July 11, 2016

Marlene H. Dortch
Secretary
Federal Communications Commission
445 12th Street, SW
Washington, DC 20554

WC Docket No. 16-106

Dear Ms. Dortch,

When former Chief Economist Tim Brennan left the Federal Communications Commission (FCC) earlier this year, he warned of a disturbing trend – the failure to conduct rigorous economic analysis in the shaping and consideration of agency rules. The recent Open Internet Order, he observed, was an "economics free zone" – a devastating charge for a respected agency that historically has had a successful track record of prudent and evidence-based stewardship of our nation's communications ecosystem.

As the FCC examines and considers adopting new regulations related to privacy, CALinnovates, a coalition of technology leaders, startups and entrepreneurs, offers the Commission new analysis in the attached paper, "The Curious Absence of Economic Analysis at the Federal Communications Commission: An Agency In Search of a Mission," Former FCC Chief Economist Gerald R. Faulhaber, PhD and Hal J. Singer, PhD reviews the agency's proud history at the cutting edge of industrial economics and its recent divergence from policymaking grounded in facts and analysis.

Dr. Faulhaber and Dr. Singer remind us of the agency's decades-long practice of embracing rigorous economic analysis as part of the FCC's rulemaking process; why the agency was moved to incorporate such analysis; and how both consumers and innovation benefitted from the reasoned decision making that resulted. The paper further documents an alarming trend away from basing regulations on meaningful economic examination and why the outcomes for innovation and consumers are negative. The implications of this change can be felt in the FCC's current privacy proceeding.

In this paper, Faulhaber and Singer note that the FCC's current privacy rulemaking is bereft of the data-driven economic analysis that should be included in every Commission proceeding. The authors explain that the agency's suggestion to impose asymmetric regulation on only one set of market participants could permit incumbent, edge platform providers to raise advertising prices (above the rates that would have prevailed with ISP entry). This will result in less competition

for online advertising and the increased distribution of inferior information to online shoppers and deter or hamper new competitive entry. Similarly, an incumbent provider of online ads will be shielded by government regulation and therefore be less inclined to innovate, relative to a world in which ISPs are nipping at its heels.

As Faulhaber and Singer point out, it is Economics 101 which reveals that imposing different and inconsistent regulations on similarly-situated market participants is stifling and destructive. An FCC committed to basic economic analysis would be aware of and sensitive to these risks. The issues the FCC raises in the privacy proceeding are important, and the way they are resolved will have far reaching implications for consumers *and* innovation in the digital economy.

For these reasons, CALinnovates respectfully submits the attached research paper into the FCC's privacy docket. We urge the Commission to proceed with caution and to return to its roots of embracing data-driven analysis.

Sincerely,

Mike Montgomery
Executive Director

The Curious Absence of Economic Analysis at the Federal Communications Commission: An Agency in Search of a Mission

by

Gerard R. Faulhaber[1] and Hal J. Singer[2]

Abstract

By counseling a very judicious use of regulation, including forbearance where appropriate, regulations informed by economic analysis at the Federal Communications Commission (FCC) have positively affected the U.S. economy. From freeing up long-distance telephone from regulation and subjecting it to competition, to enabling the proliferation of enhanced data Internet services, and spurring the growth of new wireless markets, the world has been changed for the better by wise application of regulations informed by economic principles. The failure of the FCC to ground its regulations in economic reasoning in the last few years, however, has led to inefficient policies and proposals that threaten to eviscerate prior benefits. The FCC has made no effort to subject its pending privacy or set-top-box proposals to cost-benefits analysis. The resolution of the FCC's 2015 Open Internet Order illuminates the quagmire for policymakers. Given the D.C. Circuit's willingness to defer to the FCC's expertise in policy, and given the FCC's willingness to eschew econometric evidence and economic theory as it considers new regulations, the most direct way to re-inject economics into FCC policymaking is via a Congressional mandate for the agency to perform cost-benefit analysis, subject to OIRA or judicial review. There is no reason why the Department of Labor, the Environmental Protection Agency, the Consumer Financial Protection Bureau, and a host of other agencies should be required to perform cost-benefit analysis, while the FCC is free to embrace populism as its guiding principle. The tech industries under the FCC's domain are equally if not more important to the U.S. economy and deserve regulations based on rigorous economic analysis.

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2. Senior Fellow, George Washington School of Public Policy; Adjunct Professor, Georgetown's McDonough School of Business; Principal, Economists Incorporated. The authors would like to thank CALinnovates for funding, and Augustus Urschel for research assistance. The views here are those of the authors only, and do not reflect the views of their affiliated institutions.

I. Introduction

Upon leaving the Federal Communications Commission (FCC) in January 2016, outgoing chief economist Tim Brennan remarked that his former agency was operating, with respect to the issue of net neutrality, in an "economics-free" zone.[3] Professor Brennan offers an insider's view of how economics has been marginalized in the FCC's decision-making process. Even casual observers of recent FCC rulemaking can sense that economics has taken a backseat to politics. In announcing its decision to reclassify Internet service providers as "common carriers" in February 2015, a majority of FCC commissioners routinely cited the four million comments the agency received in favor of net neutrality.[4] The voices—no matter how disconnected from the ultimate policy outcome—trumped whatever the economists had to say.

To an economist with an allegiance to cost-benefit analysis, even 40 million comments could not justify regulatory action that harms the Internet ecosystem on net: What matters is (1) whether there exists a market failure that warrants sector-specific intervention; and if so (2) whether the expected benefits of the intervention (approximated by increase in investment in the "edges" of the network) exceed the expected costs (approximated by the decrease in investment at the "core"); and (3) even if the net benefits are positive, whether there exists a less-restrictive alternative that would achieve even greater net benefits. But the FCC did not perform a rigorous cost-benefit analysis in the proceeding; instead, it released a two-page statement in March 2015 purporting to show annual *gross* benefits of $100 million in edge investment. The perfunctory statement noted that "the Commission is not required to prepare a cost benefit analysis,"[5] which would entail estimating the *net* benefits of the rule. Economists warned that failure to incorporate economic analysis into the agency's decision-making could lead to increased uncertainty due to litigation risk, which in turn could discourage innovation.[6]

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3. *See, e.g.*, Gordon Crovitz, *Economics-Free Obamanet*, WALL STREET JOURNAL, Jan. 31, 2016, *available at* http://www.wsj.com/articles/economics-free-obamanet-1454282427#:OXpja3_mPAWUoA.

4. *See*, *e.g.*, Statement of Commissioner Jessica Rosenwercel, Re: Protecting and Promoting the Open Internet, GN Dkt. No. 14-28 ("This is a big deal. What is also a big deal is 4 million voices. Four million Americans wrote this agency to make known their ideas, thoughts, and deeply-held opinions about Internet openness."), *available at* https://apps.fcc.gov/edocs_public/attachmatch/FCC-15-24A4.pdf. Statement of Mignon Clyburn, Re: Protecting and Promoting the Open Internet, GN Dkt. No. 14-28 ("I also believe that they never envisioned a government that would include the input and leadership of women, people of color, and immigrants, or that there would be such an open process that would enable more than four million citizens to have a direct conversation with their government."), available at https://apps.fcc.gov/edocs_public/attachmatch/FCC-15-24A3.pdf. Statement of Tom Wheeler, Re: Protecting and Promoting the Open Internet, GN Dkt. No. 14-28 ("Most significantly of all, we heard from nearly four million Americans, who overwhelmingly spoke in favor of preserving a free and open Internet.").

5. Congressional Review Act Abstract, WG Dkt. No. 14-28, FCC 15-24 (Mar. 12, 2015), *available at* http://www.progressivepolicy.org/wp-content/uploads/2015/04/20150403-CRA-Abstract-Open-Internet-Order.pdf.

6. Gerald Faulhaber, *What Hath the FCC Wrought?*, REGULATION (Summer 2015), *available at* http://object.cato.org/sites/cato.org/files/serials/files/regulation/2015/6/regulation-v38n2-1.pdf.

