total of approximately 111 million fixed broadband subscriptions in the United States); WORLD BANK, FIXED BROADBAND SUBSCRIPTIONS—UNITED STATES, <https://data.worldbank.org/indicator/IT.NET.BBND?locations=US> (reporting a total of approximately 121 million fixed broadband subscriptions in the U.S.) (last visited Sept. 26, 2022).

92. See BRETT M. FRISCHMANN, INFRASTRUCTURE: THE SOCIAL VALUE OF SHARED RESOURCES 318 (2012).

to “widen the range of opportunities for business.”<sup>93</sup> Likewise, Olivier Sylvain has since explained that where broadband access and use grows, “significant increases in the number of jobs and aggregate household income” result.<sup>94</sup> Broadband internet access, moreover, has measurable effects on children’s performance in school.<sup>95</sup> Similarly, the availability of telemedicine services and associated increases in access to healthcare in rural locales have improved healthcare for Americans nationwide, estimated to yield “millions, if not billions” in annual savings.<sup>96</sup> And residents with reliable internet access are “much more likely to be politically engaged or to access government services.”<sup>97</sup>

While it is beyond my present scope to fully describe all the ways in which broadband access contributes to general welfare, it suffices to note that “when more people are well connected, society as a whole benefits,” in large part because broadband carriage—the transmission service—is necessary to enable a wide range of economic, educational, government, and health applications.<sup>98</sup>

Such effects have only sharpened since COVID-19 transformed the importance of internet access. Before, students without reliable internet access

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93. Peter K. Yu, *Bridging the Digital Divide: Equality in the Information Age*, 20 CARDOZO ARTS & ENT. L.J. 1, 17 (2002).

94. Olivier Sylvain, *Network Equality*, 67 HASTINGS L.J. 443, 472 (2016).

95. *Id.* at 471.

96. Charles M. Davidson, Thomas Kamber & Michael J. Santorelli, *Broadband Deployment: Why It Matters And How It Works*, 19 MEDIA L. & POL’Y 15, 28–33 (2009).

97. Sylvain, *supra* note 94, at 472; *see also* Filipe Campante, Ruben Durante & Francesco Sobbrío, *Politics 2.0: The Multifaceted Effect of Broadband Internet on Political Participation*, 16 J. EUROPEAN ECON. ASS’N 1094, 1131 n.44 (2018).

98. Sylvain, *supra* note 94, at 471–72 (2016). Further sources elaborating on the benefits of broadband connectivity include BRETT M. FRISCHMANN, *INFRASTRUCTURE: THE SOCIAL VALUE OF SHARED RESOURCES* 318–57 (2012) (explaining that broadband access has “radically increased entrepreneurship, political discourse, the production and consumption of media . . . community building, among many other things” and has thus transformed “our economic, cultural, political, and other social systems”); Catherine J.K. Sandoval & Patrick Lanthier, *Connect the Whole Community: Leadership Gaps Drive the Digital Divide and Fuel Disaster and Social Vulnerabilities*, in *TECHNOLOGY VS GOVERNMENT: THE IRRESISTIBLE FORCE MEETS THE IMMOVABLE OBJECT* (Lloyd Levine ed., forthcoming 2022); *see also* Sara Agate, *Unlocking the Power of Telehealth: Increasing Access and Services in Underserved, Urban Areas*, 29 HARV. J. OF HISPANIC POL’Y 85, 91 (2017) (noting the importance of broadband access for telehealth applications); Peter Sternberg et al., *Broadband Internet’s Value for Rural America*, UNITED STATES DEPT. OF AGRICULTURE, ECONOMIC RESEARCH REPORT NO. 78 (Aug. 2009) (finding that “[r]ural communities that had greater broadband Internet access had greater economic growth”); Linda A. Jackson, Alexander von Eye, Frank A. Biocca, Gretchen Barbatsis, Yong Zhao & Hiram E. Fitzgerald, *Does Home Internet Use Influence the Academic Performance of Low-Income Children?*, 42 DEVELOPMENT PSYCH. 426 (2006) (“Children who used the Internet more had higher GPAs after 1 year and higher scores on standardized tests of reading achievement after 6 months than did children who used it less.”).

risked scholastic success because “they [could not] complete internet-related homework as easily as their peers.”<sup>99</sup> But during the pandemic, students without reliable internet access may have been unable to attend school at all. And other studies find, predictably, that the quality of internet access helps to drive the quality of a student’s online learning experience, giving rise to worse learning outcomes and lower grades for students with worse broadband carriage service.<sup>100</sup>

In all, the COVID-19 pandemic has “widened many inequities,” beginning with the homework gap, but also encompassing “health care, unemployment benefits, court appearances, and [even] the COVID-19 vaccine, all of which require (or are facilitated by) internet connections.”<sup>101</sup> Olivier Sylvain details these shortcomings (among others) in his contribution to this symposium.<sup>102</sup> In short, concerns regarding the transmission-layer service—i.e., broadband carriage—can give rise to concomitant concerns regarding access to a wide range of application-layer services (competition among those applications notwithstanding). And these concerns have intensified since COVID-19 moved so much of our daily life—commerce, education, and more—to these transmission-dependent applications.

In many respects, broadband internet access is the defining utility of our modern era. Like the postal, telephone, and television networks before it, internet access is *the* means by which the American populace communicates with each other, by which it receives news and information about the country and the world, and by which it interacts with and demands accountability from its elected leaders. And so those citizens that lack a reliable connection to the internet are likely to find themselves increasingly isolated from family and

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99. Sylvain, *supra* note 94, at 472 (2016).

100. See Laura Stelitano, Sy Doan, Ashley Woo, Melissa Kay Diliberti, Julia H. Kaufman & Daniella Henry, *THE DIGITAL DIVIDE AND COVID19: TEACHERS’ PERCEPTIONS OF INEQUITIES IN STUDENTS’ INTERNET ACCESS AND PARTICIPATION IN REMOTE LEARNING*, RAND CORP. (2020) (“Teachers perceived that challenges with students’ access to internet and technology were deeply intertwined with concerns about communication with families, student participation, and delivering quality instruction in a remote context.”)

101. Guo, *supra* note 65; see also Cecilia Kang, *F.C.C. Broadband Plan Includes \$50 Monthly Subsidy for Millions*, N.Y. Times (Feb. 22, 2021) (explaining that “the digital divide . . . has punished low-income families during the pandemic”); NEXT CENTURY CITIES & SAMUELSON LAW, TECHNOLOGY & PUBLIC POLICY CLINIC, *CUT OFF FROM THE COURTHOUSE: HOW THE DIGITAL DIVIDE IMPACTS ACCESS TO JUSTICE AND CIVIC ENGAGEMENT* (2022) (describing how the “lack of access to affordable broadband” can “lead[] to missed court appearances, inability to confer with counsel before life-altering legal proceedings and decisions, isolation from democratic processes, and inability to receive critical government services and safety information”).

102. See Olivier Sylvain, *A New Telecommunications Act: Prioritizing Consumer Protection and Equality*, 37 BERKELEY TECH. L.J. 277 (2022).

friends, sequestered from economic opportunities, and sometimes without access to critical health, education, and government services.

#### IV. AFFORDABILITY AND BROADBAND RATE REGULATION

Concerns regarding broadband internet access turn on at least two dimensions—access and affordability. That is, students may fall behind (or patients may lack access to remote medical assistance, or workers may have difficulty seeking unemployment benefits, and so on) either because broadband internet access is not available at all, or because, even where available, it is unaffordable.<sup>103</sup>

Here, I train my focus on questions of affordability, as cost is the most cited reason for the lack of connectivity.<sup>104</sup> To be sure, carriers and regulators have much to do to improve availability nationwide.<sup>105</sup> But I focus here on consumer price concerns in part because, as described above, even where consumers can purchase a broadband carriage subscription, there remain persistent problems of quality and affordability, due in part to monopoly conditions. Moreover, as I elaborate below, some solutions to these affordability issues may be found in the Commission’s existing efforts to address access-related questions.

##### A. SOME (MODEST) SUCCESSES

I begin with the Emergency Broadband Benefit, authorized by Congress as part of a comprehensive COVID-19 relief bill.<sup>106</sup> Here, Congress allocated

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103. See Andrew Perrin, *Mobile Technology and Home Broadband 2021*, Pew Research Center (June 3, 2021) (noting the range of reasons “cited . . . for not having home broadband”); see also Blair Levin & Larry Downes, *Cities, Not Rural Areas, Are the Real Internet Deserts*, WASH. POST (Sept. 13, 2019, 3:00 AM) (attributing the digital divide to access, affordability, and literacy concerns).

104. See, e.g., Andrew Perrin, *Mobile Technology and Home Broadband 2021*, Pew Research Center (June 3, 2021) (explaining that “cost . . . remain[s] the most important reason[] non-broadband users do not subscribe”); see also Eduardo Porter, *A Rural-Urban Broadband Divide, but Not the One You Think Of*, N.Y. TIMES (June 1, 2021) (“A survey by the Pew Research Center in 2019 found that half of the people who did not have a broadband connection said they could not afford it. Only 7 percent blamed lack of access to high-speed networks as the main reason.” (citing Monica Anderson, *Mobile Technology and Home Broadband 2019*, Pew Research Center (June 13, 2019))).

105. See, e.g., BroadbandNow Research, *BroadbandNow Estimates Availability for all 50 States; Confirms that More than 42 Million Americans Do Not Have Access to Broadband* (May 12, 2021) (estimating that “42 million Americans do not have the ability to purchase broadband internet”).

106. See Consolidated Appropriations Act of 2021, Pub. L. No. 116–260, 134 Stat. 1182, 2129–36; see also Kang, *supra* note 101.



funds to offer qualifying households a \$50 discount on broadband carriage (\$75 for carriage services on Tribal lands).<sup>107</sup> But without price controls, such a federal subsidy risks further inflating the price—i.e., the “standard rate”—of broadband carriage.<sup>108</sup> Consider an extreme hypothetical: A monopoly-served locale where all households qualify for the benefit. There, the monopoly provider might be free to raise prices by \$50 per month (the amount of the subsidy) without any repercussion, leaving consumers no worse (but also, contra Congress’s intent, no better) than before the program’s enactment. And in less extreme, more realistic scenarios, monopoly providers serving locales with high concentrations of qualifying households might raise prices in order to capture a significant portion of the subsidy intended to benefit consumers.<sup>109</sup>

To address such concerns, Congress required that participating carriers (i.e., providers willing to discount consumer rates and seek reimbursement for those discounts through Commission-administered funds) freeze rates for eligible service offerings to those charged on December 1, 2020, before the program’s enactment.<sup>110</sup> In sum, the Commission’s program to provide consumers with short-term affordability relief includes a soft form of price-cap regulation.

Though the Commission’s Order implementing the Emergency Broadband Benefit offers both a temporary discount (through the \$50 subsidy) and some short-term relief from forward-looking price increases (through the price cap rule), it is incomplete along both quality and price dimensions. For one, the benefit program does little to improve the quality of broadband carriage where a lack of competition has stagnated speeds and capacity.<sup>111</sup> Moreover, the benefit program doesn’t address pricing and affordability concerns already present in the prices charged as of December 1, 2020. And

107. Emergency Broadband Benefit Program, 36 FCC Rcd. 4612, ¶ 4 (2021).

108. See Consolidated Appropriations Act of 2021, Pub. L. No. 116-260, 134 Stat. 1182, 2129–36.

109. Cf. Geoffrey A. Fowler, *The Government Has a Program to Cut Your Internet Bill. Verizon Is Using it to Force You onto a New Data Plan*, WASH. POST. (May 17, 2021) (explaining that providers have enrolled only some plans into the program, requiring that some consumers subscribe to more expensive plans in order to qualify for the discount, and thus stunting the effect of the discount).

