

EXHIBIT B

How Economics Can Inform Telecommunications Policy: The FCC's Proposed Action on Restoring Internet Freedom

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Introduction

1. The Federal Communications Commission (FCC) recently released a Notice of Proposed Rulemaking in the matter of “Restoring Internet Freedom” (“Restoring Internet Freedom NPRM”).¹ At the core of the NPRM is the FCC’s proposal to “reinstate the information service classification of broadband Internet access service and return to the light-touch regulatory framework first established on a bipartisan basis during the Clinton Administration.”² In this paper, I evaluate the FCC’s proposal to reinstate this “light-touch” regulatory framework to the regulation of Internet Service Providers (ISPs) from an economic perspective. I will argue that reinstating this framework is likely to do significantly more good than harm.

2. The framework proposed in the FCC’s Restoring Internet Freedom NPRM can be contrasted with the regulatory approach adopted in its 2015 “Title II Order”,³ which classified broadband Internet access as a “telecommunications service” under Title II of the Communications Act,⁴ effectively allowing ISPs to be regulated as public utilities. In the Title II Order, the FCC imposed several “heavy-handed” regulatory measures on ISPs, subjecting ISPs to “bright-line” bans on specific business practices,⁵ and adopting a broad “General Conduct Standard,” which gave the FCC discretion to ban any form of ISP conduct it deemed unreasonable or harmful in the future.⁶

3. The economics literature has long recognized that appropriate regulatory interventions can benefit consumers, but only *under certain conditions*. In particular, a regulatory intervention is likely warranted when (among other criteria) there is significant evidence of market failure, and regulators have shown that the anticipated economic

1. See Federal Communications Commission, *In the Matter of Restoring Internet Freedom*, WC Docket No. 17-108, Notice of Proposed Rulemaking, May 23, 2017 (hereafter “Restoring Internet Freedom NPRM”).

2. *Id.*, ¶ 24.

3. See Federal Communications Commission, *In the Matter of Protecting and Promoting the Open Internet*, GN Docket No. 14-28, Report and Order on Remand, Declaratory Ruling, and Order, March 12, 2015 (hereafter “Title II Order”).

4. *Id.*, ¶ 29 (“[W]e find that broadband Internet access service is a ‘telecommunications service,’ and subject to sections 201, 202, and 208 (along with key enforcement provisions). As a result, commercial arrangements for the exchange of traffic with a broadband Internet access provider are within the scope of Title II[.]”)

5. *Id.*, ¶¶ 14-19.

6. *Id.*

benefits of the regulatory intervention are likely to outweigh the anticipated economic costs. With respect to the provision of broadband Internet access services in the United States, neither condition is likely to be satisfied: the evidence is consistent with the conclusion that, prior to the Title II Order, the market for the provision of broadband Internet access was generating substantial benefits for consumers.

4. The remainder of the paper is organized in four parts:

5. In part I, I briefly review the relevant regulatory background necessary to understand the core proposals in the Restoring Internet Freedom NPRM, and to distinguish the light-touch regulation contained therein from the heavier, utility-style regulation that resulted from the 2015 Title II Order. While the distinction between a light-touch approach to regulation and a heavy-handed one can be nuanced, the former tends to place greater reliance on market-based outcomes and regulatory certainty. It also typically places the onus on complainants to demonstrate that a given form of conduct by a regulated entity (here, an ISP) materially impaired their interests.

6. In part II, I present a framework for thinking about regulation grounded in economics. I define a “light-touch” regulatory approach as one that promotes long-run economic efficiency, and offer some examples of this approach. Because a light-touch regulatory approach focuses on long-run economic efficiency, it will help to increase long-run consumer welfare, which is a reasonable goal for regulatory policy. In contrast, a “heavy-handed” regulatory approach is one that does not place a primary emphasis on economic efficiency, and may not serve to increase long-run consumer welfare. I present some examples of this approach as well. It is important to recognize that while a light-touch regulatory framework often places less emphasis on the need for regulators to intervene in markets, this does not mean that regulatory intervention should never be exercised.

7. In Part III, I demonstrate that applying a light-touch regulatory framework to the provision of broadband Internet access services is likely to generate benefits that exceed anticipated costs. While no party (including the FCC) has yet to undertake a comprehensive cost-benefit study, the qualitative and quantitative evidence that is available is consistent with the notion that a light-touch approach is likely to generate substantial benefits for consumers. Specifically, I review evidence indicating that a light-touch framework would generate benefits in the form of: (1) increased investment and innovation by ISPs; (2) increased development of real-time applications that benefit consumers; and (3) the reduction of costs borne by ISPs as a result of the regulatory uncertainty and red tape created by the Title II Order’s catch-all “General Conduct Standard.” I also discuss anticipated costs likely to be incurred by a light-touch regulatory approach. Based on my analysis, I believe that the benefits of a light-touch approach likely exceed the anticipated costs.

8. Part IV concludes.

I. Background

9. In this section, I briefly present relevant background details concerning potential approaches to the regulation of services such as the provision of broadband Internet access. I also review recent regulatory developments, including the FCC's adoption of the Title II Order, which set the stage for the policy proposals in the Restoring Internet Freedom NPRM.

A. Characteristics of Light-touch and Heavy-handed Regulation

10. The Restoring Internet Freedom NPRM proposes to reestablish a so-called light-touch approach to the regulation of conduct by broadband ISPs. As such, it is useful to distinguish in general terms between a light-touch regulatory framework and a heavy-handed one.

11. Light-touch regulation is designed to promote long-run economic efficiency. Long-run economic efficiency means maximizing benefits for producers and consumers over a long period of time, such as a decade or more. A light touch regulatory approach would:

- a. consider restricting, and potentially even banning, economic activities that do not have any plausible economic efficiency rationale;
- b. allow for experimentation with policies that could promote economic efficiency;
- c. create rules and processes that use clear economic criteria when evaluating the efficiency implications of firm behavior;
- d. create safe harbors to promote behaviors that are very likely to promote economic efficiency;⁷ and
- e. require complainants to demonstrate that they suffered material harm to their overall welfare or ability to compete.

12. There are many examples of a light-touch regulatory approach. In the most general sense, a light touch regulatory approach would allow firms in a competitive industry to have great latitude in their pricing and service offerings. In the context of the market for wireless broadband, where there are numerous providers, rising levels of output, and declines in per-unit pricing (all of which indicate healthy competition),⁸ firms should be allowed to experiment with pricing schemes and with service offerings that have an economic efficiency rationale. For example, I believe that, under current market

7. An example of a safe harbor consistent with a lighter touch approach is one that would allow networks to engage in reasonable network management when their system is congested.

8. See, for example, Comments of CTIA, WT Docket No. 17-69 (May 8, 2017).

conditions, providers should be allowed to offer the free data services introduced in the past several years. At the same time, all firms should be subject to antitrust laws.⁹

13. In contrast, a “heavy-handed” regulatory approach would not prioritize long-run economic efficiency. A heavy-handed approach could impose limitations that are unrelated to economic efficiency, such as limiting the ability of firms to charge more for better quality of service or to offer free data services. It could also define standards for intervention that give the regulator a very wide range of discretion without a basis for being held accountable for its decision, such as the General Conduct Standard discussed below.¹⁰ The creation of rules or standards that allow for vast discretion and may bear no relationship to economic principles is likely to suppress innovation and investment that would be good for the long-run consumer welfare.

B. The Current Regulatory Environment

14. The FCC’s adoption of the Title II Order initiated a new era in the regulation of broadband Internet access services. Among other things, the Title II Order reclassified “broadband Internet access service as a telecommunications service under Title II [of the Communications Act of 1934].”¹¹ As noted by economist Bruce Owen, Title II was originally “designed to permit federal regulation of the old Bell system monopoly of long distance telephone service.”¹² Title II classification allowed regulators to treat ISPs as “common carriers,” and, as such, subject them to regulation as public utilities.¹³ The adoption of the Title II Order thus represented a shift in first principles away from a market-based regime to a regime that emphasized increased regulatory discretion by the FCC.

15. The increased authority the FCC granted itself in the Title II Order to police the provision of broadband Internet access services included heavy-handed regulatory

9. See, for example, “Economists’ Statement on Net Neutrality,” with William J. Baumol, et al. AEI-Brookings Joint Center, March 2007.; and Robert Hahn and Scott Wallsten “The Economics of Network Neutrality,” *The Economists’ Voice* 3, no. 6, Article 8 (2006)

10. See Title II Order, ¶ 21 (“Thus, the Order adopts the following standard: Any person engaged in the provision of broadband Internet access service, insofar as such person is so engaged, shall not unreasonably interfere with or unreasonably disadvantage (i) end users’ ability to select, access, and use broadband Internet access service or the lawful Internet content, applications, services, or devices of their choice, or (ii) edge providers’ ability to make lawful content, applications, services, or devices available to end users. Reasonable network management shall not be considered a violation of this rule.”).