In the 2015 *Open Internet Order* ("*2015 OIO*") itself, rather than rely on econometric analysis proffered in the proceeding,[7] the FCC credited the casual empiricism of a consumer advocacy group, which purported to show that common-carrier regulation of DSL providers in the late 1990s and early aughts was the cause of higher telecom investment relative to later periods, when DSL was classified as an information service.[8] Never mind that the capital expenditure (capex) of cable modem providers, which were not subject to common-carrier rules and thus serve as a near-perfect control group for DSL providers, grew at a faster rate than telco capex during the period of asymmetric regulation,[9] casting doubt on the FCC's causal inference. Rigorous economic analysis would immediately uncover the fallacy in this naïve reasoning. Yet the *2015 OIO* contained no such economic evidence, only simple-minded (and false) conclusions. Although the *OIO* was upheld on a 2-1 vote by the D.C. Circuit in June 2016,[10] Judge Williams' dissent (discussed in detail below) vindicated the concerns of many economists, including three former chief economists of the FCC.

2015 marks the nadir of economic influence at the agency. In the prior five years (2010 to 2014), the Commission's Office of Strategic Planning and Policy Analysis hosted an average of 16 economic seminars at the agency per year.[11] In 2015, the FCC conducted just four. Assuming that economic analysis is currently held in low esteem at the FCC, how did we get there? And what are the implications of removing economic analysis from agency rulemakings that impact several critical sectors of the U.S. economy? This paper seeks to answer those questions, by studying the role of economics at the FCC over time, and by seeking to identify what caused the FCC to abandon the dismal science. We hypothesize that the waning influence of economic analysis is correlated to the politicization of the agency and its search for a new mandate. If true, this insight offers crisp policy prescriptions to reinsert dispassionate economic analysis into decision-making at the FCC.

Other researchers have taken notice of the diminution in the *quality* of economic analysis at the FCC, which is a proxy for the *influence* of economics at the agency. For example, Delp and Mayo (2016) find that while the concept of "effective competition" is central to policy formation at the FCC, the Commission's own applications of "effective competition" are inconsistently applied.[12] In the case of video distribution, they explain that "the FCC has alternatively defined 'effective competition' to be a number of competitors greater than or equal

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7. Kevin A. Hassett & Robert J. Shapiro, The Impact of Title II Regulation of Internet Providers On Their Capital Investments, SONECON (Nov. 2014), *available at* http://www.sonecon.com/docs/studies/Impact_of_Title_II_Reg_on_Investment- Hassett-Shapiro-Nov-14-2014.pdf.

8. In the Matter of Protecting and Promoting Open Internet, GN Dkt. No 14-28, Report and Order on Remand, Declaratory Ruling, and Order, ¶414 n. 1210 (citing Free Press submission) (released Mar. 12, 2015) (hereinafter *2015 OIO*).

9. Brief for Georgetown Center for Business and Public Policy and Thirteen Prominent Economists, USTA v. FCC, Aug. 6, 2015, at 14, *available at* https://www.ustelecom.org/sites/default/files/documents/15-1063%20Georgetown%20Center%20and%20Economists%20Amicus%20Brief%20080615.pdf.

10. U.S. Telecom Ass'n. et al. v. FCC, No. 15-1063 (D.C. Cir. 2016).

11. Economic Seminars, Office of Strategic Planning & Policy Analysis, *available at* https://www.fcc.gov/general/economic-seminars-office-strategic-planning-policy-analysis.

12. Amanda Delp & John Mayo, The Evolution of Competition: Lessons for 21st Century Telecommunications Policy, Georgetown Working Paper (Apr. 2016).

to three, six, or two."[13] Hahn, Faulhaber and Singer (2012) similarly take issue with the FCC's shifting standard for assessing competition in mobile telephony.[14] Based on a review of FCC's merger conditions involving spectrum transfers, Manne et al. (2013) find that "the agency's standard of review for spectrum transfers, its use of conditions, as well as the scope of its transaction reviews exceed legal limits, impede efficient markets for spectrum, and deter welfare-increasing transactions and investment."[15] They explain how the FCC's reliance on concentration of spectrum as a surrogate for anticompetitive effects conflicts with the approach of the FTC/DOJ *Horizontal Merger Guidelines*.[16]

This is particularly unfortunate because the economics staff at the FCC is of high quality and no doubt the best in Washington in their understanding of the economics of telecommunications and the Internet. The low quality of economic analysis currently going on at the FCC could indicate that the agency is not allocating the appropriate resources for the discipline, or more likely, that the Commission is simply ignoring the analysis they are receiving from their own economists.

This paper, which to our knowledge is the first to characterize the influence of economic analysis at the FCC over time,[17] is organized as follows: In Part II, we chart the rise and fall of economic analysis at the FCC. Our brief history begins with the early years, in which broadband licenses were allocated pursuant to beauty contests—a period of minimal economic influence. Often at the behest of the D.C. Circuit, economics starts to take hold in the 1960s and 1970s, as seen through important FCC rulemakings, including *Carterfone*, *MCI*, and the *Computer Inquiries*. Economic analysis arguably reached its apex at the Commission in the 1990s, with an embrace of auctions to allocate spectrum to mobile carriers, as well as an embrace of antitrust principles to guide regulatory intervention in areas such as wireless telephony and the nascent Internet. The aughts saw a continuation of a light-touch approach guided by economics, with a key decision to unwind the "common carrier" classification scheme for DSL providers in 2005, and to forbear from rate regulation of next-generation broadband access technologies such as fiber to the home.

This streak of economic import was suddenly broken under the leadership of Tom Wheeler, which has been marked by several decisions devoid of economic analysis. The 2015 *Open Internet Order* rejected the original rationale for embracing case-by-case review of "paid prioritization" arrangements—that is, payments by edge providers to Internet service providers (ISPs) for enhanced quality of service—and instead imposed a *per se* ban on the conduct. In 2010, the Commission recognized that case-by-case review was the appropriate rubric for

13. *Id*. at 12.

14. Gerald Faulhaber, Robert Hahn, & Hal Singer, *Assessing Competition in U.S. Wireless Markets: Review of the FCC's Competition Reports*, 64(2) FEDERAL COMM. L. J., 319-370 (2012).

15. Geoffrey Manne, Will Rinehart, Ben Sperry, Matt Starr & Berin Szoka, The Law and Economics of the FCC's Transaction Review Process, at 2, *available at*: http://ssrn.com/abstract=2242681.

16. *Id*. at 3.

17. Extant FCC economists have written on the influence of economics during their tenure. *See e.g.*, Jonathan B. Baker, Mark Bykowsky, Patrick DeGraba,Paul LaFontaine, Eric Ralph, and William Sharkey, The Year in Economics at the FCC, 2010-11: Protecting Competition Online Federal Communications Commission.

dealing with paid prioritization (or any vertical restraint for that matter) that could be motivated for procompetitive reasons.[18] Indeed, the 2010 *Open Internet Order* relied on economic models of two-sided platforms, which showed that zero-pricing rules (that banned paid prioritization) had ambiguous investment and welfare effects.[19] Accordingly, it was decided that blanket bans would impose certain error costs (denying arrangements that are output-expanding and welfare-increasing), and would make sense only if those error costs were zero. Some economists (and ultimately the D.C. Circuit) objected to the presumption the FCC embraced in its 2010 *Open Internet Order*—namely, that any paid prioritization was presumptively in violation of the Commission's non-discrimination principle—which inefficiently placed the burden of proof on the ISP rather than the excluded content provider. Despite this perceived infirmity, the 2010 *Open Internet Order* was a reasonable *political* compromise that at least respected certain economic considerations. The 2015 *Open Internet Order* however, did no such thing. Part II concludes with a brief review of other decisions in the Wheeler era that were also devoid of economic content.

In Part III, we explain why populism may be preferred to economic analysis in the modern era. In short, we find that the mandate of the 1996 Telecom Act leaves the FCC with a very narrow role. Although the Act expands the FCC's ambit with respect to access lines for voice services, it severely limits the FCC's jurisdiction when it comes to broadband service. The few times the FCC has tried to impose regulation on broadband, the D.C. Circuit has limited the agency's influence even further. As a result, the core business subject to FCC oversight has evaporated, minimizing the agency's relevancy in the Internet Age. Understood in this light, the FCC's embrace of Title II regulation based on populist sloganeering gives the agency a new lease on life as a regulator of a portion of the Internet.