110. Emergency Broadband Benefit Program, 36 FCC Rcd. 4612, ¶¶ 70–72 (2021) (explaining that “the December 1, 2020 restriction is best understood as a method of avoiding arbitrage opportunities,” namely, preventing “unscrupulous providers” from “tak[ing] advantage of the increased subsidy available” by ensuring that providers do not “increas[e] prices above the usual market rate for their services for the purpose of claiming the maximum reimbursement amount.”).

111. *Id.*, ¶¶ 73–75 (“We decline to apply minimum service standards to covered services for the [Emergency Broadband Benefit] Program”).

providers have gamed the price-cap regulation by selectively defining the regulated service: Certain carriers, such as Verizon, have enrolled only more expensive plans into the program.<sup>112</sup> Hence, customers must select a more costly plan to qualify for the federal benefit, analogous to raising consumer prices to capture a subsidy intended for consumers, thereby giving rise to a partial short-term discount, but higher long-term consumer costs.<sup>113</sup> In short, the subsidy and price-capped approach taken in the Broadband Emergency Benefit program may be promising, but it suffers from some significant limitations.

We might turn to a different Commission subsidy program to seek out a more complete approach. In 2011, the Commission reworked its Universal Service Fund—in truth, a regime of several discrete funds aimed at improving access and subsidizing affordability in underserved regions and among underserved communities—to focus on broadband carriage (instead of legacy services, such as voice telephony).

Among the many reforms to these various subsidy programs were rate and service regulations. The Commission now requires some funding recipients to agree to rate and service controls that help ensure basic service standards at capped rates. Specifically, the Commission required that carriers “receiving federal high-cost universal service support . . . offer broadband service in their supported area that meet certain basic performance requirements . . . at rates that are reasonably comparable to offerings of comparable broadband services in urban areas.”<sup>114</sup> Stated simply, these subsidized services must be “reasonably comparable” to services available in (typically competitive) urban areas along dimensions of both price and quality. The Commission’s rules are tantamount to price-cap rate regulation, where rates are derived from competitive benchmarks.<sup>115</sup>

Carriers subject to these rules, moreover, are monopolists. This is by design: The Commission deploys support to only one provider, and only in locales where there is no existing unsubsidized competitor—i.e., where there is no apparent private business case to offer broadband carriage.<sup>116</sup> In short,

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112. See Fowler, *supra* note 109; Karl Bode, *Some ISPs Exploited Covid Broadband Relief Program to Make an Extra Buck*, VICE NEWS (June 2, 2021).

113. See Fowler, *supra* note 109; Bode, *supra* note 112. In reply, Acting Chairwoman Rosenworcel told providers to “knock it off,” and stop engaging in practices that are inconsistent the legislative aims of the programs. See *Rosenworcel to EBB ISPs Doing Upselling: ‘Knock It Off,’* COMM’NS DAILY (May 21, 2021); see also *supra* text accompanying note 109.

114. Connect Am. Fund, 26 FCC Rcd. 17663, ¶ 86 (2011).

115. NUCHECHTERLEIN & WEISER, *supra* note 7, at 34 (describing price cap regulation).

116. Connect Am. Fund, 26 FCC Rcd. 17663, ¶¶ 103, 105, 164–79 (2011).

the Commission helps to fund broadband carriage solely where it is reasonably confident that only a subsidized monopolist would offer service.

It is this feature of the Commission’s fiscal prudence—its desire to subsidize only one provider in high-cost areas—that gives rise to the “reasonably comparable” regulations.<sup>117</sup> Cognizant of the risks of monopoly pricing and service, the Commission imposes “public interest obligations” on funding recipients to ensure that subsidized carriers do not charge monopoly prices for services offered over publicly-funded facilities.<sup>118</sup> As I noted *supra*, these rules require that carriers offer service reasonably comparable (along dimensions of upload bandwidth, download bandwidth, and capacity allowances (i.e., data caps)) to that which is available in urban locales, and that they charge prices that are likewise reasonably comparable to those charged in urban locales.<sup>119</sup> In short, reasonable service at reasonable rates—or, at least, reasonably comparable service at reasonably comparable rates.

I can safely elide most specifics of the Commission’s ever-evolving standards of reasonable comparability<sup>120</sup> and move straight to the question of efficacy: Are the Commission’s rules any good at addressing the affordability (and related quality) concerns of monopoly pricing? Yes—but incompletely.

As above, we can turn to sets of geographic proximate locales (the same sets, in fact) to compare the rates and services offered by unregulated monopolists, regulated monopolists (regulated by the conditions attached to

117. Before implementing these reforms, the Commission would wastefully grant funds to multiple providers in a single region (and used a formula that spiked its level of support per provider). See NUECHTERLEIN & WEISER, *supra* note 7, at 304–06 (describing the pitfalls of the identical support rule).

118. Connect Am. Fund, 26 FCC Rcd. 17663, \*22 (2011).

119. *Id.* ¶¶ 86, 91.

120. For those interested in these specifics, they can be found at Wireline Competition Bureau and Office of Economics and Analytics Announce Results of 2022 Urban Rate Survey for Fixed Voice and Broadband Services, Posting of Survey Data and Explanatory Notes, and Required Minimum Usage Allowance for Eligible Telecommunications Carriers, 2021 WL 6010819, DA No. 21-1588 (FCC Dec. 16, 2021). The Commission revises these standards annually. *See, e.g.*, Wireline Competition Bureau and Office of Economics and Analytics Announce Results of 2021 Urban Rate Survey for Fixed Voice and Broadband Services, Posting of Survey Data and Explanatory Notes, and Required Minimum Usage Allowance for Eligible Telecommunications Carriers, 35 FCC Rcd. 13667 (2020); Wireline Competition Bureau and Office of Economics and Analytics Announce Results of 2020 Urban Rate Survey for Fixed Voice and Broadband Services, Posting of Survey Data and Explanatory Notes, and Required Minimum Usage Allowance for Eligible Telecommunications Carriers, 34 FCC Rcd. 11189, 11190 (2019); Wireline Competition Bureau and Office of Economics and Analytics Announce Results of 2019 Urban Rate Survey for Fixed Voice and Broadband Services, Posting of Survey Data and Explanatory Notes, and Required Minimum Usage Allowance for Eligible Telecommunications Carriers, 33 FCC Rcd. 12316 (2018); *see also* FCC, Urban Rate Survey Orders and Public Notices, <https://www.fcc.gov/general/urban-rate-survey-orders-and-public-notice> (last visited Sept. 26, 2022).

the receipt of federal funds), and competitively disciplined providers. While, as before, there is some variation across the geographic regions, one consistent theme emerges: The Commission's standards help to improve costs and service quality, though not as effectively as competition. This may be because competition is a more efficacious means of improving broadband value, or it may be because the Commission's standards are too lax (given that the Commission deems a rate to be "reasonably comparable" if it is within two standard deviations of the average rate (i.e., at about the 95th percentile of rates) charged in urban locales for similar service<sup>121</sup>), or both.

Consider Kennedy, New York: Across three addresses in this one town of 465, Windstream sells a \$67 broadband carriage service that promises download speeds of 50 mbps where it faces competition from Charter, 10 mbps where it is a monopolist subject to the Commission's public interest obligations, and only 4 mbps where it acts as an unregulated monopolist. Indeed, only a six-minute walk separates the locations where Windstream acts as an unregulated monopolist and where it acts as a regulated one—but that quarter-mile is the difference between, to return to the example of video, being able to reliably stream live video and not.<sup>122</sup>

So too in Faribault, Minnesota. A five-minute drive separates three locations in the southwest part of the town: where CenturyLink faces competition from Charter and Consolidated Communications, where CenturyLink acts as a monopolist subject to the Commission's standards, and where CenturyLink acts as an unregulated monopolist. For \$49 a month, CenturyLink promises consumers download speeds of 60 mbps, 40 mbps, and 3 mbps respectively. To increase speed more than tenfold in Faribault, all one needs to do is move across the street.

As with the findings reported above, there is some variability across states—but that variability points in favor of regulation over competition. Troy, Montana, for example, is served by Zply (formerly Frontier).<sup>123</sup> In some

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121. *Compare* Connect Am. Fund, 29 FCC Rcd. 13485, ¶¶ 7–8 (2014) (“adopt[ing] its proposal to use a weighted linear regression to estimate the mean rate for a specific set of service characteristics and then to add two standard deviations to this mean to determine the benchmark for services meeting those defined service characteristics”) and Connect Am. Fund, 29 FCC Rcd. 15644, ¶ 121 (2014) *with*, for example, Comments of the California Emerging Technology Fund at 9, Connect Am. Fund, 34 FCC Rcd. 6778 (2019) (suggesting that the Commission's benchmarks “allow providers to provide much higher speeds in urban areas, but then allow providers to provide rural, remote and Tribal areas with significantly slower speeds”).

122. *See, e.g.*, Internet Speed Recommendations, HULU (Jul. 10, 2021), [https://help.hulu.com/s/article/speed-recommendations?language=en\\_US](https://help.hulu.com/s/article/speed-recommendations?language=en_US).

123. Zply's corporate history matters here because it defines how the Commission's public interest obligations apply. Frontier received federal funding to serve these locations and was therefore subject to these rules. But Frontier later sold those operations to Zply. *See*, Malia

parts of town, it is subject to the Commission's regulations; in others, it is unregulated; and, in still others, it is subject to competition. Those locations served by a regulated monopoly get better service than both other sets of locations—those served by an unregulated monopolist and even competitively-served locations. (Competition, though, still yields more consumer value than an unregulated monopoly.)

Table 3 (and Figure 3),<sup>124</sup> which adds regulated monopolies—regulated under the “public interest obligations” that attend to the receipt of universal service support—to the findings described in Table 2 (and Figure 1), summarizes these results. Specifically, Table 3 reports the average broadband carriage value for packages offered within the specified communities at locales served by an unregulated monopolist (i.e., a provider subject to neither the Commission's public interest obligations at that locale, nor subject to wireline competition), at distinct locales served by a regulated monopoly (i.e., a provider subject to the public interest obligations at that locale, but not subject to any competition), and at distinct locales served by providers facing competition (i.e., providers subject to wireline competition).

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Spencer, *Ziply Fiber Completes Acquisition of Frontier Communications' Northwest Operations*, PORTLAND BUS. J., May 1, 2020 (3:01 AM EDT).