11. See Title II Order, ¶ 59.

12. See Bruce M. Owen, *Net Neutrality and Title II of the Communications Act*, Stanford Institute of Economic Policy Research, Policy Brief (January 2015) at 2, available at: <https://publicpolicy.stanford.edu/publications/net-neutrality-and-title-ii-communications-act> (last accessed June 16, 2017).

13. See Robert Litan, *Regulating Internet Access as a Public Utility: A Boomerang on Tech If It Happens*, Economic Studies at Brookings (June 2014), available at: <https://www.google.com/search?q=scott+stern+journal+of+economic+perspectives&ie=utf-8&oe=utf-8#q=utility+style+regulation+net+neutrality> (last accessed June 26, 2017).

standards and “bright-line” interventions. A cornerstone of the Title II Order was the adoption of the “General Conduct Standard,”¹⁴ a sweeping provision that the FCC itself described as a “catch-all,”¹⁵ which gave the FCC “discretion to prohibit any Internet service provider practice that it believes violates any one of the non-exhaustive list of factors adopted in the Title II Order.”¹⁶ While the General Conduct Standard does not prohibit any specific business practices outright, it gives the FCC the discretion to impose bans as it sees fit on a going-forward basis. In contrast to the “no-unreasonable discrimination” standard adopted in the FCC’s 2010 Open Internet Order,¹⁷ the General Conduct Standard does not articulate any well-defined standard for assessing ISP conduct;¹⁸ the standard is simply based on the views of the FCC commissioners.¹⁹ In addition to the introduction of the General Conduct Standard, the Title II Order imposed *ex ante* “bright-line” prohibitions of three types of conduct by ISPs: (1) blocking (preventing users from accessing lawful content, applications and services, or using non-harmful devices of their choice),²⁰ (2) throttling (the impairment or degradation of lawful Internet traffic or limiting the use of non-harmful devices),²¹ and (3) paid prioritization (charging users different prices for varying quality of service)²² – practices that it claimed “demonstrably harm the open Internet.” In sum, under the auspices of the Title II Order, the FCC wielded its increased regulatory authority in two ways: by imposing *ex ante* “bright-line” bans on certain forms of conduct, like paid prioritization, and by adopting the General Conduct Standard, which forced ISPs to bear the costs of

14. See Title II Order, ¶ 21 (“Thus, the Order adopts the following standard: Any person engaged in the provision of broadband Internet access service, insofar as such person is so engaged, shall not unreasonably interfere with or unreasonably disadvantage (i) end users’ ability to select, access, and use broadband Internet access service or the lawful Internet content, applications, services, or devices of their choice, or (ii) edge providers’ ability to make lawful content, applications, services, or devices available to end users. Reasonable network management shall not be considered a violation of this rule.”).

15. *Id.*

16. See Restoring Internet Freedom NPRM, ¶ 72.

17. See Federal Communications Commission, *In the Matter of Preserving the Open Internet, Broadband Industry Practices*, GN Docket No. 09-191, Report and Order (December 23, 2010).

18. See Title II Order, ¶ 135.

19. See John Eggerton, “O’Reilly Slams FCC’s General Conduct Standard,” Multichannel News (May 6, 2016), <http://www.multichannel.com/news/fcc/orielly-slams-fccs-general-conduct-standard/404727> (last accessed June 26, 2017). (“[FCC Commissioner Michael O’Rielly] said that while FCC Chairman Wheeler has called [the General Conduct Standard] ‘having a referee on the field,’... the problem was that ‘we have no idea what the rules of the game are’... He said there was no telling when the FCC might throw a flag or over what infraction. ‘We have no idea. It’s whenever the bureau or the chairman feels like it.’”).

20. See Title II Order, ¶ 15 (“A person engaged in the provision of broadband Internet access service, insofar as such person is so engaged, shall not block lawful content, applications, services, or non-harmful devices, subject to reasonable network management.”).

21. *Id.* ¶ 16 (“A person engaged in the provision of broadband Internet access service, insofar as such person is so engaged, shall not impair or degrade lawful Internet traffic on the basis of Internet content, application, or service, or use of a non-harmful device, subject to reasonable network management.”).

22. *Id.* ¶ 17 (“A person engaged in the provision of broadband Internet access service, insofar as such person is so engaged, shall not engage in paid prioritization.”).

regulatory uncertainty over what types of conduct would and would not be permitted in the future.²³

16. The light-touch regulatory approach proposed in the Restoring Internet Freedom NPRM seeks to reduce inefficient and customer-harming behavior on the part of the regulatory agency that could have arisen under the General Conduct Standard. In addition, it seeks to remove bans that are not justified on the basis of economic efficiency – i.e., bans that could reduce long-run consumer welfare. Put simply, the Restoring Internet Freedom NPRM seeks a return to first principles grounded in the presumption that greater market-based competition is important in promoting consumer welfare.

II. An Economic Framework for Regulatory Intervention

17. The preceding discussion highlighted some important practical and conceptual differences between light-touch and heavy-handed approaches to regulation. But how should policymakers decide which approach is more appropriate? This section addresses this question by introducing a general framework for regulatory intervention grounded in economics.

18. In particular, I adapt an analytical framework for regulatory intervention suggested by Hahn, Litan and Singer in a 2007 article in the *Journal of Competition Law and Economics*.²⁴ For regulatory intervention to be warranted, each of the following general criteria should be satisfied: (1) there should be clear evidence of market failure; (2) there should be clear evidence that the proposed intervention is likely to improve upon the status quo;²⁵ and (3) prior to the intervention, a careful accounting of costs and benefits should be undertaken.²⁶ This framework closely parallels that outlined by the U.S. Office of Management and Budget in its September 2003 Circular A-4.²⁷

19. As I discuss below, application of this analytical framework suggests that a light-touch approach to regulation of the U.S. broadband Internet access services industry is more appropriate than a heavy-handed approach.

23. See Restoring Internet Freedom NPRM, ¶ 48 (“In addition to imposing significant regulatory costs on Internet service providers, Title II reclassification created significant regulatory uncertainty.”). *Id.*, ¶ 74 (“Because the Internet conduct standard is premised on theoretical problems that will be adjudicated on an individual, case-by-case basis, Internet service providers must guess at what they are permitted and not permitted to do.”).

24. See Robert W. Hahn, Robert E. Litan, & Hal J. Singer, *The Economics of “Wireless Net Neutrality,”* 3 J. OF COMP. LAW & ECON. 399-451 (2007) (hereafter “Hahn, Litan, & Singer 2007”).

25. Implicit “improving upon the status quo” is the requirement that the proposed regulatory intervention should draw lessons from previous attempts at regulation (where applicable).

26. See Hahn, Litan & Singer 2007 at 402.

27. See United States Office of Management and Budget, “Circular A-4,” (September 17, 2003) at 2 (“A good regulatory analysis should include the following three basic elements: (1) a statement of the need for the proposed action, (2) an examination of alternative approaches, and (3) an evaluation of the benefits and costs—quantitative and qualitative—of the proposed action and the main alternatives identified by the analysis.”).

A. Evidence Does Not Indicate the Presence of Market Failure in the Provision of Broadband Internet Access Services in the U.S.

20. The first prong of an analytical framework for regulatory intervention is straightforward: regulators should only interfere when there is significant evidence of market failure. From an economic perspective, direct evidence of a market failure typically could include (1) evidence that output is significantly above (or below) socially optimal levels or (2) evidence that prices are significantly above (or below) appropriate measures of costs.²⁸ Empirical evidence indicates that the market for the provision of broadband Internet access services in the U.S. is performing well and heavy-handed regulation is likely to do more harm than good.²⁹

21. One common measure of “output” in the context of the provision of broadband Internet access services is connectivity—that is, the number of Internet connections active in the United States at a given point in time.³⁰ As shown in Figure 1, the total number of connections increased markedly from December 2012 to December 2015, from 262 million to 355 million.³¹ While the majority of the growth in total connections was attributable to increases in wireless (mobile) connections, wireline (fixed) connections increased as well. A 2016 study by William Rogerson further notes that output in the mobile broadband market is strong, and supported by multiple competing carriers--many that provide nationwide coverage.³² Most consumers in the United States have a choice among at least four mobile providers.”³³

28. *Id.*, at 407.