Part IV describes the new battleground for economics-free regulation. Untethered from its customary respect for cost-benefit principles, the FCC moved quickly from reclassification to unbundling video content, regulating the price for business broadband, and imposing marketing restrictions on ISPs (but not on edge providers) in the name of privacy. To launch its campaign for set-top box reform, the FCC issued a "Fact Sheet" that again relied on the economic findings of a consumer advocacy group to suggest (erroneously) that set-top box prices had increased by 185 percent over the past decade.[20] Repeating a coordinated marketing campaign from the Open Internet proceeding, the White House released a video and a policy memo in favor of the FCC's set-top box proposal.[21] Armed with new powers from reclassification, the FCC next intervened to usurp the Federal Trade Commission's privacy enforcement over ISPs. Since the FCC is proposing a set of restrictions unique to ISPs, but is eschewing applying those same restrictions

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18. In the Matter of Preserving the Open Internet, Report and Order (released Dec. 23, 2010), ¶ 76 n. 299.

19. 2010 *Open Internet Order*, ¶ 28 n. 80.

20. FCC Chairman Proposal to Unlock the Set-Top Box: Creating Choice and Innovation, Jan. 27, 2016, *available at* http://transition.fcc.gov/Daily_Releases/Daily_Business/2016/db0127/DOC-337449A1.pdf. The statistic can be traced to a January 20, 2016 letter by Consumer Federal of America and Public Knowledge to the FCC, *available at* https://www.publicknowledge.org/documents/pk-and-mark-cooper-set-top-box-letter-to-fcc.

21. Jason Furman & Jeffrey Zients, Thinking Outside the Cable Box: How More Competition Gets You a Better Deal, Apr. 15, 2016, *available at* https://www.whitehouse.gov/blog/2016/04/15/ending-rotary-rental-phones-thinking-outside-cable-box. We are not aware of other occasions in which the White House has openly campaigned for an FCC proposal.

to other market participants that have access to the same and more consumer information, the FCC's foray into privacy has been viewed as protectionism for a politically preferred class of providers.

In Part V, we explore the implications of the FCC's economics-free regulatory agenda on the tech sector. Picking up on the privacy example, asymmetric regulation on only one set of market participants could permit incumbent platform providers (such as Google or Facebook) to raise advertising prices (above the rates that would have prevailed with ISP entry), resulting in less online advertising and inferior information for online shoppers. Subjecting Ethernet prices to price-cap regulation for the first time could result in fewer buildings being wired for fiber, along with forgone spillover benefits of faster broadband. As with the *Open Internet Order* and the FCC's privacy proposal, which impose no restrictions on edge providers, the FCC's set-top box proposal similarly would constrain one set of market participants (MVPDs) and not others (device makers), thereby skewing the competitive landscape. These are straightforward considerations that an economist would have recognized and taken into consideration when evaluating the FCC's regulatory proposals—had she enjoyed a seat at the FCC's table.

The paper ends by asking how economic analysis could be reinserted into the policy debate. Assuming that the waning influence of economic analysis flows from the politicization of the agency and its search for a new mandate, the solution likely involves Congress. Based on this diagnosis, we advocate that Congress (1) shield the technocrats from political pressure of the kind we observed in net neutrality and set-top boxes proceedings, and (2) clarify the FCC's role over broadband Internet in an update to the Act. With respect to the second policy, Congress could solve the jurisdictional issue regarding net neutrality by giving the FCC the statutory power to regulate blocking and paid prioritization (as well as other forms of preference such as zero-rating) along the lines the agency sought in the 2010 *Open Internet Order*, but without recourse to heavy-handed Title II authority. Perhaps the most important mandate that Congress could give the FCC is to direct the Commission to explicitly include identification of market failure and careful cost-benefit analysis as a necessary condition before imposing *any* regulation.

The failure of the FCC in recent orders to use cost-benefit analysis and economic reasoning leads to inefficient policies that have real-world consequences. Proper use of economics has the intended impact of informing regulatory policy, but the unintended impacts of an economically minded agency are also important—it can lead to the FCC pulling back from regulation (especially Title II regulation) when such regulation is unnecessary. For example, the decision to stand down on regulating the Internet back in the 1990s has been widely recognized as a key reason for the explosive growth of the Internet and concomitant Internet innovation and investment. This growth would simply be impossible in the monopoly-regulated world of the Bell System. As then-Chairman Kennard explained, forbearing from regulation was a deliberate and highly successful policy decision. Without this decision, there would be no commercial Internet as we know it today.

Minimal and informed regulation has also given rise to the second great trend of the past several decades: wireless telecommunications. From the earliest incarnation of wireless in the 1980s to today, the cell phone and smartphone have been subject to minimal regulation and have

led to explosive growth. There are more cell phones in the United States than there are people, far outstripping other consumer goods such as the telephone or television. These technologies are prime examples of regulatory successes, where judicious use of regulation, including forbearance where appropriate, has made a huge impact on our country and the world. From freeing up long-distance telephone from regulation to competition, enhanced data Internet services, and new wireless markets, the world has been changed by a wise application of economic principles.

II. The Rise and Fall of Economic Influence at the FCC

The FCC's use of economic theory, thought, and analysis can be broken into three general periods of history. From its inception in the early 1900s to the 1950s, economic consideration was largely absent from Commission policymaking and regulation. This era ends around the time Nobel Laureate Ronald Coase informed the Commission that its "zero-price" spectrum policy was inefficient. Starting in the 1960s we begin to see the Commission use economic theory, if not outright economic analysis, to shape its policies and regulatory reach. The 1990s and early 2000s mark the economic zenith of the FCC, when both theory and analysis play a major role in regulatory decision-making. By the 2010s, populism had reemerged as the primary driver of FCC policy, demonstrated by the agency's embrace of zero-priced (as opposed to paid) priority and interconnection.

A. The Early Years (1910s-1950s)

The FCC's early spectrum allocations were wholly devoid of economics. Licenses were given out for free to whomever could claim the "public interest." Spectrum reallocations created winners and losers based on lobbying and purely technical analysis. Calls to shape practices around economic theory were rejected. The Commission suffered from a degree of regulatory capture, working hand-in-hand with the incumbent interests of the day.

1. FRA and the First Spectrum Reallocation (1927)

From 1912 until 1926, regulation of the airwaves was overseen by the Commerce Department,[22] where broadcasting regulation was largely developed in concert with private enterprise.[23] When Commerce's legal jurisdiction for the growing technology became too thin, the FCC was born as the Federal Radio Commission (FRC) in 1927. Its mandate was to reallocate the chaotic spectrum mess created by a period of regulatory anarchy, following the dissolution of Commerce's mandate.

Critically, the 1912 Radio Act held no specific provision on the way to allocate station licenses. The FRC's mandate was to issue licenses if it "determine[d] that public interest,

22. FCC, *Annual Report of the Federal Radio Commission to the Congress of the United States,* at 1 (1927), *available at* https://transition.fcc.gov/Reports/ar1927.pdf

23. ROBERT W. MCCHESNEY, TELECOMMUNICATIONS, MASS MEDIA, AND DEMOCRACY 3 (Oxford University Press 1994).

convenience, or necessity would be served by the granting thereof."[24] The discretion of what the public interest was, or who would be serving it, was left up to the regulators.

The solution to the allocation problem was decidedly noneconomic. The FRA first endeavored to grandfather all existing 733 stations across 90 frequencies.[25] For allocating new licenses, the FRC decided to interpret the "public interest" mandate as allocating licenses to the broadcaster that could provide the "best possible broadcasting conditions"—meaning the broadcaster with the best equipment.[26] Given out at a zero-price, these licenses largely went to commercial broadcasters, owing to their better equipment.[27] The FRC eventually came to rule that a "general public service broadcaster" had preference over a "propaganda station," or any nonprofit station with a policy position.[28]

Accordingly, the FRC's *ad hoc* allocation was mostly to the benefit of existing commercial networks, which descended on Washington to participate in a series of hearings about the future of radio. Meetings were generally private and closed to the press and public, and there was a revolving door between the employment at the FRC and its main beneficiaries.[29] Of the 25 "clear" (national) channels created, 23 were owned by the National Broadcasting Company (NBC).[30] Although it had not done so intentionally, the FRC admitted in later years that its initial allocation technique effectively cleared the airwaves of noncommercial radio.[31] By 1934, nonprofit broadcasting accounted for only two percent of all air time.[32]

2. FCC and the Second Spectrum Reallocation (1945)

The Communications Act of 1934 rolled the FRC into a reformed FCC. The FCC was given the broader mandate of "regulating interstate and foreign commerce in communication by wire and radio so as to make available, so far as possible, to all the people of the United States… a rapid, efficient, Nationwide, and world-wide wire and radio communication service with adequate facilities at reasonable charges."[33]

The second major spectrum conflict arose in 1945 over the band of VHF spectrum occupied by FM radio stations. The Radio Corporation of America (RCA), one of the largest manufactures of black-and-white televisions, desired that band of spectrum for its TV sets.