124. As in Figure 1, the horizontal axis is truncated for readability. *See supra* note 88 and accompanying text.

Table 3: Broadband Carriage Value (Download Speed Per Dollar)

<u>State</u> (Provider)	<u>Unregulated Monopoly</u> (Communities Surveyed)	<u>Regulated Monopoly</u> (Communities Surveyed)	<u>Competition</u> (Communities Surveyed)
<b>Arizona</b> (CenturyLink)	0.05 mbps / \$ (Flagstaff)	0.51 mbps / \$ (Flagstaff)	0.61 mbps / \$ (Flagstaff)
<b>Arizona</b> (Frontier)	0.20 mbps / \$ (Snowflake)	0.27 mbps / \$ (Snowflake)	0.56 mbps / \$ (Snowflake)
<b>California</b> (AT&T)	0.28 mbps / \$ (Julian, Ramona)	0.36 mbps / \$ (Julian, Ramona)	0.91 mbps / \$ (Ramona)
<b>California</b> (Frontier)	0.27 mbps / \$ (Inyokern, Ridgecrest)	0.31 mbps / \$ (Inyokern)	1.16 mbps / \$ (Inyokern)
<b>Georgia</b> (AT&T)	0.33 mbps / \$ (Bishop, Watkinsville)	0.64 mbps / \$ (Bishop, Watkinsville)	6.31 mbps / \$ (Watkinsville)
<b>Georgia</b> (Frontier)	0.31 mbps / \$ (Fairmount, Ranger)	0.45 mbps / \$ (Ranger)	1.38 mbps / \$ (Fairmount, Ranger)
<b>Minnesota</b> (CenturyLink)	0.22 mbps / \$ (Cannon City, Faribault)	0.61 mbps / \$ (Faribault)	1.22 mbps / \$ (Faribault)
<b>Minnesota</b> (Frontier)	0.27 mbps / \$ (Green Isle, Henderson)	0.31 mbps / \$ (Green Isle, Henderson)	0.45 mbps / \$ (Henderson)

<b>Montana (CenturyLink)</b>	0.24 mbps / \$ (Bozeman)	0.84 mbps / \$ (Bozeman)	1.43 mbps / \$ (Bozeman)
<b>Montana (Ziply [formerly Frontier])</b>	0.38 mbps / \$ (Troy)	0.89 mbps / \$ (Troy)	0.61 mbps / \$ (Troy)
<b>New York (Frontier)</b>	0.30 mbps / \$ (Hemlock)	0.30 mbps / \$ (Hemlock)	0.56 mbps / \$ (Hemlock)
<b>New York (Windstream)</b>	0.05 mbps / \$ (Kennedy)	0.15 mbps / \$ (Kennedy)	1.12 mbps / \$ (Kennedy)
<b>Washington (CenturyLink)</b>	0.24 mbps / \$ (Port Angeles)	0.34 mbps / \$ (Port Angeles)	0.61 mbps / \$ (Port Angeles)
<b>Washington (Ziply [formerly Frontier])</b>	0.50 mbps / \$ (Kennewick)	0.56 mbps / \$ (Kennewick)	1.37 mbps / \$ (Kennewick)
<b>Average (across Geographies &amp; Providers)</b>	0.26 mbps / \$	0.47 mbps / \$	1.31 mbps / \$

Figure 3: Broadband Carriage Value (Download Speed Per Dollar)

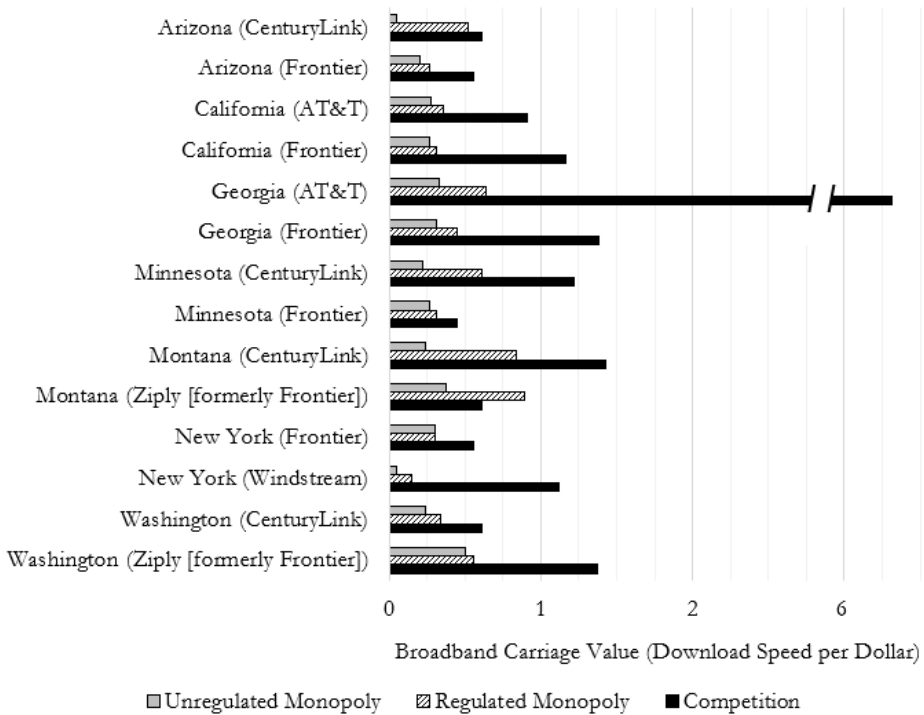
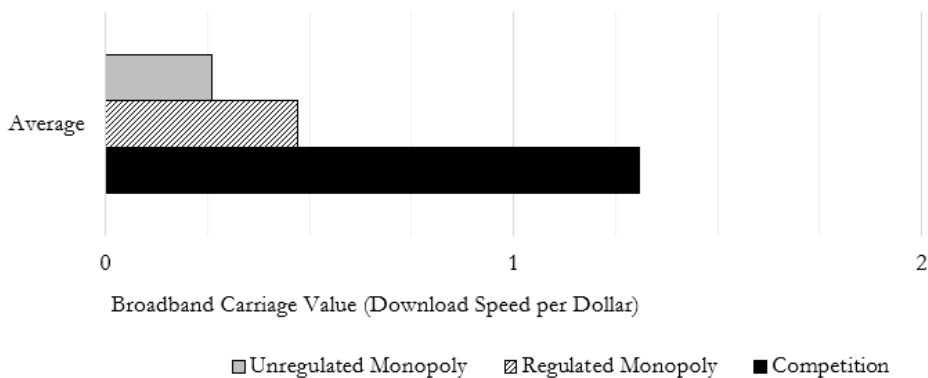


Figure 4: Broadband Carriage Value (Download Speed Per Dollar)



In sum, regulated monopolists consistently offer better broadband carriage value than unregulated monopolists (but typically less value than is available in competitive markets, though competition’s average lead in Figure 4 may be



somewhat overstated by outliers such as AT&T's offerings in competitively-served regions of Georgia).

## B. TOWARD A NEW STATUTORY REGIME

These results suggest a way for policymakers to address the modern puzzle at the heart of the Commission's decision at issue in *MDTC v. FCC*. As I explained above, the Telecommunications Act of 1996 imagined a communications landscape that looked much as it had for most of its preceding century, "closely identify[ing] . . . categories of service with a particular medium of transmission."<sup>125</sup> The internet's mediation of these various physical networks has undermined this assumption inherent to the Act's structure. As *MDTC v. FCC* suggests, the Act conflates transmission with applications, thereby requiring the Commission to choose among difficult and nonideal options, including the continued regulation of competitive markets or the deregulation of monopoly markets.<sup>126</sup> In some cases, as in *MDTC*, the Commission has preferred a deregulatory path.<sup>127</sup>

But this lack of both competition and regulation can give rise to significant consumer effects: Consumers get worse service at higher prices. As a result, applications markets suffer, too, as applications ranging from video, voice, teleconferencing, virtual education, and telehealth (to name only a few) depend on quality transmission via broadband carriage.<sup>128</sup> Policymakers should thus directly regulate monopoly broadband carriers, subsidized or not, as they already do in the universal service context, until those markets become competitive.

The 1996 Act's structure emphasized competition across applications and facilities (as evidenced by the local exchange carrier test, among many other provisions) but was nevertheless pragmatic about the benefits of regulating monopoly providers, allowing local authorities to set prices for markets beholden to monopolists. The next telecommunications act can do the same, but with greater attention to the distinction between transmission-layer services and application-layer services, encouraging competition (where it is likely to exist, as in applications markets) while protecting consumers from monopoly providers, including some broadband carriers.

I have accordingly set out a model statute in Appendix A designed to roughly mimic the rate regulation and effective competition provisions at issue in *MDTC*, but modified to address concerns specific to broadband carriage, a transmission-layer service. I describe that model statute's major provisions—

125. NUCHESTERLEIN & WEISER, *supra* note 7, at 17.

126. See *supra* Part II.B (outlining these two nonideal options through the lens of *MDTC*).

127. See *MDTC v. FCC*, 983 F.3d 28, 30 (1st Cir. 2020).

128. See, e.g., *supra* notes 16, 122 (noting Hulu's connection requirements).

including some changes from the cable service regime—in the following sections. While I focus here on one possible regime of rate regulation for a future act, the lessons embodied in this model statute—a careful disaggregation of transmission-layer services from the application-layer, and a preference for competition paired with consumer protections from persistent monopoly providers—can inform a wide range of legislative and regulatory priorities in telecommunications, including network neutrality and interconnection regulation.<sup>129</sup>

### 1. *A Pragmatic Preference for Competition*

Tables 2 and 3 confirm what has long been explicit in communications regulation: Market competition offers a comparatively efficient and reliable means of inducing improvements in price and service quality. Where competition appears to exist, Tables 2 and 3 evince substantial improvements in broadband carriage value. Policymakers should thus continue to induce competition in local broadband carriage markets, as they have in previous generations of telecommunications statutes. For example, the 1992 Cable Television Consumer Protection and Competition Act emphasizes facilities-based competition among cable operators, explaining that “the public interest is served by . . . competition” among different facilities operators, and thus aims to “encourage . . . robust competition” from “wireless and private cable systems, cable overbuilds, and [satellite-based providers].”<sup>130</sup> And the 1996 Act adds telephone companies to this list of facilities-based providers.

But, as described *supra*, federal and state regulators were nevertheless permitted to regulate cable service rates in the absence of effective competition, given that some “rate increases imposed by some cable operators [we]re not justified economically” and that some “cable operators ha[d] abused their . . . market power and ha[d] unreasonably raised the rates they charge subscribers.”<sup>131</sup> Hence, the Act is pragmatic about its approach to competition, prioritizing facilities-based competition, but nevertheless allowing regulation

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129. See, e.g., Tim Wu, *Network Neutrality, Broadband Discrimination*, 2 J. TELECOMM. & HIGH TECH. L. 141, 142 (2003) (proposing transmission-layer network neutrality rules to promote application-layer competition); Tejas N. Narechania & Tim Wu, *Sender Side Transmission Rules for the Internet*, 66 FED. COMM'NS L.J. 467, 473–75 (2015) (describing the effect of longstanding transmission-layer rules on application-layer competition); see also Tejas N. Narechania, *Symmetry and (Network) Neutrality*, 119 MICH. L. REV. ONLINE 46, 57–59 (2020) (arguing in favor of transmission-layer network neutrality rules to promote application-layer competition); Tejas N. Narechania, *Network Nepotism and the Market for Content Delivery*, 67 STANFORD L. REV. ONLINE 27, 29–30 (2014).

130. H.R. Rep. 102-628 (1992) at 44.

131. H.R. Rep. 102-628 (1992) at 30–34.

in monopoly markets in order to “protect consumers from unreasonable cable rates.”<sup>132</sup> In sum, the Act’s structure reflects Congress’s

belie[f] that competition ultimately will provide the best safeguard for consumers . . . and [thus] strongly prefers competition and the development of a competitive marketplace to regulation[, while] also recogniz[ing], however, that until true competition develops, some tough yet fair and flexible regulatory measures are needed.<sup>133</sup>

These rate regulation provisions, moreover, helped to address the problems of deregulated monopoly pricing in local cable markets. Scholars and researchers have concluded that “[t]he rate regulation sections of the 1992 Act effectively controlled [the] runaway price escalation” that had persisted after the deregulation of cable systems in 1984.<sup>134</sup> To the extent these rate regulation provisions have been criticized for failing to control rates over the long term, such critiques have often focused on the Commission’s failure to fully define the regulated service, leading providers to unbundle services and change available programming (for example, cable channels) in order to “distort the quality of regulated service” and “evade the regulations.”<sup>135</sup> But even

132. H.R. Rep. 102-628 (1992) at 34.

133. H.R. Rep. 102-628 (1992) at 30.

134. See *The Cable Act at 20: Hearing Before the S. Comm. on Commerce, Science, and Transportation*, 112th Cong. 36 (2012) (statement of Dr. Mark Cooper, Dir. of Research, Consumer Federation of America). Other studies comparing regulated rates with deregulated ones have found similar results. See, e.g., Diane Bruce Anstine, *The Impact of the Regulation of the Cable Television Industry: The Effect on Quality-Adjusted Cable Television Prices*, 36 APPLIED ECON. 793, 793 (2004) (comparing rates before deregulation with those after and concluding that “[o]n average, regulation benefited consumers by keeping prices below monopolist’s profit maximizing price”); see also Yasuji Otsuka, *Welfare Analysis of Local Franchise and Other Types of Regulation: Evidence from the Cable Television Industry*, 11 J. REG. ECON. 157 (1997); John W. Mayo & Yasuji Otsuka, *Demand, Pricing, and Regulation: Evidence from the Cable TV Industry*, 22 RAND J. ECON. 396, 397 (1991) (finding that regulation “did act to keep prices below monopoly level” even though it “did not lead to economically efficient (marginal cost) prices for basic cable service”).