29. A policy alternative endorsed by many economists is allocating more spectrum through auctions. This policy is likely to improve consumer welfare and stimulate economic growth. For an excellent treatment of this issue, see Thomas Hazlett (2017) *The Political Spectrum: The Tumultuous Liberation of Wireless Technology*, from Herbert Hoover to the Smartphone: The Political Spectrum The Tumultuous Liberation of Wireless Technology, from Herbert Hoover to the Smartphone, Yale, New Haven, CN.

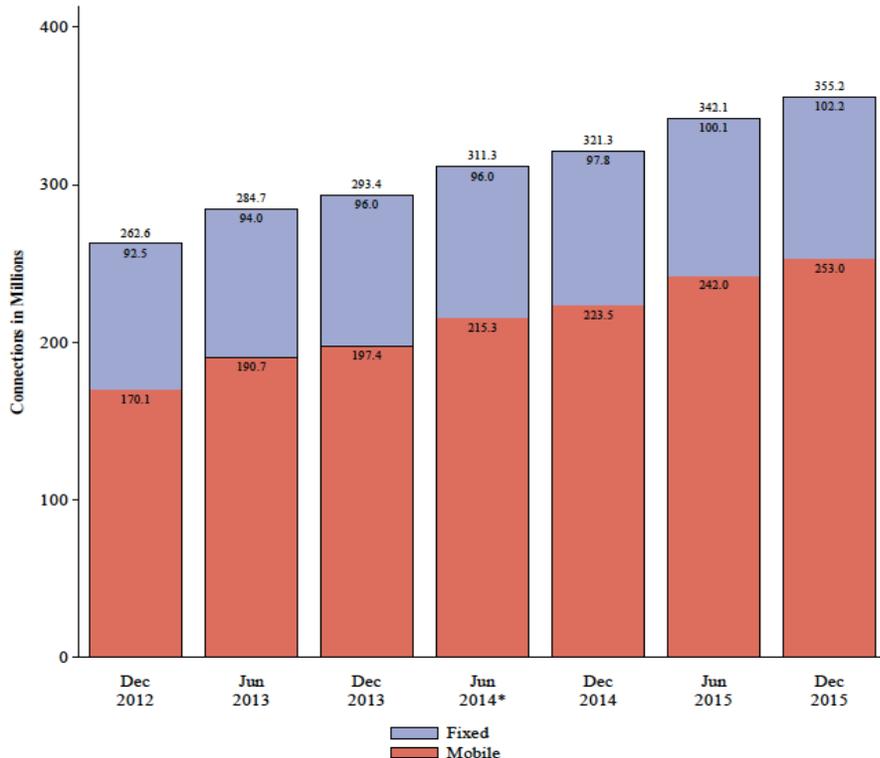
30. See John W. Mayo, Larry Downes, Ev Ehrlich, Gerald R. Faulhaber, Robert E. Litan, Jeffrey T. Macher, Michael Mandel, Bruce Owen, James E. Prieger, Robert J. Shapiro, Hal J. Singer, Lawrence J. White & Glenn A. Woroch, *Assessing the Economic Benefits and Costs of the FCC’s Imposition of Title II Regulation*, Economic Policy Vignette (August 6, 2015) (hereafter “Mayo *et. al.* 2015”) at 5-6.

31. See Federal Communications Commission, Industry Analysis and Technology Division, Wireline Competition Bureau, *Internet Access Services: Status as of December 15, 2015*, (November 2016), Figure 1.

32. See William P. Rogerson, *The Economics of Data Caps and Free Data Services in Mobile Broadband*, (August 1, 2016), available at: <https://www.ctia.org/docs/default.../081716-rogerson-free-data-white-paper.pdf> (last accessed June 26, 2017) at 10.

33. *Id.*

Figure 1
Fixed and Mobile Connections 2012-2015



22. Another metric that can be viewed as a proxy for “output” is investment by wireless and wireline broadband providers.³⁴ Investment is related to output because “it is the means by which firms put infrastructure in place for satisfying both current and future customers.”³⁵ Investment by broadband Internet access providers increased significantly under the light-touch regulatory approach that preceded the adoption of the 2015 Title II Order. In 1996, total ISP investment was \$25 billion.³⁶ By 2013, annual broadband-related investments had increased to \$75 billion.³⁷ A recent article in the *Review of Industrial Organization* notes that:

34. See “Mayo *et. al.* 2015” at 5-6.

35. See Michelle Connolly, Clement Lee & Renhao Tan, *The Digital Divide and Other Economic Considerations for Network Neutrality*, 50 REV. IND. ORG. 537-554 (2017) (hereafter “Connolly, Lee & Tan 2017”) at 544.

36. See “Mayo *et. al.* 2015” at 5-6 (citing *Investment, Capital Spending and Service Quality in U.S. Telecommunications Networks: a Symbiotic Relationship*, TIA, available at http://www.tiaonline.org/policy_/publications/filings/documents/Nov13-2002_CapEx_QoS_Final.pdf (last accessed June 22, 2017); *Broadband Investment*, US Telecom, available at <http://www.ustelecom.org/broadband-industry/broadband-industry-stats/investment> (last accessed June 22, 2017).

37. *Id.*

Internet usage in the United States has grown steadily over the past few decades. This growth was made possible with the expansion of broadband infrastructure that was largely initiated by profit-seeking ISPs. Prior to 2010, the FCC did not interfere directly with these infrastructural developments... This hands-off approach contributed to the ten-fold increase in high-speed broadband lines since 2002 and gave more than 87% of individuals and 79% of households in the United States access to the internet.³⁸

Given this trajectory, it is difficult to argue that heavy-handed regulation was necessary to correct a market failure related to either connectivity or investment.

23. Even though output (as measured by connectivity and investment) has increased, prices for broadband Internet access services have fallen. One economic study emphasizes that, “[f]rom 2002 to 2013, the price of Internet access services [in the U.S.] fell by roughly 40 percent compared to the overall Consumer Price Index.”³⁹ Additional research demonstrates that U.S. broadband prices under light-touch regulation were lower than broadband prices in Europe under heavy-handed regulation.⁴⁰ Specifically, a 2014 study by Christopher Yoo compared broadband prices in the U.S. in 2011 and 2012 to broadband prices in Europe, finding that “U.S. broadband was cheaper than European broadband for all speed tiers below 12 Mbps.”⁴¹ Moreover, while “all-you-can-eat” U.S. broadband pricing was more expensive for speeds above 12 Mbps, “the higher cost was justified in no small part by the fact that U.S. Internet users on average consumed 50% more bandwidth than their European counterparts.”⁴² Prices have continued to fall: Since 2009, the wireless consumer price index (“CPI”) has fallen by more than 23 percent, while the general CPI rose by more than 14 percent.⁴³ Rogerson further explains that price competition between mobile broadband providers nationwide benefits U.S. consumers even in areas served by only a subset of providers:

38. See Connolly, Lee & Tan 2017 at 544.

39. See Mayo, *et. al.* 2015 at 6.

40. See Christopher Yoo, *U.S. vs. European Broadband Deployment: What Do the Data Say?*, University of Pennsylvania Law School, Center for Technology, Innovation and Competition (June 2014).

41. *Id.* at ii.

42. *Id.* at 21 (“The data indicate that U.S. broadband prices are lower than European prices for all service tiers up to 12 Mbps. Even for services between 12 Mbps and 30 Mbps, the price difference is relatively small. Only for speeds greater than 30 Mbps were U.S. prices significantly higher. The fact that the average U.S. user consumes 50% more capacity than the average European user will inevitably show up in the pricing. Indeed, the price difference for 30+ Mbps service (\$61 in the U.S. vs. \$37 in the EU) matches almost exactly the difference in monthly household bandwidth usage (60 GB in the U.S. vs. 40 GB in Western Europe).”).

43. Compare U.S. Dep’t of Labor, Bureau of Labor Statistics, Consumer Price Index for All Urban Customers, Table 3 (2009), available at <https://www.bls.gov/cpi/cpid0903.pdf>, with U.S. Dep’t of Labor, Bureau of Labor Statistics, Consumer Price Index for All Urban Customers Table 3 (2017), available at <https://www.bls.gov/news.release/cpi.t03.htm>. Of course, this fact does not speak to whether or not prices might have fallen still further if the FCC had not adopted the Title II Order in 2015.