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24. *The Radio Act of 1927,* §11, 69th Congress (1927), *available at* http://www.americanradiohistory.com/Archive-FCC/Federal%20Radio%20Act%201927.pdf
25. MCCHESNEY, *supra*, 20.
26. *Id*. at 25.
27. *Id*. at 26.
28. *Id*. at 28.
29. McChesney, Telecommunications, Mass Media, and Democracy, 22.
30. *Id.* at 20.
31. Sherille Ismail, *Transformative Choices: A Review of 70 Years of FCC Decisions*, 3, FCC Staff Working Paper 1 (2010), *available at* https://www.fcc.gov/reports-research/working-papers/transformative-choices-review-70-years-fcc-decisions
32. *Id. at* 30-31.
33. *Communications Act of 1934,* §1 73rd Congress (1934), *available at* https://transition.fcc.gov/Reports/1934new.pdf.

RCA's competitor and upstart manufacturer, CBS, wanted television allocations to rest on the UHF band, which could support its color broadcasting.[34]

Faced with these competing interests, the FCC split the differences in an ultimately harmful way. TV was allocated 12 channels within the black-and-white VHF band, and FM had its allocation moved up from the 42-50 MHz to 88-108 MHz band. However, the 12 TV channels soon became congested. The FCC put a freeze on issuing TV licenses in 1948, until it allocated additional 70 channels in the UHF band years later. This fragmentation between two different areas of spectrum led to headaches for TV broadcasters in the coming decades, as UHF channels struggled to compete against their incumbent VHF competition.[35]

The FCC made these decisions "based on the testimony and data before it," but the Commissions reasoning was again devoid of economics.[36] Instead of economic analysis, the matter was decided by hearings and commentary. The major vested interests came to Washington to plead their case. A total of 231 witnesses testified, generating some "4,559 pages of testimony" and "543 exhibits."[37] Part of the FCC's rationale for moving the spectrum was based on a faulty technical analysis of the FM band.[38]

Although the FCC commissioned statistical studies of the telephone and telegraph industries and their associated rates and tariffs, there is no evidence of any economic analysis of the TV versus FM Radio question. Accordingly, the reallocation of FM radio spectrum rendered obsolete nearly 500,000 FM radio sets. This shock to the industry effectively arrested FM radio growth for over a decade.[39]

3. The FCC Hears an Economic Critique of Zero-Price Spectrum Licenses (1959)

In this early period, licenses were awarded in what could pleasantly be described as "spectrum beauty pageants." The FCC simply distributed spectrum licenses for free if there were no competing requests. In the event that there were two applicants for the same spectrum, the FCC would set up "comparative hearings," where the competing applicants used "a quasi-judicial forum in which to argue why they should be awarded a license over competitors, and allowed other interested parties to argue for or against an applicant."[40] Instead of being informed by economics, this process was wholly based on rhetoric. For example, in the first grant of cellular service licenses, 30 licenses generated 200 requests with each request being over 1,000

34. Ismail, *supra*, at 5.
35. *Id.*
36. FCC, *Eleventh Annual Report of the Federal Communications Commission,* 20 (1945), *available at* https://apps.fcc.gov/edocs_public/attachmatch/DOC-308662A1.pdf.
37. *Id.*
38. Ismail, *supra*, at 6.
39. *Id.* at 8.
40. FCC, *The FCC Report to Congress on Spectrum Auctions,* 6 (1997), *available at* http://wireless.fcc.gov/auctions/data/papersAndStudies/fc970353.pdf

pages of argument.[41] Congress reformed the system into a lottery in 1981, but this did not address the underlying issue of inefficiency.[42]

In his landmark 1959 paper "The Federal Communications Commission," Nobel Laureate Ronald Coase argued that giving out valuable spectrum for free was incredibly wasteful.[43] He was not the first to notice this: There had been at least eight different instances between 1927 and 1959 where the FCC's zero-price policy had been questioned.[44] Coase's paper was prompted in part by a feeble rejoinder by former FCC chief economist Dallas Smythe against a previous proposal to sell spectrum to the highest bidder.[45] When Coase presented his analysis to the FCC, one commissioner asked, "Are you spoofing us? Is this all a big joke?"[46]

Why did the FCC resist economics in these early years? One theory is that the FCC's initial policies were "not merely inefficient but illogical, error-prone, [and] a mere accident of history."[47] Another is that this was not a naïve mistake in undervaluing spectrum, but a deliberate *quid pro quo* between regulators and incumbent radio broadcasters.[48] Regardless of the cause, the evidence of any economic thinking in the FCC prior to the 1960s is scant. Although the organization managed to bring order to the airwaves, it did so in a bureaucratic, cabal-like manner, where winners were chosen upon nebulous public-interest grounds and persuasive presentations in Washington conference rooms.

B. The Rise of Economic Analysis in the 1960s and 70s

The FCC's non-economic doctrines did not break down of their own accord. Lacking any internal pressure to economically liberalize its policies, the FCC would require external stimulus to reform. Outside of Congressional action, this came in the form of "court-assisted liberalizations," which had the effect of pushing the FCC towards using economic theory as a principal of regulation. The decisions helped shape the FCC's treatment of the growing computer services industry in a series of decisions called the "Computer Inquiries."

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41. *Id*.
42. *Id*. at 7.
43. See Ronald H. Coase, *The Federal Communications Commission,* The Journal of Law & Economics, Vol 2, pp1-40 (1959).
44. Thomas W. Hazlett, *Assigning Property Rights To Radio Spectrum Users: Why Did FCC License Auctions Take 67 Years?*, 534, The Journal of Law & Economics, Vol XLI (1998).
45. Dallas W. Smythe, *Facing Facts about the Broadcast Business*, 20 U. CHICAGO L. REV. 100 (1952) ("Surely it is not seriously intended that the noncommercial radio users (such as police), the nonbroadcast common carriers (such as radio-telegraph) and the nonbroadcast commercial users (such as the oil industry) should compete with dollar bids against the broadcast users for channel allocations."), *available at* http://chicagounbound.uchicago.edu/cgi/viewcontent.cgi?article=2752&context=uclrev
46. Thomas W. Hazlett, *Economic Analysis at the Federal Communications Commission*, 13 Prepared for an RFF Conference (April 7, 2011), *available at* http://www.rff.org/files/sharepoint/WorkImages/Download/RFF-DP-11-23.pdf
47. Thomas Hazlett, *Assigning Property Rights To Radio Spectrum Users: Why Did FCC License Auctions Take 67 Years?* 41 J. LAW & ECON. 569 (1998).
48. *Id.* at 541.

1. The Hush-A-Phone Decision (1956)

The first real evidence of economic thinking at the FCC was the reluctant acknowledgement of consumers benefiting from third-party phone attachments. Prior to 1968, the FCC had routinely suppressed peripheral devices that attached to AT&T-owned phones or to the telecommunications networks themselves. At the time, only AT&T equipment could be attached to AT&T's networks, leading to a *de facto* monopoly in telecom equipment.[49] The FCC took the suppression of third-party devices to "ridiculous extremes," banning add-on devices that had no demonstrable harm to the telephone network.[50] This was the case with an automatic rotary dialing device invented in 1940, and a prototype answering machine named the "Jordaphone."[51]

The largely unfounded rationale for these bans was that "the unrestricted use of foreign attachments… may result in impairment to the quality and efficiency of telephone service, damage to telephone plants and facilities, or injury to telephone company personnel."[52] As a result, all third-party devices would have to be analyzed one case at a time.[53] This blanket ban was anathema to innovation, as it curtailed the ability of private entities to innovate with the existing technology without explicit permission of the owning company.