135. See George S. Crawford, *The Impact of the 1992 Cable Act on Household Demand and Welfare*, 31 RAND J. ECON. 422, 423 (2000); see also Rafael J. Prohias, *Longer than the Old Testament, More Confusing Than The Tax Code: An Analysis Of The 1992 Cable Act*, 2 COMMLAW CONSPECTUS 81, 90–93 (1994) (explaining that the Commission’s regulations allowed cable operators to move some stations out of regulated tiers of service, and allowed operators to increase some prices if it could offset those increases elsewhere, and lauding the Commission for taking further steps to address these gaps); Thomas W. Hazlett, *Prices and Outputs During Cable TV Regulation*, 12 J. REG. ECON. 173, 193–94 (1997) (concluding that the Commission did succeed in lowering rates but did not effectively control quality-adjusted rates because “quality variation is relatively feasible” across cable packages, and so the “regulated [cable programming] supplier . . . circumvent[ed] the constraints imposed via price controls”). I address concerns regarding the possibilities for similar evasion strategies in the broadband carriage context *infra* note 171 and accompanying text.

accounting for such regulatory gaming, rate regulation seems to have proved effective in moving prices closer to competitive levels: Before the implementation of the 1992 Act's regulatory scheme, monopoly providers charged 8.4% more than providers in competitive markets; after implementation, that difference narrowed to 1.2% for regulated providers.<sup>136</sup> These results seem analogous to those reported in Table 3 above. Competition can be the most effective tonic for monopoly pricing, but competition does not come to all markets, and even when it does, it can take decades. Hence, in persistent monopoly markets, or even during a lengthy transition to competition, regulation can help to move prices closer to competitive levels.

## 2. *Regulating Monopoly Providers of Broadband Transmission Services*

Just as many members of Congress described “unreasonable cable rates” as one motive for the 1992 Act's rate regulation provisions, President Biden has likewise said that “Americans pay too much for Internet service.”<sup>137</sup> Policymakers should thus consider a similar structure to address the problems of monopoly rates for broadband carriage. Monopoly broadband carriers (likely charging monopoly prices) are appropriately subject to “some tough yet fair and flexible regulatory measures.”<sup>138</sup>

Specifically, where broadband carriage is available only through a local monopolist, then local (or, if necessary, state or federal) regulators should set rates for a basic tier of broadband carriage; and where broadband carriage is competitively available, such regulatory oversight is unneeded. Hence, unlike calls for either generalized broadband rate regulation under Section 201 of the

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136. *Compare* Implementation of Section 3 of the Cable Television Consumer Protection and Competition Act of 1992, 12 FCC Rcd. 3239, ¶¶ 7–8 (1997) <https://transition.fcc.gov/Bureaus/Cable/Reports/fcc96499.txt> (reporting that “prior to the implementation of rate regulation,” noncompetitive providers charged 8.4% more) *with* Implementation of Section 3 of the Cable Television Consumer Protection and Competition Act of 1992, 15 FCC Rcd. 10927 at Tables 5, 7, 8 (2000) (showing that for “operators whose [basic service tiers] were regulated by a local regulatory authority,” prices were within about 1.2% of those charged by competitive providers (\$12.18 to \$12.03), whereas prices charged by unregulated providers were nearly 6.5% above competitive levels (\$12.81 to \$12.03)). Later reports do not separately identify rate-regulated noncompetitive providers from unregulated noncompetitive providers. But, as noted above, the decision to deregulate Charter's rates in view of DirecTV Now threatened to substantially increase rates for monopoly-served consumers. Charter Effective Competition Order, *supra* note 41, at \*16 (Rosenworcel, Comm'r, concurring).

137. See respectively, H.R. Rep. 102-628 (1992) at 34 and Joseph R. Biden, Remarks on the American Jobs Plan (March 31, 2021), <https://www.whitehouse.gov/briefing-room/speeches-remarks/2021/03/31/remarks-by-president-biden-on-the-american-jobs-plan/>.

138. H.R. Rep. 102-628 (1992) at 30.

Communications Act,<sup>139</sup> or for regulatorily-mandated facilities sharing and a concomitant regime of wholesale price regulation,<sup>140</sup> my more focused proposal—framed as a statute, but also potentially implemented through regulatory process<sup>141</sup>—allows for the retail rate regulation of a basic service tier in monopoly-served broadband carriage markets.

I prefer this more targeted approach to rate regulation for three primary reasons. First, an approach focused on basic service in monopoly markets helps to limit any investment-depressing effects of such regulatory measures.<sup>142</sup> Second, I prefer direct retail ratesetting to a system of line-sharing and wholesale regulation for its simplicity.<sup>143</sup> While such “open access” regimes have proved successful in other jurisdictions,<sup>144</sup> it can be far more complex to decide which network elements will be subject to an open access mandate, to set wholesale rates for those elements, and to ensure that such rules survive judicial review.<sup>145</sup> And third, targeting only monopoly markets helps to preserve a relatively straightforward and credible benchmark for efficient rates, namely, rates in competitive markets.

139. See, e.g., Gigi B. Sohn, *Keynote Address, Social Justice or Inequality: The Heart of the Net Neutrality Debate*, 80 U. PITT. L. REV. 779, 785 (2019); see also Nuechterlein & Shelanski, *supra* note 21 (summarizing some such calls for broadband rate regulation).

140. See, e.g., Crawford, *Looming Monopoly*, *supra* note 24, at 39 (advocating in favor of “policies requiring line-sharing at regulated rates”); Crawford, *Crisis*, *supra* note 24, at 261–62.

141. The Commission could adopt the scheme proposed here through its powers over telecommunications services. If the Commission treats broadband carriage as a telecommunications service subject to its powers under Title II of the Communications Act, then the Commission could exercise its powers under § 201 to promulgate a limited scheme of rate regulation—limited to basic service tiers in monopoly-served locales (as I describe and elaborate in the subsequent sections and Appendix A) and otherwise forbearing from rate regulation under 47 U.S.C. § 160. See also 47 U.S.C. § 1302(a) (directing the “[FCC] and each State commission with regulatory jurisdiction over telecommunications services” to use “price cap regulation” to encourage broadband deployment and adoption).

One drawback to this approach is that it vests ratesetting power in federal, rather than state and local, authorities. And it is true that rates set by federal authorities would suffer from the lack of local expertise and accountability that state and local regulators can offer. See generally Narechania & Stallman, *supra* note 3.

There are some responses to this objection, which are described *infra* notes 157–159 and accompanying text. Moreover, the federal Commission would have to play *some* role in rate-setting for those regions where state and local authorities have no authority to regulate broadband carriage. See, e.g. *infra* note 156 and accompanying text.

142. See *infra* Part IV.B.4.

143. Nuechterlein & Shelanski, *supra* note 21, (describing the complexity that attends to a system of wholesale rate regulation).

144. See Crawford, *Looming Monopoly*, *supra* note 24, at 39 (describing such successes).

145. Cf. U.S. Telecom Ass’n v. Fed. Comm’n Comm’n (USTA II), 359 F.3d 554, 564–73 (D.C. Cir. 2004) (reviewing and sustaining a challenge to Commission rules that sought to make certain network elements available to competing, non-facilities-based transmission providers).

Hence, I propose a regime focused on ratesetting for a regulatorily specified basic service tier. Such a regime gives rise to at least three concerns: defining the basic tier; setting rates; and identifying an appropriate regulator. I address each in turn below.

First, the model statute directs the Commission to define a basic tier of broadband service, establishing a floor for service that any broadband carrier may offer.<sup>146</sup> Moreover, though the statute grants the Commission power to modify this standard over time, the statute also specifies a minimum standard for such basic service—a floor on the floor. Consistent with industry recommendations,<sup>147</sup> the proposed statute specifies that any basic tier for broadband service must, at minimum, be capable of sending 25 mbps in both upstream and downstream directions. This standard is sufficient to accommodate several simultaneous videoconferences (for remote work and remote learning across multiple adults and children), or several connected devices.<sup>148</sup> Indeed, the Commission currently defines “broadband” as any service that offers download speeds of 25 mbps and upload speeds of 3 mbps, citing patterns of typical residential broadband *consumption*, i.e., downstream uses (while largely overlooking services that demand upstream capacity).<sup>149</sup> But drawing on critiques of this asymmetric standard—critiques that may seem especially poignant in the wake of sudden increases in demand for upload capacity<sup>150</sup>—the model statute moves toward a symmetric standard. Indeed, a bipartisan cohort of U.S. Senators recently called for a symmetric standard, defining basic broadband at 100 mbps in each direction for new deployments.<sup>151</sup> And, finally, while the Commission may begin with the floor

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146. Such powers are analogous to the Commission’s current responsibility to set out a minimum standard defining broadband carriage under Section 706 of the Telecommunications Act of 1996. *See, e.g.*, Inquiry Concerning the Deployment of Advanced Telecommunications Capability to all Americans in a Reasonable and Timely Fashion, and Possible Steps to Accelerate Such Deployment Pursuant to Section 706 of the Telecommunications Act of 1996, as Amended by the Broadband Data Improvement Act, 30 FCC Rcd. 1375, 1403, ¶ 45 (2015) ¶ 45 (setting latest broadband-defining standard at 25 mbps (download) and 3 mbps (upload)).

147. *See id.* at 1403–04, ¶ 47 n. 211 (noting Verizon’s recommendation of 25/25 Mbps for “normal everyday stuff”).

148. *See, e.g.*, *System Requirements for Windows, macOS, and Linux*, ZOOM (May 23, 2022), <https://support.zoom.us/hc/en-us/articles/201362023-System-requirements-for-Windows-macOS-and-Linux>; *cf.* Inquiry Concerning the Deployment of Advanced Telecommunications Capability to all Americans in a Reasonable and Timely Fashion, 30 FCC Rcd. 1375, 1479–80 (statement of Tom Wheeler, Chairman) (describing the broadband demands that 25 mbps can accommodate).

149. 2015 Broadband Progress Report, *supra* note 146.

150. *See, e.g.*, COMCAST, 2020 NETWORK REPORT, at 4 (noting that growth in upstream traffic outpaced growth in downstream traffic during the 2020 pandemic).

151. Letter from Sens. Bennet, King, Portman, and Manchin to Sec’y Vilsack, Acting Chairwoman Rosenworcel, Sec’y Raimondo, and Dir. Deese (Mar 4, 2021), <https://>

specified in the statute, or adopt the more aggressive proposal advanced by some Senators, or choose some other standard, the model statute also makes allowances for where it is “technically infeasible” to satisfy whatever standard Commission selects.

Second, the model statute allows authorities to set rates for this basic tier of broadband service (and only the basic tier, leaving other tiers of service unregulated).<sup>152</sup> Such regulatorily set rates, moreover, are to be based primarily on the rates charged in competitively served locales (while also accounting for providers’ actual costs and differences across locales and geographies, such as facilities costs and franchise fees<sup>153</sup>). Hence, rather than engage in cost-of-service or rate-of-return ratemaking—which often entails lengthy and complicated regulatory proceedings, can suffer from information asymmetries, and is thus susceptible to capture and manipulation—the mode of rate regulation advanced here more closely resembles price-cap regulation.<sup>154</sup> Specifically, rate caps are to be set, as they are in the universal service context, by reference to competitive markets (though at levels less lax than the 95th percentile of such rates). In short, because competition seems to offer an efficient means of improving consumer value, the statute allows competition to help set rates even in monopoly markets (by using information gathered from comparable but competitive markets).