[S]ince the nationwide mobile carriers sell their services through nationally marketed plans available at the same price over the entire country, even areas with fewer than four providers will experience the same beneficial effects of competition as areas with all four competitors, because providers will be choosing prices to offer at the national level taking into account the fact that the vast majority of their customers have at least four alternatives.⁴⁴

24. In sum, empirical evidence demonstrates that the provision of broadband Internet access services did not exhibit either of the most common symptoms of market failure. Consequently, the FCC's decision to adopt a heavy-handed regulatory approach is not consistent with the analytical framework for regulation used here.

B. Evidence Indicates that a Heavy-Handed Approach is Not Appropriate In Dynamic Industries Such as the Provision of Broadband Internet Access Services

25. The second criterion for heavy-handed regulatory intervention states that policymakers should demonstrate that increased regulation is likely to improve upon the status quo before imposing new mandates or prohibitions. Economists have shown, however, that in dynamic industries—that is, industries in which the pace of technological change is rapid⁴⁵—limited regulatory intervention is more likely than heavy-handed intervention to increase welfare.

26. As Supreme Court Justice Anthony Kennedy recently noted in *Packingham v. North Carolina*, “[t]he forces and directions of the Internet are so new, so protean, and so far reaching that courts must be conscious that what they say today might be obsolete tomorrow.” The broadband Internet access service industry is characterized by rapid technological change. The provision of mobile broadband, in particular, has been defined by the dynamic evolution of “generational” technologies, with each successive generation offering users improved data transmission speeds and capabilities. By the 1990’s, “2G” mobile networks predominated, and handled phone calls, basic text messaging, and limited data transfers.⁴⁶ In the early 2000s, mobile providers moved to deploy “3G” networks. 3G connectivity increased mobile accessibility to a wide array of data formats, allowing users to access videos, HTML pages, and music easily from their phones.⁴⁷ 3G connectivity, seen as revolutionary at the time, was overshadowed in a few years by a race to adopt fourth generation “4G,” and subsequently 4G LTE (“Long Term Evolution”)

44. See Rogerson 2016 at 10.

45. See Lewis Evans & Robert Hahn, *Regulating Dynamic Markets: Progress in Theory and Practice*, New Zealand Institute for the Study of Competition and Regulation Inc., Working Paper (May 25, 2010) (hereafter “Evans & Hahn 2010”). See also Hahn, Litan & Singer (2007) at 405 (“A dynamic market is one in which technology is constantly changing, where today’s market leader can be upstaged by an unforeseen competitor or technology.”).

46. See Brad Bourque, “What’s the Difference Between 4G and LTE?”, *Digital Trends* (April 5, 2017), available at: <https://www.digitaltrends.com/mobile/4g-vs-lte/> (last accessed June 21, 2017).

47. *Id.*

platforms, which increased download speeds by four to five times.⁴⁸ At present, mobile providers are competing to be the first to deploy 5G networks,⁴⁹ which will drive a significant amount of bandwidth capacity growth, and which “may very well be the backbone of autonomous vehicles, smart grids, smart homes,” and other advanced applications.”⁵⁰ In addition, wireless devices used by consumers to access mobile broadband have undergone similarly rapid and intense changes. The FCC stated in its *19th Mobile Wireless Competition Report* that, “[a]s wireless service providers continue to seek a wide range of wireless devices to differentiate their services, manufacturers have responded by increasing the choices, price points, and design within a broad range of devices.”⁵¹

27. Fixed broadband has also evolved at rapid pace, and has been characterized by the introduction of disruptive technologies. Prior to the 1990’s, residential Internet access was achieved via dial-up connections through telephone networks.⁵² By the mid-1990’s, broadband operators had begun transitioning to “always on” connections to replace narrowband dial-up access.⁵³ In the mid-2000’s, the number of users accessing the Internet through “always on” connections had far surpassed the number of dial-up users.⁵⁴ At present, wireline broadband can be delivered to users through a variety of competing technologies, including Digital Subscriber Lines (DSL), which transmit data over traditional copper telephone lines;⁵⁵ cable modems, which transmit data over the same coaxial cables that deliver images and sound to television sets;⁵⁶ fiber, which transmits data through transparent glass fibers (at speeds far exceeding DSL);⁵⁷ satellite,⁵⁸ and Broadband over Powerline (BPL).⁵⁹

48. *Id.*

49. See Sacha Sagan, “What is 5G?,” *PC Mag* (May 1, 2017), available at <http://www.pcmag.com/article/345387/what-is-5g> (“AT&T and Verizon have both pledged to launch 5G home internet systems this year. At Mobile World Congress in February, Samsung and Verizon showed off the antennas and routers Verizon’s 5G service will use.”).

50. See Singer, Naef & King 2017 at 15.

51. See Federal Communications Commission, *In the Matter of Implementation of Section 6002(b) of the Omnibus Budget Reconciliation Act of 1993, Annual Report and Analysis of Competitive Market Conditions With Respect to Mobile Wireless, Including Commercial Mobile Services*, WT Docket No 16-137, Nineteenth Report (September 23, 2016), ¶ 112.

52. *Id.* at 11-12.

53. *Id.*

54. *Id.*

55. See Federal Communications Commission, “Types of Broadband Connections,” *available at*: http://www.broadband.gov/broadband_types.html (last accessed June 25, 2017).

56. *Id.*

57. *Id.* (“Telecommunications providers sometimes offer fiber broadband in limited areas and have announced plans to expand their fiber networks and offer bundled voice, Internet access, and video services.”).

58. *Id.* Satellite broadband can also be considered a wireless technology.

59. *Id.* (“BPL is the delivery of broadband over the existing low- and medium-voltage electric power distribution network. BPL speeds are comparable to DSL and cable modem speeds. BPL can be provided to homes using existing electrical connections and outlets. BPL is an emerging technology that is

28. From an economic perspective, a heavy-handed approach to regulation that relies on *ex ante* intervention and/or vague orders is not well-suited to dynamic industries. Because dynamic industries are characterized by frequent changes in competitive conditions due to rapid technological evolution, heavy-handed regulations that set expectations for particular outcomes *ex ante* “risk regulatory settings that quickly become inconsistent with the way the market and competition would desirably evolve. In such cases, there may be significant efficiency losses.”⁶⁰ Similarly, vague and unbounded prohibitions can chill innovation by creating disincentives to the development of offerings and technologies that would benefit consumers. In contrast, a light-touch approach to regulation in dynamic markets is likely to grant firms more flexibility to respond quickly to changes in market conditions, which is, in turn, likely to be welfare enhancing.⁶¹

29. Research has shown that moving from heavy-handed regulation to a light-touch approach in dynamic markets has often resulted in positive welfare effects. A 2002 article in the *Review of Economics and Statistics*⁶² by James Prieger compared the rate at which new telecommunications services were introduced by firms during periods of heavy regulation with the rate at which new services were introduced when the FCC experimented with lighter regulation.⁶³ The study concluded that “the number of services the firms created during the period with lighter regulation is 60%-99% higher than the model predicts they would have been if the stricter regulation had still been in place.”⁶⁴

30. Additional research has also demonstrated that previous attempts at heavy-handed regulation of telecommunications firms by the FCC were associated with decreases in investment (measured by capital expenditures).⁶⁵ In 1999, the FCC imposed greater regulation on incumbent (local) telecommunications firms under a separate provision of Title II, by requiring telcos (including AT&T, Verizon and Qwest)⁶⁶ to

available in very limited areas. It has significant potential because power lines are installed virtually everywhere, alleviating the need to build new broadband facilities for every customer.”).

60. See Evans & Hahn 2010 at 11.

61. *Id.*

62. See James E. Prieger, *Regulation, Innovation, and the Introduction of New Telecommunications Services*, 84 THE REV. OF ECON. & STATS. 704-715 (November 2002).

63. *Id.* at 704. Specifically, the study examined rates of introduction of new telecommunications services (such as fax, voice mail, and audiotex information services) by Bell Operating Companies (BOCs). Prior to 1992, the FCC required BOCs seeking to introduce new services to submit detailed “comparably efficient interconnection” (CEI) plans as part of a long regulatory approval process. From 1992-1995, the FCC experimented with a light-touch approach to the regulation of new services, whereby these CEI plans and time-consuming approval processes were no longer required.