The pivotal change occurred in November 1956, when the Court of Appeals for the District of Columbia Circuit (D.C. Circuit) reversed the FCC's decision on Hush-A-Phone. The product was a metal device attached to the receiver of a phone, which effectively functioned in a similar manner to cupping a hand to a receiver for the purposes of speaking privately. The FCC had argued that use of this attachment would, somehow, negatively influence "the whole 'telephone system,'" but the appeals court saw no evidence of this outlandish claim.[54] Critically, the ban on Hush-A-Phone was found to be an "unwarranted interference with the telephone subscriber's right reasonably to use his telephone in ways which are privately beneficial without being publicly detrimental."[55] Although it may not have been intentional, the D.C. Circuit had set a new standard of analysis for the FCC.

With the court's decision rendered, the FCC revised its policy and directed AT&T to allow customers to use any device that "does not injure [AT&T's] employees or facilities, the public in its use of [AT&T's] services, or impair the operation of the telephone system."[56] Although AT&T still had the monopoly on the phones themselves, third-party equipment could

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49. PETER HUBER, MARK KELLOGG & JOHN THORNE, 2 FEDERAL TELECOMMUNICATIONS LAW 664 (Aspen Law & Business 1991).

50. *Id*. at 665.

51. *Id.*

52. *Id*. at 665-66.

53. *Id*.

54. *Hush-A-Phone Corporation and Harry C. Tuttle, Petitioners, v. United States of America and Federal Communications Commission, Respondents, American Telephone and Telegraph Company et al., and United States Independent Telephone Association, Intervenors,* 99 U.S. App. D.C. 190; 238 F.2d 266 (1956).

55. *Id*.

56. Huber, Kellogg, & Thorne, Federal Telecommunications Law, Issue 2; 667.

be attached. This crack in the dam was practically insignificant in the near term, but it affected the FCC's monopoly logic in the coming years.

2. The Carterfone Decision (1968)

This economic liberalization was made plain in 1968, when the FCC permitted non-telephone devices (though not third-party telephones themselves) to be connected to the network.[57] The cause for this change was the Carterfone, a two-way radio device that used the existing phone line to connect to other Carterfone owners. AT&T had banned the use of the Carterfone, calling it a "prohibited interconnecting device."[58] The FCC found that "Carterfone fills a need and that it does not adversely affect the telephone system."[59]

This was an important shift from the Commission's earlier policy. The decision was in part based on *Hush-A-Phone*, but it also contained nods to economic reasoning. The FCC concluded that a private manufacturer of devices could connect to the telephone system, provided that they met reasonable network standards.[60] In the long run, this opening would eventually enable the development of modems and the Internet.[61] For the moment, though, it meant that the FCC was open to competition in ancillary markets that functioned alongside the monopoly network.

3. The FCC Gives MCI Authority To Offer Long Distance Services in Select Markets (1977)

Final evidence of court-assisted liberalization can be seen in the 1977 opinion in *MCI v. FCC*. Microwave Communications, Inc. (MCI) had operated a point-to-point microwave-based long-distance telephone service starting in 1972. (It had taken ten years for the FCC to allow such a service).[62] Local users of this private "point-to-point" service could dial an MCI facility using a local phone, enter an access number to reach a foreign facility, and be connected to a local telephone on the other side.[63]

Concerned that this new service was posing a threat to their traditional long-distance telephone monopoly, AT&T first informally[64] and then formally complained to the FCC that

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57. Ismail, *Transformative Choices: A Review of 70 Years of FCC Decisions,* 17.

58. FCC, *In The Matter of Use of the Carterfone Device in Message Toll Telephone Service; In the Matter of Thomas F. Carter and Carter Electronics Corp., Dallas, Tex. (Complainants), v. American Telephone and Telegraph Co., Associated Bell System Companies, Southwestern Bell Telephone Co., and General Telephone Co. of the Southwest (Defendants)*. Docket No. 16942; Docket No. 17073, 13 F.C.C.2d 420 (1968); 13 Rad. Reg. 2d (P & F) 597.

59. *Id.*

60. *Id.*

61. Ismail, *supra,* at 14.

62. Kagami, Tsuji, & Giovannetti, Information Technology Policy and the Digital Divide: Lessons for Developing Countries, 72 (Edward Elgar Publishing Limited 2004)

63. *Id*. at 72.

64. An important anecdote from the court ruling illustrates the incredible regulatory capture AT&T had within the FCC. See MCI v. FCC below: "AT&T… complained orally to the Commission that MCI was offering interstate long distance message telephone service (MTS) under the guise of Execunet and that no such service could properly

MCI was offering long-distance telephone service under the guise of their "Execunet" point-to-point microwave service.[65] Within a few months, the FCC suspended MCI's tariff "without holding a hearing or even disclosing the details of AT&T's arguments concerning the unlawfulness of Execunet."[66] MCI sought for a legal stay of the order, and the issue eventually went to the D.C. Circuit.

Once again the D.C. Circuit forced the FCC to abandon its monopolistic tendencies. The court found that there was no mandate suggesting that "that every time a carrier seeks to start a new service over existing facilities it must petition the Commission," and that there was "no affirmative determination of public interest need for restrictions."[67] Much like *Hush-a-Phone* and *Carterfone*, *MCI v. FCC* reinforced the notion that a "mother may I" policy towards innovating within the FCC's area of jurisdiction was inappropriate.

The court poignantly explained that it was troubled with the FCC's implicit notion that AT&T was a monopoly to be protected:

> As a final and somewhat collateral point, we are concerned with a thread running through the Commission's analysis that the Specialized Carrier decision granted AT&T a de jure monopoly … which would be undermined were MCI allowed to provide Execunet because any such assertion is plainly incorrect and may have influenced the Commission's disposition of the instant case.
>
> ...The question whether AT&T should be granted a de jure monopoly was not among those proposed to be decided in Specialized Carriers, and nowhere in that decision can justification be found for continuing or propagating a monopoly… Of course, there may be very good reasons for according AT&T de jure freedom from competition in certain fields; however, one such reason is not simply that AT&T got there first.[68]

It is important to note that this decision in 1977 came in the midst of United States v. AT&T, which had been filed by the Department of Justice in 1974 and would eventually lead to the structural divestiture of AT&T's equipment and long-distance arms in 1984 (mandated in 1982). In *MCI v. FCC*, we can see the evolving concern of a publicly sanctioned monopoly on telecom.

What were the effects of these three decisions on the FCC's economic leanings? Prior to *Hush-a-Phone*, the FCC effectively functioned as a monopoly-sanctioning agency rather than a regulator of free commerce, working hand-in-hand with incumbents to support the industry

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be tariffed by MCI. *Apparently AT&T representatives approached individual commissioners and various Commission staff personnel with this complaint and even held a demonstration of Execunet in the Commission's offices*. Subsequent to the ex parte complaints, AT&T filed with the Commission a letter which repeated the allegations previously made."

65. *MCI Telecommunications Corporation, Microwave Communications, Inc., and N-Triple-C Inc., Petitioners, v. Federal Communications Commission and the United States of America, Respondents, American Telephone and Telegraph Company, United States Independent Telephone Association, Data Transmission Company (DATRAN), and Southern Pacific Communications Company, Intervenors.* 561 F.2d 365 (D.C. Cir. 1977).

66. *Id*.

67. *Id.*

68. *Id.*

standard. The court-mandated liberalization of the FCC's rigid monopoly polices forced the Commission to acknowledge that a moderate deregulation of control could lead to positive consumer benefits.

The FCC was still not at a point of using explicit economic theory to reach their conclusions for these matters. In the following years, there would be some evidence of an economic-oriented mindset at the agency. These decisions, coupled with the breakup of AT&T, likely changed the FCC's attitude towards economic analysis.

4. Computer Inquiry I (1970)

Perhaps the most notable example of the agency's early use of economic analysis to inform its policy was the FCC's treatment of the emerging technology of computer networking. By 1966, mainframe computers were an American reality. Not only were computers being used to process data in previously impossible ways, but they were also being used to support the telecom network. Complications began to arise when it became clear that computers could perform both functions simultaneously, and the FCC needed to understand where regulation of these devices and services would fall.