Third, the model statute vests this ratemaking authority, in the first instance, with state and local authorities, recognizing that such regulators are likely better equipped to analyze other competitive regional markets, to assess which offer useful comparators, and to set rates accordingly.<sup>155</sup> But where no local authority has the power to regulate local providers—where, for example, state statutes strip state and local commissions of power over broadband<sup>156</sup>—

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[www.bennet.senate.gov/public/index.cfm/2021/3/bennet-king-portman-manchin-urge-biden-administration-to-create-modern-unified-federal-broadband-standard](http://www.bennet.senate.gov/public/index.cfm/2021/3/bennet-king-portman-manchin-urge-biden-administration-to-create-modern-unified-federal-broadband-standard) [hereinafter Letter] (proposing symmetric standard for new deployments, at 100 mbps/100 mbps). It is reasonable to think that policymakers would set a higher standard for new broadband deployments subsidized with federal funds than they would for rules regulating existing broadband networks, relying, at least in part, on earlier technologies.

152. See, e.g., S.B. S2506-C, Part NN (N.Y. 2021) (requiring broadband carriers to provide \$15 monthly broadband subscriptions to eligible low-income households).

153. See Letter, *supra* note 151.

154. See 47 U.S.C. § 1302(a) (directing the “[FCC] and each State commission with regulatory jurisdiction over telecommunications services” to use “price cap regulation” to encourage broadband deployment and adoption).

155. See Narechania & Stallman, *supra* note 3, at 598–620 (describing the benefits of vesting regulatory power over local networks with local authorities); see also *supra* note 154; Tejas N. Narechania, *Federal and State Authority for Broadband Regulation*, 18 STAN. TECH. L. REV. 456 (2015).

156. See, e.g., Georgia Code Ann. § 46-55-222(a) (“The Public Service Commission shall not have any jurisdiction, right, power, authority, or duty to impose any requirement or

the statute allows the federal Commission to serve as a backstop. While federal ratemaking may miss some local nuance that local and states regulators are likely better equipped to capture, the experience with the rate controls attending to the receipt of universal service funds suggests that even federal ratesetting can improve affordability for such monopoly-served communities.<sup>157</sup> In short, local rate regulation might be better than federal regulation—but federally-set rates are better than unregulated monopoly rates.<sup>158</sup> Moreover, federal authorities may even tailor rates to some particular locales, as they have for Alaska under the universal service scheme of rate regulation.<sup>159</sup>

In sum, the statute aims to build on the successes of regulation (*vis-à-vis* unrestrained monopoly power) in delivering better broadband rates and service. Specifically, the model statute confers “fair and flexible” broadband-specific regulatory powers on federal and local authorities,<sup>160</sup> powers akin to (but stronger than) those attending to grants of federal universal service funds and helping to improve rates and service where competition is absent.

### 3. *Defining Effective Competition for Broadband*

But how is the Commission to determine which markets are competitive—i.e., not subject to this scheme of rate regulation—and which are not? Again, the model statute draws from the design of the Cable Act, but with some important modifications.

First, the model statute explains that where two wireline providers offer comparable service to a substantial portion of a market, the market is competitive, no matter the market share of either provider.<sup>161</sup> This emphasis on wireline carriers reflects the capacity constraints, noted above, that currently limit the extent to which wireless (both fixed and mobile) and satellite effectively compete with wireline providers.<sup>162</sup>

But, as noted above, the model statute contemplates the possibility that future advances will make other means of delivering broadband carriage

regulation relating to the setting of rates or terms and conditions for the offering of broadband service, VoIP, or wireless services.”); *see also* Indiana Code § 8-1-2.6-1.1; Michigan Comp. Law. § 484.2401.

157. *See supra* Table 3: Broadband Carriage Value (Download Speed Per Dollar)

158. *Cf.* VOLTAIRE, PHILOSOPHICAL DICTIONARY (Juliet Sutherland & Lisa Reigel eds., Carlton House 2006) (1770) (suggesting that perfect can be the enemy of the good).

159. *See, e.g.*, Wireline Competition Bureau and Office of Economics and Analytics Announce Results of 2021 Urban Rate Survey for Fixed Voice and Broadband Services, Posting of Survey Data and Explanatory Notes, and Required Minimum Usage Allowance for Eligible Telecommunications Carriers, 35 FCC Rcd. 13667 (2020).

160. H.R. Rep. 102-628 (1992) at 30.

161. *Cf.* Pacheco & Ramachandran, *supra* note 78.

162. *See supra* note 70 and accompanying text.



competitive with wireline facilities—just as the Cable Act contemplated the possible growth in satellite-based video programming services.<sup>163</sup> And so the model statute also deems a market competitive where any two (or more) providers—regardless of facility or technology used—offer comparable service to a substantial portion of a market, and where the second-largest provider has captured at least fifteen percent of the market. Presently, satellite and fixed wireless providers account for only about 3% of all residential broadband subscriptions.<sup>164</sup> But, just as the capacity and the popularity of satellite television eventually grew to exceed the Cable Act’s fifteen percent benchmark, so too could satellite- or fixed-wireless-based broadband carriage eventually support a broader swath of the population. Hence, the model statute, while emphasizing traditional competition among wireline competitors, accounts for the possibility that competition will come from other sources, too. And in any such competitive markets, the statute withdraws the authority to regulate rates.

#### 4. *Rate Regulation and Avoiding Regulatory Failure*

In all, the proposal offered here aims to address the problem of unrestrained monopoly pricing in local broadband markets, drawing from an existing regime of rate regulation similarly aimed at addressing the problem of unrestrained monopoly pricing in local cable markets. But, as I noted above, rate regulation is an oft-maligned policy—notwithstanding its overlooked successes, such as in the universal service context described above—drawing criticisms regarding capture and information asymmetry, regulatory arbitrage, and incentive effects.<sup>165</sup>

I have already addressed the concerns regarding information asymmetry. Such concerns are most severe in the context of cost-of-service or rate-of-return ratemaking, where ratesetting depends on hidden signals internal to the regulated entity (i.e., the costs of doing business) that it has both the incentive and the ability to manipulate.<sup>166</sup> But the scheme of rate regulation advanced here depends primarily on external, available signals (i.e., prices charged in competitive markets) that are less easily manipulated. I do not mean to suggest that broadband carriers will not attempt to influence regulators, or that regulators will be immune to such persuasion. Indeed, the Commission’s

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163. *Compare* H.R. Rep. 102-628 (1992) at 46 (identifying the potential of “Direct Broadcast Satellite” systems, but noting that “none ... currently is operational”) *with* *NATOA v. FCC*, 862 F.3d 18 (D.C. Cir. 2017) (affirming, twenty-five years later, a rebuttable presumption that all cable systems are subject to effective competition from such systems).

164. *See supra* note 70.

165. *See supra* note 62 and accompanying text.

166. *See supra* note 153–155 and accompanying text; *see also* NUECHTERLEIN & WEISER, *supra* note 7, at 33–34.

decision to deem rates at about the 95th percentile of those charged in urban locales as “reasonably comparable” may be evidence of such influence.<sup>167</sup> Carriers can charge much more than in most competitive markets, and while such rates may be justified (at least in part) by reference to higher deployment costs in these difficult-to-serve areas, these carriers are sure to appreciate the ability to charge these higher prices.<sup>168</sup> So it is true that even this scheme of price regulation, relying on external market signals as benchmarks, will not be perfect. But the relevant comparator is not some fictitious, idealized scheme of rate regulation. Rather, it’s the status quo characterized by monopoly pricing. Viewed against this metric, it seems likely—especially in view of the evidence gathered above—that this scheme will offer a substantial improvement in affordability vis-à-vis present monopoly prices.

Other criticisms of rate regulation regard regulatory arbitrage. Indeed, this is one of the primary criticisms of the 1992 Cable Act’s scheme, as some scholars have contended that the 1992 Act, which provides the basis for the proposal advanced here, failed to meaningfully improve welfare because quality decreased as rates were regulated.<sup>169</sup> Specifically, cable providers minimized the quality and breadth of programming available in the regulated basic service tier in order to induce customers to subscribe to more expensive, unregulated tiers of service. But this criticism, as directed to broadband carriage, falls short. In cable television, “quality variation is relatively feasible” through the manipulation of available channels, and so one predictable consequence of price-cap rate regulation is to starve the regulated service.<sup>170</sup> But broadband carriage is less susceptible to such quality variation. Assuming network neutrality protections,<sup>171</sup> broadband carriage is defined by only a few key dimensions: download and upload speeds; capacity allowances (i.e., data caps); equipment fees; and installation, activation, and termination fees. Regulators can straightforwardly account for all these dimensions when defining a basic service tier and set rates accordingly.<sup>172</sup>

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167. See *supra* note 121.

168. See, e.g., Connect Am. Fund, 29 FCC Rcd. 13485, ¶ 5 (2014) (noting support for this methodology from various industry associations).

169. See *supra* note 135 (collecting such criticisms).

170. Hazlett, *supra* note 135 at 193–94.

171. Of course, without network neutrality protections, quality variation becomes more feasible, as providers can create various packages that limit or block access to popular services, or that degrade the quality of, say, video programming applications. In short, without network neutrality protections, broadband providers are free to sell internet access in a form that resembles channel bundles. For example, Google, Twitter, and Amazon are in a premier tier, while Bing, Facebook, and Overstock are in the basic.

172. Cf. Connect Am. Fund, 29 FCC Rcd. 13485, ¶¶ 7–8 (2014) (noting that the Commission’s existing approach to setting reasonably comparable rates for reasonably comparable service accounts for several such dimensions).

Finally, and most substantially, critics of ratesetting contend that such regulation tends to depress investment by market providers (because it reduces the expected return on those investments, and so negatively affects incentives to invest).<sup>173</sup> It is useful, however, to consider three types of such investments: first, investments by participants in competitive markets; second, investments by putative competitors considering entry into a monopoly-served market; third, investments by putative monopolists into an unserved market. Critics of rate regulation contend that ratesetting will tend to depress all three varieties of rate regulation.<sup>174</sup> But that is not necessarily so; rather, such effects depend on the specific regime at issue. The scheme advanced here should have no effect on investments made by participants in a competitive market, because the scheme does not apply to competitive markets. It applies only to monopoly-served markets. Likewise, the scheme should have no effect on investments made by putative competitors to incumbent monopolists, because the model statute withdraws the authority to regulate rates once a market becomes competitive. Hence, any competitor's expected return on entry should be based on market rates rather than regulated rates.<sup>175</sup> But I concede that rate regulation may depress the incentives to enter unserved markets, as, under the scheme advanced here, putative entrants to such markets could no longer count on the promise of monopoly profits to justify entry.<sup>176</sup> But we have already seen that other inducements—federal subsidies, for example, such as universal service funds—can be sufficient to persuade carriers to enter unserved markets, even when attached to ratesetting conditions.<sup>177</sup> Hence, though local regulators and policymakers would do well to consider how they can facilitate broadband access in digital deserts—for example, subsidies and access to rights-of-way—in order to boost the availability of broadband carriage in unserved areas, such gains need not come at the expense of

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173. See, e.g., Nuechterlein & Shelanski, *supra* note 21.

174. Nuechterlein & Shelanski, *supra* note 21 (criticizing other proposals for rate regulation on all three of these grounds).

175. It is true that, in some instances, regulators may erroneously characterize a market as noncompetitive, or may be slow to recognize competition in a changing market. But such errors alone are not a sufficient reason to cast aside proposals such as the one offered here. Rather, we must assess the likelihood and severity of such errors, and weigh them against the benefits, in terms of affordability, that such a regime will bring to the range of monopoly-served locales. I save that assessment for another day, noting only, as I do above, that the persistent digital divide, driven by affordability concerns, seems to call for a price-oriented regulatory solution, and the one offered here does well to avoid many of the pitfalls of rate regulations. See *supra* text accompanying notes 173–175.