64. *Id.*

65. See Singer 2015 at 10.

66. “Telcos” as defined in the study refer to AT&T (excluding wireless), Verizon (excluding wireless), and Qwest. See TIA, Investment, Capital Spending And Service Quality In U.S. Telecommunications Networks: A Symbiotic Relationship, Nov. 2002, *available* at: http://www.tiaonline.org/policy_/publications/filings/documents/Nov13-2002_CapEx_QoS_Final.pdf (last accessed June 22, 2017).

engage in “line sharing” with resellers of DSL service at regulated rates.⁶⁷ Unlike the incumbent telcos, cable operators⁶⁸ were never subject to the FCC’s onerous unbundling regime.⁶⁹ Thus, comparing changes in capital expenditures by incumbent telcos during the period in which they were subject to *Title II* regulations (1996-2008) to capital expenditures by cable providers over the same period provides a natural experiment on the effect of heavy-handed regulation on investment.⁷⁰ This simple “difference-in-differences” approach shows that the more severe regulation applied to incumbent telcos “was responsible for slowing telco investment by roughly \$1 billion per year.”⁷¹ Moreover, the growth rate of cable firms’ capital expenditures was more than double that of the incumbent telcos (7.5 percent versus 3.2 percent).⁷² Similarly, a large study of regulatory intensity across several countries (including the United States) linked heavier regulation with lower investment, both generally and in the communications industry, in particular.⁷³

31. A 2014 study by Christopher Yoo – which showed that broadband prices in the U.S. were lower than prices in Europe – provides additional evidence that light-touch regulation of broadband provision is preferable to heavy regulation.⁷⁴ Yoo compared broadband provision across several important metrics in the U.S. in 2011 and 2012 (during periods of light-touch regulation in the U.S.) to broadband provision in Europe over the same period (when Europe, in contrast, employed a more heavy-handed model of utility-style regulation to broadband providers).⁷⁵ Yoo found that the U.S. outperformed Europe in: (1) the percentage of households with access to high-speed (25 Mbps) networks,⁷⁶ (2) Fiber and LTE deployment,⁷⁷ (3) broadband investment per household (\$562 per household in the U.S. versus \$244 per household in Europe),⁷⁸ and (4)

67. *Id.*

68. “Wireline cable firms” as defined in the study include: Comcast, Time Warner, Cox, Cablevision, Charter, Mediacom, and Insight. *Id.*

69. See Singer 2015 at 10. Competitive local exchange carriers similarly were not subject to the FCC’s unbundling rules.

70. *Id.* (“Unlike DSL service, cable modem service was classified as an information service from the get-go[.]”).

71. *Id.*

72. *Id.* (“The simple DID model tells us that Title II was responsible for slowing investment by roughly \$1 billion per year (equal to the \$10.4 billion difference between the two groups [cable operators and telcos] in 2008 less the \$11.4 billion difference in 1996). A \$1 billion decline represents a 5.5 percent decline relative to the telcos’ 1996 capex. And the growth rate of cable capex was double that of Title II-regulated telcos over this period (7.5 percent versus 3.2 percent). This is hardly consistent with the FCC’s claim that Title II was good for telco investment.”).

73. See Alberto Alesina, Silvia Ardagna, Giuseppe Nicoletti & Fabio Schiantarelli, *Regulation and Investment*, 3 J. of European Econ. Assoc. 791-825 (2005).

74. See Yoo 2014.

75. *Id.* at i.

76. *Id.* (“A far greater percentage of U.S. households had access to Next Generation Networks (NGA) (25 Mbps) than in Europe.”).

77. *Id.*

78. *Id.* (“The difference in regulation and competition models influenced the amount of broadband investment in the U.S. and Europe. In Europe, where it was cheaper to buy wholesale services

download speeds during peak hours as a percentage of advertised speeds.⁷⁹ This quantitative evidence supports the conclusion that a light-touch approach to regulation of dynamic industries is likely welfare-enhancing.

32. Evidence of the benefits of lighter regulation is not limited to the telecommunications industry. There is also strong evidence that a light-touch approach to regulation has had positive welfare effects in other markets as well.⁸⁰ For instance, the deregulation of commercial air carriers in the late 1970s led to generally lower fares and increased service quality⁸¹ (which translate to billions of dollars annually in efficiency gains).⁸² Taken together, the studies reviewed above confirm the view that the degree of regulatory intensity applied to a dynamic industry affects welfare. A light-touch approach is likely to increase welfare through increased innovation and investment, while a heavy-handed approach can have an adverse impact on innovation and investment.

C. The Title II Order Did Not Show that Its Benefits Exceeded Its Costs

33. The third prong of the analytical framework suggests that regulatory policy should pass a benefit-cost test, broadly defined. Policymakers should demonstrate that the likely benefits of a given intervention are likely to exceed the anticipated costs.

34. In seeking to justify the adoption of the Title II Order, the FCC did not engage in a careful cost-benefit review, and relied instead on assertions largely unsupported by economic analysis. Indeed, the FCC issued a two-page note to Congress disclaiming responsibility for conducting a cost-benefit analysis, noting that the FCC was an independent agency and thus not covered by an executive order requiring cost-benefit analysis for executive agencies.⁸³

35. Additionally, the limited economic evidence on which the FCC chose to rely in the Title II Order was misguided. The Title II Order relied on economic analysis provided by Free Press, which incorrectly claimed that Title II spurred telco investment in the late

from an incumbent provider, there was little incentive to invest in new technology or networks. In the U.S., however, providers had to build their own networks in order to bring broadband services to customers.”).

79. *Id.* (“During peak hours, U.S. actual download speeds were 96% of what was advertised, compared to Europe where consumers received only 74% of advertised download speeds. The U.S. also fared better in terms of latency and packet loss.”).

80. See Robert W. Hahn & John A. Hird, *The Costs and Benefits of Regulation: Review and Synthesis*, 8 Yale J. on Reg. 233-278 (1991).

81. *Id.*, at 262-263.

82. See S. MORRISON & C. WINSTON, *THE ECONOMIC EFFECTS OF AIRLINE DEREGULATION*, (1986) at 51.

83. See Federal Communications Commission, Congressional Review Act Abstract, WG Docket No. 14-28 FCC 15-24 (March 12, 2015) (“The Commission is not required to prepare a cost-benefit analysis, and it is not subject to the Unfunded Mandates Reform Act of 1995, Pub. L. No. 104-4”), *available at* <http://www.progressivepolicy.org/wp-content/uploads/2015/04/20150403-CRA-Abstract-Open-Internet-Order.pdf>.

1990s.⁸⁴ As explained above, when compared to investment by cable operators (which were not subject to ILEC-specific unbundling mandates of Title II over the same period), aspect of common carriage can be shown to have slowed telco investment.⁸⁵ Free Press also failed to control for the myriad factors driving ILEC investment in the late 1990s, including the dot.com boom.

36. The inadequacies of the FCC's economic analysis with respect to the Title II Order were highlighted by the FCC's own chief economist at the time. After leaving the agency, Professor Tim Brennan called the economic analysis supporting the Title II Order "wrong, unsupported, and irrelevant."⁸⁶

III. A Return to a Light-touch Regulatory Framework Would Yield Economic Benefits that Likely Exceed Economic Costs

37. As detailed in Part II above, a regulatory framework guided by principles anchored in economics would likely not support the shift toward greater regulatory intervention embraced by the FCC following the adoption of the Title II Order. Now, the question before policymakers is whether to reverse course toward the light-touch framework proposed in the Restoring Internet Freedom NPRM. In keeping with the analytical framework in Part II, this question can be restated as follows: Would a return to a light-touch regulatory framework generate benefits that are likely to exceed its costs? As I demonstrate below, the available qualitative and quantitative evidence is consistent with the conclusion that the economic benefits of a return to light-touch principles are indeed likely to exceed its economic costs.⁸⁷

A. Cost-Benefit Analysis Is a Useful Tool for Understanding the Impact of Policy

38. Cost-benefit analysis has long been recognized as an important tool in evaluating federal regulatory policy.⁸⁸ President Ronald Reagan first issued an executive order mandating the use of cost-benefit analysis by federal agencies in 1982.⁸⁹ In September

84. See Title II Order, ¶ 414.

85. See Singer 2015 at 10.

86. See Restoring Internet Freedom NPRM, ¶ 61. See also Remarks of FCC Chairman Ajit Pai at the Hudson Institute, "The Importance of Economic Analysis at the FCC," (April 5, 2017).

87. In accordance with the economic framework for regulatory intervention developed in Part II, a cost-benefit analysis is only strictly necessary when significant evidence of market failure is present. Though evidence of market failure is absent with regard to the provision of broadband Internet access services, I proceed under the assumption that such a cost-benefit analysis is warranted.

88. See United States Office of Management and Budget, "Circular A-4," (September 17, 2003) ("Benefit-cost analysis is a primary tool used for regulatory analysis."). See also Robert W. Hahn & Cass R. Sunstein, *A New Executive Order for Improving Federal Regulation? Deeper and Wider Cost-Benefit Analysis*, 150 U. OF PENN. L.R. 1489-1552 (2002) (hereafter "Hahn & Sunstein 2002").