There were two main problems: The first was that the computers performed an unregulated function similar to an existing regulated service: telegrams. The telegram network would operate in a fashion similar to modern-day servers. Living operators, upon receiving a message, would pass along the message to the next node until finally reaching its destination. Mostly provided by Western Union, the FCC had regulated this service since the Communications Act of 1934.[69] Mainframe computers, which could be connected to the ends of existing telephone lines, could do this automatically using the existing phone-line infrastructure.

The second problem was how to regulate common carriers, which often had excess computing power from computers normally used to support their telecom networks. Naturally, these carriers desired to sell this surplus as a service. Under normal circumstances, this would be a non-issue to the FCC, but AT&T was a protected monopoly under their jurisdiction. The FCC had to address public concerns that common carriers could "subsidize their data processing operations with revenues and resources available from their regulated services."[70]

As in previous scenarios, the FCC called for public commentary on the matter. Instead of relying solely on public commentary, as it had in the past, the FCC additionally commissioned the Stanford Research Institute (SRI) to study the problem in detail from an economic and technical perspective.[71] After reviewing the public commentary, SRI conducted their own economic analysis of the issues and presented their findings to the FCC in a series of seven

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69. Robert Cannon, *The Legacy of the Federal Communications Commission's Computer Inquiries*, 55(2) FED. COMM. L. J. 170 (2003).

70. *Id*. ¶25.

71. *In the Matter of Regulatory and Policy Problems Presented by the Interdependence of Computer and Communication Services and Facilities, Tentative Decision,* ¶3 (Computer I, Tentative) (1970), *available at* http://hdl.handle.net/2027/msu.31293012269308.

reports. They reached three conclusions: (1) That "data communication services" were rapidly growing and FCC action may not be required (but should be studied further); (2) that data processing services would benefit from free entry and unregulated competition by non-carriers; and (3) that allowing common carriers to enter the data processing field could be problematic.[72]

SRI's economic analysis of the emerging markets was critically important, because the FCC's policy prescriptions were based on the market in which each service was perceived to exist. Largely following the SRI report's recommendations, the FCC concluded "that the offering of data processing services is essentially competitive and that… there is no public interest requirement for regulation by government of such activities."[73] Computer services were to be put into two categories: "Pure communication" and "pure data processing." The former was where a message was transmitted over the network with no change in content or form, while the latter involved computers that stored, retrieved, sorted, merged, and calculated data.[74] The FCC was unsure what to do with marginal cases, where there was "an offering of service which combines Remote Access data processing and message-switching to form a single integrated service."[75] To address this ambiguity, they created a "hybrid" category that they would evaluate on a case-by-case basis. This grey area eventually consumed the rule and lead to Computer Inquiry II.

On the issue of common carriers competing in the data processing market, the FCC reasoned it was within their powers to bar AT&T from competing in a non-regulated market, but elected not to do so. The agency instead required that a common carrier could offer data processing only under a fully separate subsidiary.[76]

Computer Inquiry I is thus a clear example of the FCC calling for an impartial economic analysis of a technical situation, and then basing policy on the estimated costs and benefits of intervening in a market. Their economic reasoning was also outlined in a statement of principles within the *Inquiry*:

> In this country, we rely upon the 'free enterprise' system with the maximum possible latitude for individual initiative to enter into any given enterprise and compete for the available business… Government intervention and regulation are limited to those areas where there is a natural monopoly, where economies of scale are of such magnitude as to dictate the need for a regulated monopoly, or where such other factors are present to require governmental intervention to protect the public interest because of a potential for unfair practices exists.[77]

We can see an intriguing rationalization at play: Based on the SRI reports, the FCC concluded that computers had no natural monopoly, although they were predicated on the existence of a

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72. *See* Donald Dunn, *Policy Issues Presented by the Interdependence of Computer and Communications Services*, __ LAW & CONTEM. PROBLEMS 369-88 (1969), *available at* http://scholarship.law.duke.edu/cgi/viewcontent.cgi?article=3248&context=lcp.
73. Computer I, Tentative ¶20
74. *Id*. at 174.
75. *Id*. ¶15.
76. Cannon, *supra*, 178.
77. Computer I, Tentative ¶19

telecom network. This meant that they were outside the ambit of the FCC. However, the network itself was still a natural monopoly under AT&T, and thus needed the FCC's guiding hand.

5. Computer Inquiry II and the Office of Plans and Policy (1980)

Perhaps the most significant indicator of the growing popularity of economic analysis at the FCC was a staffing change that would shape *Computer Inquiry II* and all policy that followed it. Under the direction of FCC Chairman Charles Ferris, the Commission officially embraced economics by retooling the Office of Plans and Policy (OPP) to be the in-house, economic think-tank of the FCC, which previously had no real internal economic division. Derthick and Quirk (1985) describe the economic enlightenment as follows:

> [Ferris] enlarged the functions of the FCC's Office of Plans and Policy and naming an economist to head it. Both this economist, Nina W. Cornell, and Ferris's general counsel, Robert R. Bruce, were strongly critical of traditional public utility regulation; as such, they exemplified the 'latest and best thinking.' … When Cornell and Bruce, as generalist in favor of procompetitive deregulation were joined by a Common Carrier Bureau chief who shared that objective, the way was prepared for the outcome of the Computer II inquiry in the spring of 1980. This outcome represented a sweeping retreat from traditional public utility regulation, with its focus on rate setting, and the embrace instead of a structural approach to preventing predatory conduct…"[78]

OPP was a major contributing force to the FCC's shift to embracing economic analysis. OPP immediately set to work and began production of the FCC's 46 economic working papers—a practice that continued until 2012 (a potential end of economics at the FCC).[79] In its first year of operation under its new mandate, OPP produced four working papers alone that centered on the themes of deregulation, competition, and analyzing telecom policy from an economic standpoint.[80] OPP would form the economic core of the FCC, and would produce economic analysis until 2003, when it would be rebranded as the Office of Strategic Planning and Policy Analysis.[81]

Meanwhile, the "hybrid" cases outlined in *Computer Inquiry I* had become a problem for the FCC. Not only were there a multitude of services that fell into this category, but the cost of computer equipment began to plummet as its complexity exploded. Microcomputers began to

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78. MARTHA DERTHICK & PAUL QUIRK, THE POLITICS OF DEREGULATIONS 79 (Brookings Institution Press 1985).

79. *See the FCC's Repository of Working Papers, available at* https://www.fcc.gov/reports-research/working-papers

80. *See* Cornell, Kelly & Greenhalgh, *Social Objectives and Competition in Common Carrier Communication: Incompatible or Inseparable?,* FCC OSP Working Paper 1 (1980); Douglas Webbinick, *Frequency Spectrum Deregulation Alternatives*, FCC OSP Working Paper 2 (1980); Duvall & Pelcovits, *Reforming Regulatory Policy for Private Line Telecommunications Services: Implications for Market Performance*, FCC OSP Working Paper 4 (1980); Brown & Gordon, *Economics and Telecommunications Privacy: A Framework for Analysis*, FCC OSP Working Paper 5 (1980)

81. *See FCC 2002 Annual Program Performance Report* and *FCC 2003 Annual Program Performance Report*, available at https://transition.fcc.gov/Reports/ar2002.pdf and https://transition.fcc.gov/Reports/ar2003.pdf

appear in consumer phones. The first demonstrations of what ultimately would become the Internet were debuted to the public in 1972. A new framework was needed.[82]

The FCC responded by redefining the market into two categories: Basic and Enhanced Services. Basic transmission services were defined as those that were "limited to the common carrier offering of transmission capacity for the movement of information."[83] In other words, "the direct analog or digital transmission of voice, data, video, etc."[84] Storage or alteration of data was only appropriate to facilitate the reliable movement of the information. Anything that offered more than that basic service was considered to be an enhanced service.[85]

As before, basic services would fall under the regulation of the FCC, whereas enhanced services would not. Enhanced services were thought to be competitive, as they occupied the same "truly competitive" market as "data processing" did in *Computer Inquiry I*.[86] The FCC also doubled down on its treatment of common carriers in the data-processing market. If AT&T and GTE wished to offer enhanced services, they were required to establish a subsidiary as before.[87] This "relatively clear-cut" line between basic and enhanced services was intended to end any regulatory ambiguity associated with *Computer Inquiry I*'s hybrid cases.[88]

The FCC reached this decision "based on the voluminous records compiled in this proceeding."[89] Although it did not directly commission an analysis as it did in *Computer Inquiry I*, the FCC did rely on economic theory for its major decisions. The Commission routinely cited economist Alfred Kahn, "one of our country's leading authorities in regulatory economics," for his work *The Economics of Regulation* (1971), which examined how competition affected innovation.[90] The FCC also cited academic literature on predatory-pricing practices,[91] other economic papers on monopoly and innovation,[92] and on how bundling restricts the choices of consumers.[93]

6. Computer Inquiry III (1986)

82. In the Matter of Amendment of Section 64.702 of the Commission's Rules and Regulations (Second Computer Inquiry), Tentative Decision and Further Notice of Inquiry and Rulemaking ¶10-12 (Computer II, Tentative) (1979), in Federal Communications Commission Reports, Volumes 72 Second Series 358 (1979), available at http://hdl.handle.net/2027/msu.31293012269761

83. In the Matter of Amendment of Section 64.702 of the Commission's Rules and Regulations (Second Computer Inquiry). Final Decision, ¶93 (Computer II, Final) (1980), in Federal Communications Commission Reports, Volumes 77 Second Series 384 (1980), *available at* http://hdl.handle.net/2027/msu.31293000344147

84. *Id*.