176. Cf. *Verizon Commc'ns, Inc. v. L. Offs. of Curtis V. Trinko LLP*, 540 U.S. 398, 407 (2005) (“The opportunity to charge monopoly prices—at least for a short period—is what attracts ‘business acumen’ in the first place; it induces risk taking that produces innovation and economic growth.”).

177. See *supra* Table 3.

extractive and welfare-diminishing monopoly prices. In short, it is possible to address both access and affordability concerns simultaneously.

## V. CONCLUSION

DirecTV Now's role in the interpretation of the 1992 Cable Act highlights an important tension between transmission-layer services and application-layer. The Act was designed for a different technological era, before the network convergence occasioned by the modern internet. Our regulatory response to such convergence has focused, in significant part, on the deregulation of newly competitive application-layer markets, such as video programming.

But this focus on application-layer markets has obscured the persistent local monopolies in transmission-layer markets. Such durable and deregulated monopoly markets contribute to a stubborn digital divide, driven by higher costs for broadband carriage. One response to this problem of affordability is to return to the program instituted in the 1992 Act itself, namely, a scheme of retail rate regulation, limited to monopoly markets. Such a scheme can help deliver billions of dollars in economic value to consumers, all while improving economic, educational, and health outcomes for a significant portion of the population.

## APPENDIX A: A STATUTORY PROPOSAL

### A. COMPETITION PREFERENCE; LOCAL AND FEDERAL REGULATION

#### (1) In General

The Federal Communications Commission, and State commissions and franchising authorities with authority over broadband internet access service, may regulate the rates for the provision of broadband internet access service only to the extent provided under this section. No Federal agency, State commission, or franchising authority may regulate the rates for broadband internet access service that is owned or operated by a local government or franchising authority within whose jurisdiction that service is located and that is the only service available within such jurisdiction.

#### (2) Preference for Competition

If a provider of broadband internet access service demonstrates to the Federal Communications Commission that its broadband internet access service is subject to effective competition, the rates for the provision of such service by such provider shall not be subject to regulation by the Federal Communications Commission or by a State commission or franchising authority under this section. If the Federal Communications Commission finds that such service is not subject to effective competition—

- (A) the rates for the provision of a basic service tier of broadband internet access service shall be subject to regulation by any State commission or franchising authority with jurisdiction over broadband internet access service;
- (B) where no State commission or franchising authority has jurisdiction over broadband internet access service, including where such authority has been revoked under paragraph (5), the rates for a basic service tier of broadband internet access service shall be subject to regulation by the Federal Communications Commission.

#### (3) Qualification of State Commission or Franchising Authority

A State commission or franchising authority that seeks to exercise the regulatory jurisdiction permitted under paragraph (2)(A) shall file with the Federal Communications Commission a written certification that—

- (A) the State commission or franchising authority will adopt and administer regulations with respect to the rates subject to regulation under this section in a manner consistent with the requirements of subsection (b);

- (B) the State commission or franchising authority has the legal authority to adopt, and the personnel to administer, such regulations; and
- (C) procedural laws and regulations applicable to rate regulation proceedings by such authority provide a reasonable opportunity for consideration of the views of interested parties.

(4) Approval by Federal Communications Commission

A certification filed by a State commission or franchising authority under paragraph (3) shall be effective 30 days after the date on which it is filed unless the Federal Communications Commission finds, after notice to the commission or authority and a reasonable opportunity for the commission or authority to comment, that—

- (A) the State commission or franchising authority has adopted or is administering regulations with respect to the rates subject to regulation under this section that are not consistent with the regulations prescribed by the Federal Communications Commission under subsection (b);
- (B) the State commission or franchising authority does not have the legal authority to adopt, or the personnel to administer, such regulations; or
- (C) procedural laws and regulations applicable to rate regulation proceedings by such authority do not provide a reasonable opportunity for consideration of the views of interested parties.

If the Federal Communications Commission disapproves a State commission or franchising authority's certification, the Federal Communications Commission shall notify the State commission or franchising authority of any revisions or modifications necessary to obtain approval.

(5) Revocation of Jurisdiction

Upon petition by a broadband internet access service provider or other interested party, the Federal Communications Commission shall review the regulation of broadband internet access service rates by a State commission or franchising authority under this subsection. A copy of the petition shall be provided to the franchising authority by the person filing the petition. If the Federal Communications Commission finds that the State commission or franchising authority has acted inconsistently with the requirements of this subsection, the Commission shall grant appropriate relief. If the Federal Communications Commission, after the State commission or franchising

authority has had a reasonable opportunity to comment, determines that the State and local laws and regulations are not in conformance with the regulations prescribed by the Commission under subsection (b), the Federal Communications Commission shall revoke the jurisdiction of such authority.

(6) Exercise of Jurisdiction by Federal Communications Commission—

If the Federal Communications Commission disapproves a State commission or franchising authority's certification under paragraph (4), or revokes such authority's jurisdiction under paragraph (5), the Federal Communications Commission shall exercise the franchising authority's regulatory jurisdiction, as under paragraph (2)(B), until the State commission or franchising authority has qualified to exercise that jurisdiction by filing a new certification that meets the requirements of paragraph (3). Such new certification shall be effective upon approval by the Federal Communications Commission. The Federal Communications Commission shall act to approve or disapprove any such new certification within 90 days after the date it is filed.

B. ESTABLISHING BASIC SERVICE TIER REGULATIONS; RATE REGULATIONS

(1) Obligation to Subscribers

The Commission shall, by regulation, ensure that the rates and services for a basic service tier of broadband internet access service are just and reasonable.

(2) Competitive Benchmarks

Regulations governing the rates charged for a basic service tier of broadband internet access service shall be designed to achieve the goal of protecting subscribers of any provider not subject to effective competition from rates that exceed the rates that would be charged if such provider were subject to effective competition.

(3) Rate Regulations

In prescribing regulations regarding the rates charged, the Federal Communications Commission, and State commissions and franchising authorities with authority over broadband internet access service, may regulate the rates for the provision of a basic service tier of broadband internet access service. In prescribing such regulations, the Commission—

- (A) shall seek to reduce the administrative burdens on subscribers, cable operators, franchising authorities, and the Commission;

- (B) may adopt formulas or other mechanisms and procedures in complying with the requirements of subparagraph (A); and
- (C) shall take into account the following factors, emphasizing the factor set out in paragraph (i):
  - (i) the rates and services for broadband internet access service providers that are subject to effective competition in comparable markets;
  - (ii) the costs and revenues of providing broadband internet access service in regulated markets and comparable markets;
  - (iii) the subsidies (if any) received by a provider for the purpose of providing broadband internet access service to subscribers;
  - (iv) the reasonably and properly allocable portion of any amount assessed as a franchise fee, tax, or charge of any kind imposed by any State or local authority
  - (v) any amount required, in accordance with paragraph (4), to satisfy franchise requirements to support public, educational, or governmental uses of broadband internet access service; and
  - (vi) a reasonable profit, as defined by the Commission consistent with the Commission's obligations to subscribers under paragraph (1).
- (D) Nothing in this section shall be understood to preempt any prior agreement that regards, or any provision or law of any State that regulates, the rates and services for broadband internet access service offered to—
  - (i) low-income or economically disadvantaged subscribers;
  - (ii) public and nonprofit elementary and secondary school classrooms, health care providers, and libraries;
  - (iii) public institutional users.

#### (4) Implementation and Enforcement

The regulations prescribed by the Commission under this subsection shall include additional standards, guidelines, and procedures concerning the implementation and enforcement of such regulations, including—

- (A) procedures by which broadband internet access service providers may implement and franchising authorities may enforce the regulations prescribed by the Commission under this subsection;



- (B) procedures for the expeditious resolution of disputes between broadband internet access service providers and franchising authorities concerning the administration of such regulations;
- (C) standards and procedures to prevent unreasonable charges for changes in the subscriber's selection of services or equipment subject to regulation under this section, which standards shall require that charges for changing the service tier selected shall be based on the cost of such change and shall not exceed nominal amounts; and
- (D) standards and procedures to assure that subscribers receive notice of the availability of the basic service tier required under this section.

(5) Notice

The procedures prescribed by the Commission pursuant to paragraph (5)(A) shall require a broadband internet access service provider to provide 30 days' advance notice to a franchising authority of any increase proposed in the price to be charged for the basic service tier.

(6) Components of a Basic Service Tier Subject to Rate Regulation

- (A) Each broadband internet access service provider shall provide its subscribers a basic tier of service. Such basic service tier shall consist of the following:
  - (i) access to all lawful internet content, applications, and services that is—
    - (1) not blocked;
    - (2) not impaired or degraded; and
    - (3) not subject to paid prioritization or unreasonable interference or disadvantage;
    - (4) except that any reasonable network management practice shall not be understood as impairing, degrading, or unreasonably interfering with or disadvantaging such access.
  - (ii) access to all lawful internet content that satisfies minimum speed standards to be prescribed by the Commission, but no lower than 25 Mbps download and upload,
    - (1) except, where it is technically infeasible to offer service satisfying the Commission's standard, the best available service nevertheless below that standard;

- (2) except that any provider whose basic service tier falls into the exception set out in subparagraph (B)(6)(A)(ii)(1) shall not qualify as an effective competitor for purposes of Section (I)(1);
  - (iii) no limits on a user's capacity allowance,
    - (1) except, where it is technically infeasible to offer unlimited capacity allowances, the best available service nevertheless below that standard;
    - (2) except that any provider whose basic service tier falls into the exception set out in subparagraph (B)(6)(A)(iii)(1) shall not qualify as an effective competitor for purposes of Section (I)(1);
  - (iv) such limits on installation, activation, termination, equipment, and other such fees as the Commission prescribes.
- (B) The prescription of a basic service tier shall not be understood to prevent broadband internet access service providers from offering higher tiers of service. The rates and services for such higher tiers of service shall not be subject to regulation by the Commission or by a State or franchising authority under this section.
- (C) Broadband internet access service providers may not offer any tier of service that is below the benchmarks prescribed by the Commission, except as noted in subparagraphs (A)(ii) and (A)(iii).
- (D) Broadband internet access service providers shall advertise the availability of a basic service tier in a manner, and with such prominence, as any other tier of service offered by such provider. Broadband internet access providers may not impose requirements to subscribe to the basic service tier greater or more onerous than those required to subscribe to any other tier.

#### (7) Buy-Through Prohibited

A provider of broadband internet access service may not require the subscription to any tier other than the basic service tier as a condition of subscribing to any other service offered by the provider, nor may a provider

require the subscription of any other service as a condition of subscribing to the basic service tier. A broadband internet access service provider may not discriminate between subscribers to the basic service tier and other subscribers with regard to the rates charged for additional services.

#### C. REPORTS ON AVERAGE PRICES

The Commission shall publish an annual statistical report on the average rates for the basic tier of broadband internet access service and for other service tiers, and for other costs, that the Commission has found are subject to effective competition under subsection (a)(2) compared with rates that the Commission has found are not subject to such effective competition.

#### D. DISCRIMINATION; ACCESSIBILITY

Nothing in this subchapter shall be construed as prohibiting any Federal agency, State, or a franchising authority from—

- (A) prohibiting discrimination among subscribers and potential subscribers to broadband internet access service, except that no Federal agency, State, or franchising authority may prohibit a provider of broadband internet access service from offering reasonable discounts to senior citizens or any economically-disadvantaged group; or
- (B) requiring and regulating the installation or rental of equipment which facilitates the provision of broadband internet access service to hearing impaired or visually impaired individuals.

#### E. NEGATIVE OPTION BILLING PROHIBITED

A provider of broadband internet access service shall not charge a subscriber for any service or equipment that the subscriber has not affirmatively requested by name. For purposes of this subsection, a subscriber's failure to refuse a proposal to provide such service or equipment shall not be deemed to be an affirmative request for such service or equipment.