89. See Hahn & Sunstein (2002) at 1489 (citing Exec. Order No. 12,291, 3 C.F.R. 127 (1982)).

2003, the U.S. Office of Management and Budget released a general framework for conducting cost-benefit analyses in federal Circular A-4.⁹⁰

39. In keeping with the general framework in Circular A-4,⁹¹ an ideal cost-benefit analysis would consider the “full accounting of the consequences of an action, in both qualitative and quantitative terms.”⁹² Of course, such a “perfect” cost-benefit analysis is often not practicable. Given the difficulties of pursuing an idealized cost-benefit analysis, regulators should, at a minimum, be prepared to explain at a high level how the benefits of a proposed regulatory measure exceed the costs.⁹³ When the benefits do not exceed the costs, this is evidence against proceeding with the regulatory intervention in question.⁹⁴ Absent this type of cost-benefit study, “the antonym to regulation guided by cost-benefit analysis is regulation undertaken without anything like a clear sense of the likely consequences—or regulation that amounts to a stab in the dark.”⁹⁵ It is for this reason that I support the Restoring Internet Freedom’s NPRM’s interest in using benefit-cost analysis in this and related matters that come before the FCC.

B. The Likely Benefits of a Light-touch Approach to the Regulation of the Provision of Broadband Internet Access Services

40. Below, I summarize available qualitative and quantitative economic evidence concerning the benefits of a light-touch approach to the regulation of ISPs and other providers of broadband Internet access services. In what follows, I utilize the current regulatory regime established by the Title II Order as the baseline, or benchmark, against which benefits of a light-touch framework are compared. Implicit in this formulation is the notion that “benefits” accrued from a light-touch approach can be considered as “costs” imposed by the regulatory measures imposed through the Title II Order. In conducting a benefit-cost analysis of the current NPRM, however, only incremental benefits and costs should be considered. If, for example, costs were incurred under the Title II Order, these should be treated as “sunk”.

1. Returning to Light-Touch Regulation Would Likely Spur Investment by ISPs

41. Economists have shown that, following the FCC’s adoption of the Title II Order, capital expenditures by ISPs fell relative to investment trends that prevailed under lighter regulation.

90. See United States Office of Management and Budget, “Circular A-4,” (September 17, 2003).

91. *Id.* at 2 (noting the need to evaluate “the benefits and costs—quantitative and qualitative—of the proposed action and main alternatives.”).

92. See Hahn & Sunstein (2002) at 1489 .

93. *Id.* See also Kenneth J. Arrow, Maureen L. Cropper, George C. Eads, Robert W. Hahn, Lester B. Lave, Roger G. Noll, Paul R. Portney, Milton Russell, Richard Schmalensee, V. Kerry Smith, & Robert N. Stavins, *Is There a Role for Benefit-Cost Analysis in Environmental, Health, and Safety Regulation?*, 272 SCIENCE 221-222 (1996).

94. See Hahn & Sunstein (2002) at 1498.

95. *Id.*, at 1499.

42. For example, one study compared capital expenditures by major ISPs in the first half of 2014 to capital expenditures in the first half of 2015 (the first reporting period to close after the February 2015 adoption of the Title II Order).⁹⁶ Over the sample period, average capital expenditures by wireline ISPs declined by 12 percent.⁹⁷ When wireless ISPs were included with wireline ISPs, the average decline was 8 percent.⁹⁸ The net decrease in capital expenditures by the six largest ISPs totaled over \$3 billion.⁹⁹ The study also examined other factors besides the adoption of the Title II Order that could have explained the observed decline in capital expenditures (including changes in GDP, consumer expenditure and ISP revenue), but found that, if anything, these factors should have encouraged ISPs to increase their capital expenditures.¹⁰⁰ The study concluded that “Absent compelling alternatives, the FCC’s [2015 Open Internet] Order is the best explanation for the capex meltdown.”¹⁰¹

43. The same study also explained how “capital flight” (in the form of decreasing capital expenditures by ISPs) would translate into real economic costs. Because “every million-dollar increase in broadband capex in a given year generates almost 20 jobs through the multiplier effect,”¹⁰² a decrease of a billion dollars in capital investment would “wipe out 20,000 jobs.” The \$3 billion decrease in capex by the six largest ISPs from 2014 to 2015 could thus have been responsible for decreasing 60,000 jobs in this sector.¹⁰³

96. See Hal Singer, “Does the Tumble In Broadband Investment Spell Doom For The FCC’s Open Internet Order?”, *Forbes* (August 25, 2015), *available at*: <https://www.forbes.com/sites/halsinger/2015/08/25/does-the-tumble-in-broadband-investment-spell-doom-for-the-fccs-open-internet-order/#2a79a0f41ef5> (last accessed June 22, 2017).

97. *Id.*

98. *Id.* As reported by Singer, changes in capital expenditures from the first half of 2014 to the first half of 2015 by ISP were: AT&T (-29 percent); Charter (-29 percent); Cablevision (-10 percent); Verizon (-4 percent); CenturyLink (-9 percent).

99. *Id.*

100. *Id.* (citing U.S. Bureau of Economic Analysis, National Income and Product Accounts, *available at*: <https://www.bea.gov/newsreleases/national/gdp/gdpnewsrelease.htm> (last accessed June 26, 2017) and Peter Kafka, “What Happened to the Cord Cutters?”, *Recode* (August 7, 2014), *available at*: <https://www.recode.net/2014/8/7/11629636/what-happened-to-the-cord-cutters> (last accessed June 26, 2017) (“What changed in early 2015 *besides* the FCC’s Open Internet Order that can explain the ISP capex tumble? GDP grew in both the first and second quarters of 2015. Broadband capital intensity—defined as the ratio of ISP capex to revenues—decreased over the period, ruling out the possibility that falling revenues were to blame. Although cord cutting is on the rise, pay TV revenue is still growing, and the closest substitute to cable TV is broadband video. Absent compelling alternatives, the FCC’s Order is the best explanation for the capex meltdown.”).

101. *Id.*

102. *Id.*

103. The study was not focused on general equilibrium effects, such as overall employment in the U.S.

44. When the study was updated with data on capital expenditures from 2016, the results continued to suggest significant capital flight due to heavier regulation.¹⁰⁴ Of the twelve ISPs examined, eight experienced a decline in domestic broadband capital expenditures from 2014 to 2016.¹⁰⁵ The average decline across all firms over this extended sample period was 5.6 percent, and total capital expenditures declined by \$3.6 billion.¹⁰⁶ Another survey conducted by CTIA similarly found a 17 percent decline in capital expenditures among wireless ISPs in 2016.¹⁰⁷

45. There is good reason to believe that a return to a light-touch regulatory framework could reverse a significant portion of the decline in capital expenditures by ISPs. As noted in Part II above, recent research has shown that relaxing regulatory standards has been associated with increases in innovation and investment in the U.S. telecommunications industry in the past.¹⁰⁸ The Restoring Internet Freedom NPRM notes that, “[a]mong other things, Internet service providers have finite resources, and requiring providers to divert some of those resources to newly imposed regulatory requirements adopted under Title II will, unsurprisingly, reduce expenditures that benefit consumers.”¹⁰⁹ Competition can be expected to compel ISPs to invest revenues and other capital (as opposed to disbursing free cash flow to shareholders as dividends). This phenomenon would not be limited to the major ISPs. Several smaller ISPs have reported that the “mere threat of rate regulation” inherent in the Title II Order negatively affected their ability to obtain financing for capital intensive expansion projects.¹¹⁰ Other small ISPs reported that, due to the Title II Order, “[Title II Order] will no longer provide the necessary returns to justify the investment.”¹¹¹ A return to a light-touch approach would likely remove many of these obstacles to investment.

104. See Hal Singer, “2016 Broadband Capex Survey: Tracking Investment in the Title II Era,” *available at* <https://haljsinger.wordpress.com/2017/03/01/2016-broadband-capex-survey-tracking-investment-in-the-title-ii-era/> (last accessed June 22, 2017).

105. *Id.*

106. *Id.*

107. See CTIA, Annual Year-End 2016 Top-Line Survey Results, at 5 (showing a reduction in year-over-year capital expenditures of approximately \$5.6 billion), *available at*: <https://www.ctia.org/docs/default-source/default-document-library/annual-year-end-2016-top-line-survey-results-final.pdf?sfvrsn=2>.