85. *Id*.

86. *Id.* ¶128

87. Cannon, *supra*, 184.

88. Computer II, Final ¶97

89. *Id.* ¶5

90. Computer II, Final ¶212

91. Computer II, Final ¶153

92. Computer II, Final ¶212, n. 84, 85.

93. Computer II, Final ¶149, n. 55.

A similar, if less revolutionary, economic approach was used for *Computer Inquiry III*. Following a settlement with the Department of Justice, by 1984, AT&T had divested its local service operations, forming the Regional Bell Operating Companies (RBOCs). The Domain Name System (DNS) was introduced in 1985, and the Internet was on the cusp of becoming a reality.

The problem this time was not the definition of services, but the inability of the newly formed RBOCs and other carriers to enter the enhanced services market. *Computer Inquiry II* required the structural separation of AT&T and GTE from any enhanced services. Originally the FCC had applied this policy to the RBOCs, but the Commission "found that the costs of those requirements in lost innovation, inefficiency, and delay outweigh their benefits."[94] The FCC also sought to prove more "competition-oriented" regulation, which would allow dominant carriers to offer enhanced services. The short term solution to this was to allow the RBOCs to offer services, but only if they provided a "Comparatively Efficient Interconnection (CEI) of third party enhanced service option to the customer.[95] The longer-term solution was the implementation of "Open Network Architecture" (ONA), which would require the RBOCs to unbundle their basic service offerings for all enhanced service providers.[96]

All of these decisions were based on a practical cost-benefit analysis of maintaining structural separation, a reflection of economics' newfound influence at the Commission. The FCC not only investigated the costs and benefits of structural separation,[97] but it also used economic analysis to investigate alternative regulatory approaches and their potential effects.[98] Although several of the Commission's decisions in *Computer Inquiry III*, including the ONA ruling, faced legal hurdles in the Ninth Circuit Court of Appeals, and the ONA ruling was eventually sent back to the FCC, the Commission maintained its overall deregulatory thrust.[99]

C. Peak of Economic Analysis in the 1990s and Aughts

The 1990s were the high water mark of economics at the FCC. Through Congressional action, the standard method of assigning radio spectrum licenses by regulatory fiat (often with strong political influence) gave way to allocating spectrum by auction, as suggested by FCC economists Evan Kwerel and Alex Felker[100] (based on earlier work by Ronald Coase). The FCC adopted a light-touch regulation of rapidly growing wireless service and held fast to the strict separation between regulated basic service (voice telephony and pure data transmission) and

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94. FCC, *In the Matters of Amendment of Sections 64.702 of the Commission's Rules and Regulations (Third Computer Inquiry); and Policy and Rules Concerning Rates for Competitive Common Carrier Services and Facilities Authorizations Thereof Communications Protocols under Section 64.702 of the Commission's Rules and Regulations,* ¶2 (Computer III) (1986), in Federal Communications Commission Reports, Volumes 104 Second Series 958 (1986), *available at* http://hdl.handle.net/2027/inu.30000038968941.

95. *Id*.

96. Cannon, *supra*, at 201.

97. Computer III, ¶80-99.

98. Computer III, ¶102.

99. Cannon, *supra*, at 202

100. Evan Kwerel & Alex Felker, *Using Auctions to Select FCC Licensees* (1985), FCC OSP Working Paper #16, *available at* https://www.fcc.gov/reports-research/working-papers/using-auctions-select-fcc-licensees.

unregulated "enhanced" services (data processing, especially Internet), established by the earlier *Computer Inquiry I, II*, and *III*. This economic mindset was built into the Telecommunications Act of 1996, which was designed to create a procompetitive deregulatory framework intended to encourage private-sector competition by opening all markets to competition and relying on market forces instead of regulation wherever possible.[101]

1. Auctions Replace Beauty Pageants (1993)

Economic influence at the Commission would mark the end of zero-price spectrum. The key to arriving at the right price was auction design. Not only had economists steered the FCC toward the efficient policy, the implementation of that policy also required the input of economists. Although the FCC's lotteries technically satisfied the Coase Theorem—in which an improperly allocated good can eventually end up in the hands of the entity that values it the most if transaction costs are low—it took years for the secondary markets to distribute these licenses accordingly.[102] One paper estimated that the "ten year delay in cellular licensing cost the U.S. economy the equivalent of two percent of Gross National Product."[103]

In 1993, Congress amended the Communications Act of 1934 to require the FCC to award spectrum based on competitive bidding.[104] Congress specifically required the FCC to design the allocations in a way to fulfill its objectives of "promoting economic opportunity and competition and ensuring that new and innovative technologies are readily accessible to the American people by avoiding excessive concentration of licenses and by disseminating licenses among a wide variety of applicants."[105] The Commission developed a simultaneous multiple-round bidding system, which successfully fulfilled the new mandate.[106] This would allow firms to intelligently shift their bids to other areas of spectrum if their first choice became untenable.[107] The new system was widely considered a success and is used today.

The first auction took place in 1994, and concerned nationwide licenses for narrowband personal communications services such as paging; six bidders won ten licenses, and auction receipts totaled $650 million.[108] One indication of the program's success is the decline of the secondary market transactions. Between 1994 and 1996, only 12 licenses were resold, compared

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101. At this time, only voice access line service was arguably a monopoly; most other voice services were substantially competitive (or getting there). Hence, the emphasis in the Telecommunications Act on voice access line policy.

102. *Id*.

103. *See* Jeffrey Rohlfs, Charles Jackson & Tracey Kelley, Estimate of the Loss to the United States Caused by the FCC's 14 Year Delay in Licensing Cellular Telecommunications, National Economic Associates, Inc. (1991).

104. H.R. 2264 §6002 (a) ("If mutually exclusive applications are accepted for filing for any initial license or construction permit which will involve a use of the electromagnetic spectrum described in paragraph (2), then the Commission shall have the authority, subject to paragraph (10), to grant such license or permit to a qualified applicant through the use of a system of competitive bidding that meets the requirements of this subsection").

105. *Id.*

106. *The FCC Report to Congress on Spectrum Auctions*, at 3 (1997) (hereinafter *FCC Spectrum Report*).

107. *Id.* at 25.

108. FCC, Auction 1: Nationwide Narrowband (PCS), *available at* http://wireless.fcc.gov/auctions/default.htm?job=auction_summary&id=1.

to 75 resales in the 1991 cellular license lottery.[109] Another sign of success is that between 1994 and 1997, over half of all spectrum licenses went to small business and new entrants to the telecommunications markets.[110]

It is important to remember that while the FCC was given the mandate to shift to an auction system by the legislature, the system was largely based on the work of the OPP economists who called for an auction system in previous years.

2. The Telecom Act of 1996 Places Competition on the Pedestal

The passage of the 1996 Telecommunications Act fundamentally reshaped the way the FCC approached regulation. The Act had a single goal: "To promote competition and reduce regulation in order to secure lower prices and higher quality services for American telecommunications consumers and encourage the rapid deployment of new telecommunications technologies."[111] The word "competition" and its derivatives appear 61 times throughout the 106 page document. To implement these objectives, the FCC would be forced to incorporate economics into the heart of its decision-making.