#### F. COLLECTION OF INFORMATION

The Commission shall, by regulation, require broadband internet access service providers to file with the Commission or a franchising authority, as appropriate, within one year after the passage of this section and annually

thereafter, such financial information as may be needed for purposes of administering and enforcing this section.

#### G. PREVENTING EVASIONS

The Commission shall, by regulation, establish standards, guidelines, and procedures to prevent evasions, including evasions that result from retiering, of the requirements of this section and shall, thereafter, periodically review and revise such standards, guidelines, and procedures.

#### H. SMALL PROVIDERS

##### (1) No Rate Regulation for Small Providers

Subsections (a) and (b) do not apply to any provider of broadband internet access service that serves fewer than 50,000 subscribers and that is not affiliated with any entity or entities whose gross annual revenues in the aggregate exceed \$250,000,000.

##### (2) Administrative Burdens

In developing and prescribing regulations pursuant to this section, the Commission shall design such regulations to reduce the administrative burdens and cost of compliance for provider of broadband internet access service that have 1,000 or fewer subscribers.

#### I. DEFINITIONS

##### (1) The term “effective competition” means that—

- (A) the franchise area is served by at least two unaffiliated broadband internet access service providers, each of which offers comparable service that satisfies the Commission’s speed benchmarks for basic service over a fixed wireline facility to at least 67 percent of the households in the franchise area; or
- (B) the franchise area is—
  - (i) served by at least two unaffiliated broadband internet access service providers, each of which offers comparable service, regardless of the technology or facility used to offer such service, to at least 67 percent of the households in the franchise area; and
  - (ii) the number of households subscribing to services offered by the broadband internet access service

provider other than the largest provider exceeds 15 percent of the households in the franchise area.

(2) The term “broadband internet access service” means a mass-market retail service by wire or radio that provides the capability to transmit data to and receive data from all or substantially all internet endpoints, including any capabilities that are incidental to and enable the operation of the communications service, but excluding dial-up internet access service. This term also encompasses any service that the Commission finds to be providing a functional equivalent of the service described in the previous sentence or that is used to evade the protections set forth in this part.

## APPENDIX B: DATA: RESULTS AND METHODS

### A. SUPPLEMENTAL RESULTS

**Table 4: Available Broadband Service for Residents in Comcast's Formerly Regulated Footprint**

<u>Community</u>	<u>No Service</u> (Population)	<u>Monopoly Service</u> (Population)	<u>Competitive Service</u> (Population)
Acushnet	19	7,509	2,765
Agawam	265	27,496	0
Amesbury	95	15,887	0
Amherst	515	21,703	365
Attleboro	312	42,496	221
Avon	6	4,349	0
Barnstable	431	44,399	0
Berkley	14	4,553	1,828
Beverly	72	36,732	184
Blackstone	0	5,465	3,515
Bridgewater	348	20,971	482
Brockton	961	91,058	23
Buckland***	61	3,682	0
Cambridge	1,014	82,789	4,257
Carlisle	7	4,845	0
Chatham	11	6,011	0
Clinton	14	13,203	325
Concord	0	330	15,640
Dartmouth	38	25,317	3,202
Deerfield	15	4,778	0
Dennis	378	13,707	0
Dighton	21	6,985	0
Dracut	663	26,238	2,544
East Bridgewater	46	13,613	0
Eastham	13	4,943	0
Essex	4	3,424	76
Fairhaven	29	15,520	0
Fall River	1,016	86,106	0
Falmouth	87	30,936	0
Freetown	65	3,843	4,870

Gardner	41	18,905	0
Gloucester	66	28,273	0
Granby	21	5,992	226
Greenfield	60	16,586	204
Groveland	88	6,371	0
Hanson	41	8,543	1,605
Harwich	74	12,000	0
Hatfield	26	3,253	0
Haverhill	376	59,203	0
Holyoke	438	38,057	0
Lancaster	22	4,520	1,856
Longmeadow	53	15,203	0
Lowell	886	100,062	1,225
Manchester-By-The-Sea	28	5,099	0
Merrimac	13	6,302	0
Milton	166	7,544	6,368
Montague	72	8,221	2
New Bedford	589	92,517	0
Newbury	17	6,229	315
Newburyport	27	17,003	0
Northampton	227	25,148	18
Norton	175	16,576	502
Orleans	28	5,774	0
Palmer	206	11,710	164
Peabody	943	47,860	1,928
Pelham	17	1,272	32
Plainville	65	7,659	510
Provincetown	27	2,871	0
Quincy	1387	89,302	158
Rehoboth	0	11,588	8
Rockport	8	6,875	0
Salem	252	39,265	53
Saugus	145	23,185	2,963
Scituate	66	16,943	939
Sharon	236	16,618	688
Somerset	21	17,875	0
South Hadley	32	15,122	160

Southwick	11	9,476	0
Springfield	824	143,786	2,773
Sunderland****	355	4,772	0
Swansea	45	15,607	0
Templeton	29	7,746	0
Ware	131	9,578	154
Warren	243	3,826	1,061
Wellfleet	52	2,697	0
West Bridgewater	15	6,756	1
West Springfield	364	27,673	184
Westfield	309	6,976	30,833
Westhampton	8	1,492	107
Weymouth	691	52,323	269
Whitman	61	14,382	0
Williamsburg*****	936	2,593	0
Winthrop	97	17,348	0
Yarmouth	251	23,359	14
<b>TOTAL</b>	<b>17,881</b>	<b>1,834,804</b>	<b>95,617</b>

Table 5: Available Broadband Service for Residents in Cox's Formerly Regulated Footprint

<u>Community</u>	<u>No Service</u> (Population)	<u>Monopoly Service</u> (Population)	<u>Competitive Service</u> (Population)
<b>Holland**</b>	17	4,016	286

B. APPENDIX TO TABLES 1, 4–5

Tables 1, 4, and 5 are based on the Commission's fixed broadband deployment data (Form 477 data) for the state of Massachusetts.<sup>178</sup> The FCC's data tables include columns for the unique fifteen-digit census block code used in the 2010 US Census (BlockCode), the available facility (or facilities) for broadband transmission (TechCode) in each census block, and the maximum download (MaxAdDown) and upload (MaxAdUp) speeds advertised in each

178. See Form 477 Broadband Deployment Data – June 2019 (version 1), <https://www.fcc.gov/form-477-broadband-deployment-data-june-2019-version-1>. The particular version used for these data tables was MA-Fixed-Jun2019-v1.csv (February 25, 2020).



census block. The Census Bureau also provides population data (by census block).

Each community identified in each provider's petition for deregulation (for example, Charter's Petition for Determination of Effective Competition) can be divided into one or more census tracts, with each tract comprising a group of census blocks. Because the census block codes do not directly identify the name of the community to which they belong (the code only offers information about its respective block's state, county, and tract) a research assistant generated tables of tract codes for each community by visually examining the FFIEC Geocoding/Mapping System and identifying the borders of each community.<sup>179</sup> Although the vast majority of communities were made up of one or more tracts, a few smaller communities shared tract codes with neighboring communities (that is, one tract crossed the community's border and extended into a neighboring locality). Such communities are denoted with asterisks in Tables 1, 4, and 5, and details are elaborated in footnote 180.<sup>180</sup> Such communities account for less than one percent of the total results, and do not affect my conclusion that cable monopolists tend to be broadband monopolists.

This data was compiled to yield a table listing each community with its tract codes, census block codes (and population per census block). These census block codes were then cross-referenced with the FCC's broadband deployment data per census block to identify those monopoly-served and competitively-served census blocks (using the Commission's definition for broadband as a baseline for service).

### C. APPENDIX TO TABLE 2–3

Tables 2 and 3 begin with two main sources: the Universal Service Administrative Company's Connect America Fund (CAF) Broadband Map; and the FCC's Fixed Broadband Deployment Map.

I selected seven states—Arizona, California, Georgia, Minnesota, Montana, New York, and Washington—semi-randomly, with the constraints that the sample is broadly representative of the nation's major regions, and that each state in the sample offers the opportunity to compare competitive service,

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179. See FFIEC Geocoding System, <https://geomap.ffiec.gov/FFIECGeocMap/GeocodeMap1.aspx> (last visited Sept. 26, 2022).

180. These communities shared tract codes with the neighboring communities noted below:

- \* Richmond, MA shares tract code(s) with Hancock, MA and New Ashford, MA.
- \*\* Holland, MA shares tract code(s) with Wales, MA.
- \*\*\* Buckland, MA shares tract code(s) with Shelburne, MA.
- \*\*\*\* Sunderland, MA shares tract code(s) with Whatley, MA.
- \*\*\*\*\* Williamsburg, MA shares tract code(s) with Goshen, MA.

regulated service, and unregulated monopoly service across a set of a reasonably proximate locales. I tried, for example, to include Nebraska as representative of the Great Plains and Midwest, but switched to Minnesota once the latter constraint could not be satisfied. Within each state, a research assistant selected two broadband providers that had received the most CAF II support based on dollars received or locations deployed.

For each provider, we located three residential addresses for each of three categories (competitively-served, regulated-monopoly-served, unregulated-monopoly-served). As explained above, unregulated monopolists are those providers that are neither subject to the Commission's public interest obligations in the relevant locale, nor subject to market competition (excluding satellite and fixed wireless providers). Regulated monopolists are those providers that are subject to the public interest obligations, but not subject to any competition (excluding, again, satellite and fixed wireless providers). And competitive providers are those subject to wireline competition. The research assistant selected residential addresses that she visually estimated were located as closely together as possible: Visual estimation proved to be the best method for identifying these sets of locales.

The research assistant entered each selected residential address into the appropriate provider's website to procure a quote for internet service at that address. These quotes were obtained during March and April 2021. For the vast majority of residential addresses, the provider offered only one package, namely, one promised top speed for one monthly price (often subject to a post-promotion price increase). Some, however, offered a variety of speeds at varying monthly prices. The research assistant recorded all available information and captured screen images of these results.

The resulting dataset contains nine residential addresses per broadband provider for each state—three for each of the three categories, as well as a corresponding cost for broadband carriage at each address. The average broadband carriage value (the metric used in Tables 2 and 3) for each state-provider pair is average across all three addresses of the average mbps per dollar across the packages available at each address.

Where possible, the prices recorded exclude any temporary promotional discounts. The prices, however, include some non-temporary discounts, such as discounts for ordering service online. The prices exclude installation fees and equipment fees, or other such costs.

Where providers offered more than one package at a residential address, each package counts, as noted above. However, some narrative descriptions (in the Article's main text above) of geographic comparisons emphasize more limited, but direct, comparisons. Where, for example, a narrative description

refers to a \$55.00 offering, it describes only offerings at that price point, notwithstanding any other available options.