108. See Part II.B, *infra*.

109. See Restoring Internet Freedom NPRM, ¶ 46.

110. *Id.*, ¶ 47, fn. 188 (citing “Letter from 22 Small ISPs”).

111. *Id.*, (citing “Declaration of Clay Stewart, CEO of SCS Broadband”).

2. Light-touch Regulation Would Decrease the Costs of Regulatory Uncertainty Borne By ISPs, and Allow ISPs to Offer Plans Giving Price-Sensitive Americans Increased Access to Broadband

46. In addition to the benefits outlined above, eliminating the FCC's current General Conduct Standard (as proposed by the Restoring Internet Freedom NPRM)¹¹² would also likely generate economic benefits.

47. The General Conduct Standard was created by the FCC in its Title II Order, and is summarized therein as follows:

[W]e adopt a rule setting forth a no-unreasonable interference/disadvantage standard, under which the Commission can prohibit, on a case-by-case basis, practices that unreasonably interfere with or unreasonably disadvantage the ability of consumers to reach the Internet content, services, and applications of their choosing or of edge providers to access consumers using the Internet.¹¹³

While the General Conduct Standard does not prohibit any specific conduct by ISPs outright, it gives the FCC a vast amount of discretion to impose “bright-line” bans on any future conduct it deems in violation of the Standard.

48. Broad, open-ended regulatory standards like the FCC's General Conduct Standard impose costs on ISPs in the form of “regulatory uncertainty”. The General Conduct Standard leaves it to market participants to guess whether a given practice will run afoul of regulators based on the whims of the current Chairman.¹¹⁴ In this sense, open-ended standards are just as harmful as *ex ante* rules. In response to a question on what exactly the Standard meant, Tom Wheeler, the Chairman of the FCC during the adoption of the Title II Order stated: “We [the FCC] don't really know. We don't know where things will go next. We have created a playing field where there are known rules, and the FCC will sit there as a referee and will throw the flag.”¹¹⁵ Chairman Wheeler's “FCC as a referee” analogy perfectly illustrates the regulatory uncertainty inherent in the General Conduct Standard. Imagine the chaos that would result if NFL referees began calling penalties for conduct, plays, or formations that neither they, the teams, nor fans knew was prohibited before the game started.

112. See Restoring Internet Freedom NPRM, ¶ 73 (“We propose eliminating this Internet conduct standard and the non-exhaustive list of factors intended to guide application of the rule[.]”).

113. See 2015 OIO, ¶ 135.

114. See Restoring Internet Freedom NPRM, ¶ 74 (“Because the Internet conduct standard is premised on theoretical problems that will be adjudicated on an individual, case-by-case basis, Internet service providers must guess at what they are permitted and not permitted to do.”).

115. See Rebecca R. Ruiz, “F.C.C. Sets Net Neutrality Rules,” New York Times (March 12, 2015), *available at*: https://www.nytimes.com/2015/03/13/technology/fcc-releases-net-neutrality-rules.html?_r=0 (last accessed June 19, 2017).

49. Regulatory uncertainty of the kind introduced by the General Conduct Standard can have harmful effects on markets. Recent empirical research in markets, including medical devices,¹¹⁶ pharmaceuticals, and web-based application development, have shown that increases in regulatory uncertainty can lessen firms' incentives to invest and innovate. These disincentives are particularly acute among smaller, newer firms.¹¹⁷

50. Economists have provided concrete examples of how the General Conduct Standard could lessen ISPs' incentives to innovate in ways that benefit consumers.¹¹⁸ Consider, for example, the potential use of "zero-rating" or free data plans by ISPs and/or mobile broadband providers. Under a free data plan, users can access pre-determined websites and applications for "free," without counting such traffic against monthly data caps.¹¹⁹ Economically, such free data plans are equivalent to offering subsidies to price-sensitive customers. That is, rather than charging all customers one price irrespective of their browsing habits—and therefore forcing more price-sensitive customers to subsidize the usage of all customers—free data plans would offer lower prices to customers who restricted the bulk of their web-access to certain content, such as YouTube or Facebook. Economists have estimated that provider subsidies directed to consumers (such as free data plans) would have a significant impact on broadband penetration in the United States. For example, "a modest subsidy of 15 percent" would likely "trigger 10 percent increase in broadband subscribers," equivalent to an additional 9.5 million subscribers.¹²⁰ Put differently, assuming that one quarter of these 9.5 million Americans would qualify for a free data plan or other sponsored-data subsidy but for the restrictions in the Title II Order, these households are being denied \$188 million in annual benefits.¹²¹ Free data plans are prevalent in countries outside the United States, and have been shown to benefit consumers.¹²²

51. In the Title II Order, the FCC noted that free data plans (and closely-related "sponsored data plans"¹²³) were in danger of coming into conflict with the General Conduct Standard.¹²⁴ The FCC thus encouraged ISPs considering the use of such plans to seek "advisory opinions" from the FCC on "prospective or proposed conduct that the

116. See Ariel Dora Stern, *Innovation under Regulatory Uncertainty: Evidence from Medical Technology*, 145 J. OF PUBLIC ECON. 181-200 (January 2017).

117. *Id.*

118. See Singer 2017 at 6.

119. *Id.* See also Yoo 2017 at 509 (defining "zero rating" as plans that "permit subscribers to access certain content without having that traffic count against their data caps.").

120. See Singer 2017 at 8.

121. *Id.* at 8-9.

122. See Yoo 2017.

123. See Diana Crew, *Zero-Rating: Kick-Starting Internet Ecosystems in Developing Countries*, Progressive Policy Institute Policy Memo (March 2015) (defining a "sponsored data plan" as a plan whereby "content providers directly reimburse operators for foregone data costs.").

124. See Yoo 2017 at 516-518.

requesting party intends to pursue.”¹²⁵ The FCC further noted that such advisory opinions (and the details of the proposal submitted by a given ISP) would be made public (and thus available in advance not only to consumers, but also to competitors).¹²⁶ Moreover, the recommendations in such advisory opinions would not be “binding” on the FCC (leaving open the possibility that the Commission would nominally bless certain conduct, only later to prohibit it).¹²⁷ The General Conduct Standard and the advisory framework surrounding it do not incentivize ISPs to innovate in ways that benefit consumers:

52. The average pace of innovation in the mobile space is measured in days and weeks, not months. The time it will take the FCC to process and resolve requests for an advisory opinion will likely fall outside the usual timeframe for new products and services to evolve and come to market. Accordingly, most wireless firms would avoid seeking an opinion entirely. And because the FCC has signaled that sponsored-data plans may run afoul of its General Conduct Standard, providers will likely eschew such partnerships with content providers, as the cost of demonstrating that a plan would not harm innovation or competition would be significant. The discouragement of such partnerships represents a real loss in innovation, and not just in the space of sponsored-data plans; collaboration among ISPs and content providers could lead to positive spillovers in other areas.¹²⁸

53. This academic evidence concerning the disincentives engendered by regulatory uncertainty appears to be confirmed by actual participants in the market for the provision of broadband Internet access services. On April 25, 2017, a group of 22 small wireline ISPs submitted a letter to the FCC noting as follows:

We can tell you that the 2015 Open Internet rules hang like a black cloud over us. Each of us has spent substantial time and resources, including for advice from outside consultants and lawyers, to ensure that our practices are consistent with the rules. The General Conduct rule represents perhaps the worst of government regulation. It is so vague and open-ended that we are concerned that the Commission would invoke it to sanction conduct for which we have no advance warning. Moreover, the mere threat that the Commission may use the General Conduct rule to impose rate regulation affects our ability to obtain financing. Further, because the Commission’s reach under the Open Internet rules appears to be virtually unlimited, each of us has slowed, if not halted, the development and deployment of innovative new offerings which would benefit our customers. In brief, for us and our customers, the rules have been all cost and no benefit.¹²⁹

125. See Singer 2017 at 7.

126. *Id.*

127. See Title II Order, ¶ 235.

128. See Singer 2017 at 7.

129. See Letter to the Honorable Ajit Pai, *Ex Parte Submission*, Protecting and Promoting the Open Internet, GN Docket No. 14-28, (April 25, 2017), available at: <http://www.americancable.org/node/6089> (last accessed June 18, 2017).

Another letter from regional wireless providers made similar points:

The uncertainty surrounding the Title II regulatory framework for wireless broadband services hinders our ability to meet our customer's needs, burdens our companies with unnecessary and costly obligations and inhibits our ability to build and operate networks in rural America.¹³⁰

54. Given that heavy regulation is often justified on the grounds that it is necessary to address shortfalls in broadband coverage in rural areas, decreases in investment and innovation among smaller providers should be especially troubling to supporters of heavier regulation of ISPs.¹³¹ Several small, local wireline providers have stated that they abandoned or postponed plans to expand broadband access services to underserved and/or rural areas as a result of the regulatory uncertainty generated by the Title II Order.¹³²

55. Additional parties – including those that strongly supported net neutrality requirements – noted that uncertainty as to what constitutes “harm” in the General Conduct Standard could similarly deter innovation and investment. As the Electronic Frontier Foundation stated:

A “general conduct rule,” applied on a case-by case basis with the only touchstone being whether a given practice “harms” consumers or edge providers, may lead to years of expensive litigation to determine the meaning of “harm” (for those who can afford to engage in it). What is worse, it could be abused by a future Commission to target legitimate practices that

130. See Letter from King Street Wireless et al, May 11, 2017, *available at* <https://ecfsapi.fcc.gov/file/1051137268642/Bluegrass%20et%20al%2C%20Restoring%20Internet%20Freedom%20Letter%2C%205.11.17.pdf>

131. See Restoring Internet Freedom NPRM, ¶ 47 (“Since reclassification, small providers have been forced to reduce their investment and halt the expansion of their networks, and slow, if not delay the development and deployment of innovative new offerings... This depressed investment has had particularly strong impacts on the deployment of broadband to previously unserved and rural areas.”).

132. *Id.*, ¶ 48 (“For example, one small ISP had planned to ‘triple the number of new base stations’ that would be deployed each month to provide fixed wireless broadband service to new customers, but put those plans on hold as a result of the Commission’s reclassification decision. Other small providers have had to modify or abandon altogether past business models to account for increased compliance costs and depressed investment from outside investors.”). *Id.*, fn. 119 (“Joint Stay Petition, Exh. 2, at 6 (Declaration of L. Elizabeth Bowles, President and Chairman of Aristotle Inc.) (explaining that Aristotle Inc., a small ISP in Arkansas, dialed back its plans to triple its customer base and expand service into unserved areas of rural Arkansas as a result of the *Title II Order*); Joint Stay Petition, Exh. 6, at 4 (Declaration of Forbes H. Mercy, President of Washington Broadband, Inc.) (explaining that the *Title II Order* has forced Washington Broadband, Inc., a small ISP, to scale back expansion to new, unserved, or underserved areas).”).

offer significant benefits to the public but could also be construed to cause some harm to a specific provider or consumer.¹³³

Based on this evidence, eliminating the General Conduct Standard would generate benefits including increased investment and innovation by small ISPs, and decreased regulatory compliance costs. It is important to emphasize that a light-touch approach to regulation (and the elimination of the General Conduct Standard) would not eliminate regulatory uncertainty from the market entirely. Absent the General Conduct Standard, there would still be uncertainty concerning whether certain ISP conduct is or is not harmful. ISPs would, however, have greater latitude to experiment with innovative approaches.

C. The Anticipated Costs of a Return to “Light-Touch” Regulation

56. While a light-touch approach to the regulation of dynamic industries like broadband provision is likely to generate several important benefits (including billions of dollars from increased ISP investment alone¹³⁴), there may be costs generated as well. It is important to emphasize, however, that these costs are largely *theoretical*, premised on what-ifs and hypotheticals, not quantitative evidence. In any event, such costs would very likely be outweighed by the benefits of the light-touch approach.

57. For example, light-touch regulation reduces the costs borne by ISPs resulting from regulatory uncertainty, and is likely to enhance welfare by increasing innovation and investment by ISPs. But reducing the costs of regulatory uncertainty to ISPs does not mean that these costs disappear. Rather, under a light-touch approach, regulators are the ones forced to internalize the costs of uncertainty. Recall that light-touch regulation (on first principles) would place the onus on regulators (not ISPs) to demonstrate that a challenged ISP business practice (like paid prioritization) is harmful to competition. This would cause regulators to incur costs in the form of both time and money. There is also the potential that consumers’ welfare could be harmed during the litigation period (assuming, of course, that the practice under scrutiny was harmful to consumers to begin with). In the Restoring Internet Freedom NPRM, the FCC acknowledges this trade-off, but concludes that because such costs are “premiered on theoretical problems,” shifting regulatory uncertainty from ISPs to regulators is appropriate.¹³⁵ The evidence reviewed above indicates that the potential benefits of light-touch regulation – including benefits resulting from (1) increased ISP investment and innovation, (2) increased experimentation and promotion of zero-rating plans, and (3) reductions in regulatory

133. See Letter to Marlene H. Dortch, Secretary, Federal Communications Commission, *Ex Parte Letter*, GN Docket No. 09-191, GN Docket No. 14-28 (February 15, 2015), available at: <https://www.eff.org/deeplinks/2015/02/dear-fcc-rethink-those-vague-general-conduct-rules> (last accessed June 18, 2017).

134. See Part III.B. *infra*.

135. See Restoring Internet Freedom NPRM, ¶ 74.

costs borne by ISPs due to uncertainty – are likely to significantly outweigh any costs incurred by regulators and consumers.

58. On the other side of the ledger, the alleged harms of a light-touch approach are small by comparison. In particular, they involve the lessening, but not the removal, of protections relative to bright-line prohibitions on ISP conduct. There is no doubt that content providers, particularly upstarts, cannot thrive without certain assurances that the playing field will not be slanted in favor of affiliated content or preferred content. This is why I advocate for some well-defined, predictable, and (to the extent possible) apolitical *ex post* standards to protect consumers and competition. Relative to the open-ended standards adopted by the FCC in its 2015 Order, which created needless uncertainty for content providers and ISPs, the *ex post* standards embraced here do not represent a reduction in the scope of protection for content providers. While a disfavored content provider might incur some cost in demonstrating to the factfinder that it has been discriminated against (and suffered material injury), any regime enacted, whether by Congress or a regulator, could be written so as to minimize litigation costs and to expedite relief when warranted.

IV. Conclusion

59. Regulatory policy should be the result of measured analysis guided by a clear analytical framework. Where possible, such a framework should include a cost-benefit analysis grounded in economics. Regulatory intervention should be employed to correct clear instances of market failure, and should avoid creating unnecessary regulatory uncertainty and limiting the ability of firms to innovate and experiment. The heavy-handed regulation borne out of the FCC's Title II Order fails on all these counts.

60. In contrast, the light-touch framework proposed by the FCC's Restoring Internet Freedom NPRM is consistent with an approach to regulatory intervention grounded in economics. As detailed above, evidence supports the conclusion that the benefits of a light-touch approach are likely to exceed the costs by a wide margin. The policy debate should be about providing benefits to consumers over time, not sloganeering, such as with the use of the term "net neutrality."¹³⁶ While a light-touch approach does not mean that government intervention is never warranted, the FCC is right to focus on a regulatory environment that will foster innovation, investment and benefits for consumers.

136. See, e.g., Robert Hahn & Robert Litan, *The Myth of Net Neutrality and the Threat to Internet Innovation*, MILKEN INSTITUTE REVIEW 28-35 (First Quarter 2007).

Bio for Professor Robert Hahn

61. Robert Hahn is professor and director of economics at the Smith School of Enterprise and the Environment at the University of Oxford; a senior fellow at the Institute for New Economic Thinking at Oxford; and a senior fellow at the Georgetown University Center for Business and Public Policy. Bob worked at the American Enterprise Institute under the leadership of Chris DeMuth for two decades. While there, he co-founded and directed the AEI-Brookings Joint Center for Regulatory Studies, a leader in policy research in law and economics, regulation, and antitrust. Previously, he worked for the U.S. President's Council of Economic Advisers and was the chief economist on the White House drafting team for the 1990 Clean Air Act Amendments. His responsibilities included helping to design the innovative market-based cap-and-trade system for limiting smokestack sulfur emissions. Bob also has served on the faculties of Harvard University and Carnegie Mellon University. He is a frequent contributor to leading scholarly journals including the *American Economic Review*, *Science*, and the *Yale Law Journal*, as well as to general-interest periodicals including the *New York Times*, the *Wall Street Journal* and the *Financial Times*. Bob is currently conducting several behavioral economics experiments, including work on the introduction of wireless technology in developing countries. He also continues to do research on Internet policy, environmental policy, and understanding the benefits of breakthrough innovations. He was recently appointed as a member of the U.S. Commission on Evidence-Based Policymaking.

I declare under penalty of perjury under the laws of the United States of America that the foregoing is true and correct to the best of my knowledge and belief.

Executed on July 17, 2017.



Robert Hahn