**Table 6: Sampled Data**

State	Provider	Category	Street <sup>181</sup>	City	Price	Speed
AZ	CenturyLink	Unregulated Monopoly	Hidden Hollow Road	Flagstaff	\$49.00	1.5
AZ	CenturyLink	Unregulated Monopoly	W Hashknife Trail	Flagstaff	\$49.00	3
AZ	CenturyLink	Unregulated Monopoly	W Hashknife Trail	Flagstaff	\$49.00	3
AZ	CenturyLink	Regulated Monopoly	W Whitman Trail	Flagstaff	\$49.00 \$49.00	30 15
AZ	CenturyLink	Regulated Monopoly	W Dreamview Trail	Flagstaff	\$49.00	10
AZ	CenturyLink	Regulated Monopoly	W Raven Road	Flagstaff	\$49.00 \$49.00	40 30
AZ	CenturyLink	Competitive	N Nancy Way	Flagstaff	\$49.00	30
AZ	CenturyLink	Competitive	Magdalena Road	Flagstaff	\$49.00 \$49.00	40 20
AZ	CenturyLink	Competitive	W Red Rock Lane	Flagstaff	\$49.00	30
AZ	Frontier	Unregulated Monopoly	S Hoyt Street	Snowflake	\$44.99	12
AZ	Frontier	Unregulated Monopoly	Hoyt Road	Snowflake	\$44.99	12
AZ	Frontier	Unregulated Monopoly	White Antelope Road	Snowflake	\$37.99	3
AZ	Frontier	Regulated Monopoly	W Darlene Lane	Snowflake	\$44.99	12
AZ	Frontier	Regulated Monopoly	N 4th Street W	Snowflake	\$44.99	12
AZ	Frontier	Regulated Monopoly	Despain Avenue	Snowflake	\$44.99	12

181. Complete address redacted.

AZ	Frontier	Competitive	W 8th Street S	Snowflake	\$44.99	25
AZ	Frontier	Competitive	W 6th Street S	Snowflake	\$44.99	25
AZ	Frontier	Competitive	W Center Street	Snowflake	\$44.99	25
CA	AT&T	Unregulated Monopoly	C Street	Julian	\$55.00	18
CA	AT&T	Unregulated Monopoly	Keyes Road	Ramona	\$55.00	10
CA	AT&T	Unregulated Monopoly	2nd Street	Julian	\$55.00	18
CA	AT&T	Regulated Monopoly	Apple Lane	Julian	\$55.00	25
CA	AT&T	Regulated Monopoly	Elm Street	Ramona	\$55.00	10
CA	AT&T	Regulated Monopoly	Pamo Road	Ramona	\$55.00	25
CA	AT&T	Competitive	Keyes Road	Ramona	\$55.00	25
CA	AT&T	Competitive	B Street	Ramona	\$55.00	50
CA	AT&T	Competitive	Ash Street	Ramona	\$55.00	75
CA	Frontier	Unregulated Monopoly	Casper Avenue	Inyokern	\$44.99	12
CA	Frontier	Unregulated Monopoly	S Forest Knoll Street	Ridgecrest	\$44.99	12
CA	Frontier	Unregulated Monopoly	S Forest Knoll Street	Ridgecrest	\$44.99	12
CA	Frontier	Regulated Monopoly	N Blackbird Street	Inyokern	\$44.99	12
CA	Frontier	Regulated Monopoly	Sierra Vista Street	Inyokern	\$44.99	18
CA	Frontier	Regulated Monopoly	Ridgecrest Boulevard	Inyokern	\$44.99	12
CA	Frontier	Competitive	Valley Avenue	Inyokern	\$44.99	25
CA	Frontier	Competitive	Ash Avenue	Inyokern	\$54.99	90
CA	Frontier	Competitive	Brown Road	Inyokern	\$54.99	70
GA	AT&T	Unregulated Monopoly	Maple Lane	Watkinsville	\$55.00	5

GA	AT&T	Unregulated Monopoly	Macon Highway	Bishop	\$55.00	25
GA	AT&T	Unregulated Monopoly	Macon Highway	Bishop	\$55.00	25
GA	AT&T	Regulated Monopoly	Macon Highway	Bishop	\$55.00	75
GA	AT&T	Regulated Monopoly	Greenfield Lane	Watkinsville	\$55.00	5
GA	AT&T	Regulated Monopoly	Macon Highway	Bishop	\$55.00	25
GA	AT&T	Competitive	Simonton Bridge Road	Watkinsville	\$55.00 \$65.00 \$80.00	100 300 1000
GA	AT&T	Competitive	Wilson Road	Watkinsville	\$55.00 \$65.00 \$80.00	100 300 1000
GA	AT&T	Competitive	Lawanna Drive	Watkinsville	\$55.00 \$65.00 \$80.00	100 300 1000
GA	Frontier	Unregulated Monopoly	Pinhook Road SE	Fairmount	\$44.99	12
GA	Frontier	Unregulated Monopoly	Pinhook Road SE	Fairmount	\$44.99	12
GA	Frontier	Unregulated Monopoly	Pack Road NE	Ranger	\$44.99	18
GA	Frontier	Regulated Monopoly	Pittman Road NE	Ranger	\$44.99	12
GA	Frontier	Regulated Monopoly	Red Bud Road NE	Ranger	\$54.99	45
GA	Frontier	Regulated Monopoly	Shirley Road SE	Ranger	\$44.99	12
GA	Frontier	Competitive	Red Bud Road NE	Ranger	\$44.99	18
GA	Frontier	Competitive	Fairmount Highway SE	Fairmount	\$54.99	90
GA	Frontier	Competitive	Fairmount Highway SE	Fairmount	\$54.99	115

MN	CenturyLink	Unregulated Monopoly	Kenyon Boulevard	Faribault/ Cannon City	\$49.00	10
MN	CenturyLink	Unregulated Monopoly	Cannon City Boulevard	Faribault/ Cannon City	\$49.00	20
MN	CenturyLink	Unregulated Monopoly	Canby Avenue	Faribault	\$49.00	3
MN	CenturyLink	Regulated Monopoly	Morristown Boulevard	Faribault	\$49.00	40
MN	CenturyLink	Regulated Monopoly	Faribault Boulevard	Faribault	\$49.00	40
MN	CenturyLink	Regulated Monopoly	220th Street E	Faribault	\$49.00	10
MN	CenturyLink	Competitive	23rd Avenue NW	Faribault	\$49.00	60
MN	CenturyLink	Competitive	Glynview Trail	Faribault	\$49.00	60
MN	CenturyLink	Competitive	Chestnut Lane	Faribault	\$49.00	60
MN	Frontier	Unregulated Monopoly	345th Avenue	Henderson	\$44.99	12
MN	Frontier	Unregulated Monopoly	331st Avenue	Green Isle	\$44.99	12
MN	Frontier	Unregulated Monopoly	341st Lane	Henderson	\$44.99	12
MN	Frontier	Regulated Monopoly	226th Street	Henderson	\$44.99	12
MN	Frontier	Regulated Monopoly	226th Street	Henderson	\$44.99	12
MN	Frontier	Regulated Monopoly	228th Street	Green Isle	\$44.99	18
MN	Frontier	Competitive	N 5th Street	Henderson	\$44.99	18
MN	Frontier	Competitive	S 5th Street	Henderson	\$44.99	25
MN	Frontier	Competitive	S 3rd Street	Henderson	\$44.99	18
MT	CenturyLink	Unregulated Monopoly	Chapman Road	Bozeman	\$49.00	10
MT	CenturyLink	Unregulated Monopoly	Blackwood Road	Bozeman	\$49.00	15
MT	CenturyLink	Unregulated Monopoly	Gooch Hill Road	Bozeman	\$49.00	10

MT	CenturyLink	Regulated Monopoly	Clark Way	Bozeman	\$49.00 \$49.00	80 40
MT	CenturyLink	Regulated Monopoly	Blackwood Road	Bozeman	\$49.00	15
MT	CenturyLink	Regulated Monopoly	Fowler Lane	Bozeman	\$49.00 \$49.00	40 30
MT	CenturyLink	Competitive	Alpha Drive	Bozeman	\$49.00 \$49.00	60 40
MT	CenturyLink	Competitive	Driftwood Drive	Bozeman	\$49.00 \$49.00	100 60
MT	CenturyLink	Competitive	Leverich Road	Bozeman	\$49.00 \$49.00	100 60
MT	Zipty (formerly Frontier)	Unregulated Monopoly	Sunrise Road	Troy	\$45.00	3
MT	Zipty (formerly Frontier)	Unregulated Monopoly	Sunset Lane	Troy	\$45.00	3
MT	Zipty (formerly Frontier)	Unregulated Monopoly	110 E Spokane Avenue	Troy	\$45.00	45
MT	Zipty (formerly Frontier)	Regulated Monopoly	Valley of the Moon Road	Troy	\$45.00	25
MT	Zipty (formerly Frontier)	Regulated Monopoly	Iron Creek Road	Troy	\$45.00	70
MT	Zipty (formerly Frontier)	Regulated Monopoly	Welch Road	Troy	\$45.00	25
MT	Zipty (formerly Frontier)	Competitive	E Missoula Avenue	Troy	\$45.00	12
MT	Zipty (formerly Frontier)	Competitive	E Kootenai Avenue	Troy	\$45.00	35

MT	ZiPLY (formerly Frontier)	Competitive	E Missoula Avenue	Troy	\$45.00	35
NY	Frontier	Unregulated Monopoly	Rix Hill Road	Hemlock	\$44.99	12
NY	Frontier	Unregulated Monopoly	Blank Road	Hemlock	\$37.99	9
NY	Frontier	Unregulated Monopoly	Blank Road	Hemlock	\$44.99	18
NY	Frontier	Regulated Monopoly	Blank Road	Hemlock	\$44.99	12
NY	Frontier	Regulated Monopoly	Blank Road	Hemlock	\$44.99	18
NY	Frontier	Regulated Monopoly	Harder Road	Hemlock	\$37.99	9
NY	Frontier	Competitive	Pleasant Street	Hemlock	\$44.99	25
NY	Frontier	Competitive	Main Street	Hemlock	\$44.99	25
NY	Frontier	Competitive	Clay Street	Hemlock	\$44.99	25
NY	Windstream	Unregulated Monopoly	Mud Creek Road	Kennedy	\$67.00	4
NY	Windstream	Unregulated Monopoly	Page Road	Kennedy	\$67.00	4
NY	Windstream	Unregulated Monopoly	Waterman Road	Kennedy	\$67.00	1.5
NY	Windstream	Regulated Monopoly	Page Road	Kennedy	\$67.00	10
NY	Windstream	Regulated Monopoly	Mud Creek Road	Kennedy	\$67.00	10
NY	Windstream	Regulated Monopoly	Miller Valley Road	Kennedy	\$67.00	10
NY	Windstream	Competitive	Wheelock Road	Kennedy	\$67.00	15
NY	Windstream	Competitive	2nd Street	Kennedy	\$67.00 \$77.00	50 200
NY	Windstream	Competitive	Maple Shade Lane	Kennedy	\$67.00 \$77.00	50 100



WA	CenturyLink	Unregulated Monopoly	Guy Kelly Road	Port Angeles	\$49.00	15
WA	CenturyLink	Unregulated Monopoly	Guy Kelly Road	Port Angeles	\$49.00	10
WA	CenturyLink	Unregulated Monopoly	Blue Ridge Road, Main Unit	Port Angeles	\$49.00	10
WA	CenturyLink	Regulated Monopoly	Lake Farm Road	Port Angeles	\$49.00	20
WA	CenturyLink	Regulated Monopoly	Lake Farm Road	Port Angeles	\$49.00	20
WA	CenturyLink	Regulated Monopoly	Blue Mtn Road	Port Angeles	\$49.00	10
WA	CenturyLink	Competitive	Fern Road	Port Angeles	\$49.00	30
WA	CenturyLink	Competitive	Breezy Lane	Port Angeles	\$49.00	40
WA	CenturyLink	Competitive	Guy Kelly Road	Port Angeles	\$49.00	20
WA	Ziplay (formerly Frontier)	Unregulated Monopoly	Spirit Lane	Kennewick	\$45.00	25
WA	Ziplay (formerly Frontier)	Unregulated Monopoly	S 816 Prairie SE	Kennewick	\$45.00	25
WA	Ziplay (formerly Frontier)	Unregulated Monopoly	E Canyon Meadow Drive	Kennewick	\$45.00	18
WA	Ziplay (formerly Frontier)	Regulated Monopoly	S 855 Prairie SE	Kennewick	\$45.00	25
WA	Ziplay (formerly Frontier)	Regulated Monopoly	S 855 Prairie SE	Kennewick	\$45.00	25
WA	Ziplay (formerly Frontier)	Regulated Monopoly	S 855 Prairie SE	Kennewick	\$45.00	25

WA	Ziply (formerly Frontier)	Competitive	S 855 Prairie SE	Kennewick	\$45.00	25
WA	Ziply (formerly Frontier)	Competitive	S Grandview Lane	Kennewick	\$45.00	45
WA	Ziply (formerly Frontier)	Competitive	S 887 Prairie SE	Kennewick	\$45.00	115