The Act noted specifically that "The Internet and other interactive computer services have flourished, to the benefit of all Americans, with a minimum of government regulation," and charged the FCC with a number of objectives in promoting the deployment of "advanced telecommunications" across the United States"[112] The FCC's new mandate was to promote policies favoring "vigorous economic competition, technological advancement, and promotion of the public interest, convenience, and necessity."[113]

3. Regulatory Humility Part 1: Hands Off the Internet

The unregulated treatment of the Internet was not an accident. It stemmed from the view developed from the Computer Inquiries that the "the Internet" in composite was a collection of enhanced services, based upon the physical structure of regulated basic services. In 1999, OPP economist Jason Oxman published a working paper to identify what the agency had done right.[114] Oxman noted that the Internet owed much of its success to the FCC's consistent refusal to regulate any part of it. He presciently noted that there would be pressures in the future to regulate:

> Although the FCC has a long tradition of encouraging the growth and development of the Internet by nonregulation, deregulation, and certain affirmative market-opening policies, there are frequent calls from many sources for the FCC to become more heavily involved

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109. *FCC Spectrum Report,* at 23.
110. *Id*.
111. 47 U.S.C.Preamble.
112. *Id.* §706 (c)
113. *Id.* §257 (b)
114. Jason Oxman, *The FCC and the Unregulation of the Internet*, FCC OPP Working Paper #31 (July 1999), *available at* http://www.fcc.gov/Bureaus/OPP/working_papers/oppwp31.pdf.

> in Internet regulation. …The challenge to the FCC… is to … further the Commission's longstanding goal of promoting competition, not regulation, in the marketplace.[115]

There are a few concrete examples of the FCC taking direct "un-regulatory" action. Before Internet Service Providers (ISPs) were a reality, the FCC decided in 1983 to exempt "enhanced service providers" from usage-based access chargers, so that access to the network would not face charges similar to long distance calls. Because the FCC decided that these providers were not common carriers, they did not warrant the same per-minute pricing treatment, and instead mandated essentially a flat end-user rate.[116]

Another example occurred in 1997, when the FCC decided that ISPs were not required to make contributions to the Universal Service Fund USF, a public-works program to bring physical telecommunication lines to rural areas. This reinforced the notion that ISPs were to remain unregulated.[117]

Most importantly, the FCC decided that it would not regulate the deployment of cable modem services as common carriers.[118] (Alas, telco-based DSL services were not so fortunate.) This decision would have profound implications for the growth and development for cable-based Internet services. This would have a profound effect on investment. Between 1998 and 1999, cable modem connections had grown from 100,000 to 750,000.[119] Following a legal battle culminating in 2005, the FCC would extend this deregulation to DSL services, bringing it on equal footing as the "Commission's light regulatory treatment of cable modem service."[120]

As final testament to the FCC's un-regulatory policy towards the Internet, in 1999, then-Chairman William Kennard declared:

> The best decision government ever made with respect to the Internet was the decision that the FCC made 15 years ago NOT to impose regulation on it. This was not a dodge; it was a decision NOT to act. It was intentional restraint born of humility. Humility that we can't predict where this market is going. [121]

This sentiment is in concert with Oxman, who concludes that part of the success of the Internet was thanks to the FCC's policy of free competition. This decision to un-regulate was based on

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115. *Id*. at 21.

116. *See* FCC, In the Matter of MTS and WATS Market Structure, Memorandum Opinion and Order (1983), in Federal Communications Commission Reports, Volumes 97 Second Series 682 (1983), available at http://hdl.handle.net/2027/msu.31293106457686

117. *Id.* at 18.

118. *Id*. at 21.

119. William E. Kennard, *The Road Not Taken: Building a Broadband Future for America*, remarks at the National Cable Television Association, (June 15 1999), *available at* https://transition.fcc.gov/Speeches/Kennard/spwek921.html

120. *FCC Eliminates Mandated Sharing Requirement on Incumbents' Wireline Broadband Internet Access Services,* FCC News (August 5, 2005), *available at* https://apps.fcc.gov/edocs_public/attachmatch/DOC-260433A1.pdf

121. *Id.*

the economic philosophy that flowed from a number of factors, including *Carterfone*, *Hush-A-Phone*, and *Computer Inquiries*.

4. Regulatory Humility Part 2: Wireless

A similar un-regulation story played out in the nascent wireless industry. In the 1970s, the FCC had no notion of how popular wireless telephony would become. The Commission had initially planned to license only one cellular telephone service, which would be operated by the local telephone company. To "promote competition" in their monopoly market, in 1981, the FCC increased the number of licenses allocated to two—adding a completely unaffiliated company in addition to the local one.[122]

Unsurprisingly, this intervention did not yield competitive outcomes. Later, the FCC somewhat humorously noted that "The duopoly nature of cellular service made it less than fully competitive."[123] In 1995, the Commission awarded new licenses by auction.[124] They allocated enough spectrum to ensure "at least three, and possibly as many as six" new competitors in each market.[125]

In addition to this measure, the FCC systematically removed regulatory barriers to wireless deployment. Similar to the deployment of cable (and later broadband), the FCC decided not to regulate cellular service under Title II, and pre-empted state regulation of entry and rates.[126] This was a part of the FCC-wide trend towards reduced regulation.

The results were tremendous. In the FCC's first Commercial Mobile Services Report to Congress in 1995, there were 25 million cellular subscribers.[127] By the fifth report in 2000, that number was over 86 million.[128] The 2000 report also noted that the cellular industry was not only competitive, but that prices to consumers had fallen by 10 to 20 percent from the previous year.[129]

This decision was reached on clear economic grounds. The 1995 Memorandum and Order on wireless reads like an economic report. After an executive summary of the technology, market, and decision, the paper launches into a technical and economic study of the markets of each wireless category. In the discussion of competition, the report incorporates analyses of prices, tax returns, volumes, cash flows, and even regression analysis on estimated rates of

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122. 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 Commercial Mobile Services (First Report), 1 (1995), *available at* http://wireless.fcc.gov/auctions/data/papersAndStudies/fc95317.pdf.

123. Id. ¶4.

124. *Id*.

125. *Id*.

126. *Id*. ¶5.

127. *Id*.

128. 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 Commercial Mobile Services (Fifth Report), 87 (2000), *available at* http://wireless.fcc.gov/auctions/data/papersAndStudies/fc000289.pdf

129. *Id*. at 4-5.

returns.[130] It is clear from this document that the justification for the liberalization of the wireless markets was based on a pragmatic economic analysis of competition.

5. The TELRIC Quagmire (1996-2005)

One provision of the 1996 Act was the unbundling of local carriers' networks, requiring carriers to offer competitors access to its network elements, who in turn could resell access under their own brand name and price.[131] This provision required the FCC to develop a pricing method that approximated competitive outcomes, which the FCC interpreted to mean prices that approximated the incumbent local exchange carrier's total element long-run incremental cost (TELRIC). Homogeneous-product competition among resellers was intended to drive retail prices down to the TELRIC rate.

To induce an incumbent to voluntarily cede a retail customer to a rival, the access price would have to make the incumbent indifferent between serving as a wholesaler and serving as a retailer. Mathematically, the access price must be set equal to the incumbent's forgone retail margin. While the FCC could compel a local carrier to set its access price below its forgone retail margin—that is, below the market-determined access price—doing so would dampen incentives on all parties (access provider and access seeker) to innovate and invest.[132] Forcing the resale of network at below-market rates necessarily means there is less of an incentive to develop networks for the future, in addition to other negative consequences.[133]

The FCC's initial report developed national TELRIC pricing principals as a methodology that each state could adjust for its specific use.[134] Notwithstanding the potential dynamic efficiency losses from unbundled access, we see the clear influence of economics in the rate-setting process. Section VII of the FCC's document, which is dedicated to the pricing methodology of TELRIC, draws from a wide range of commentary and economic literature to inform its methodology.[135] In particular, the Commission took into account a host of cost variables, including forward-looking common costs, reasonable returns on investment, and

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130. 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 Commercial Mobile Services (First Report) (1995).

131. Tom Jorde, Gregory Sidak & David Teece, *Innovation, Investment, and Unbundling*, 2 YALE J. ON REG. 1-37 (2000) *available at* http://scholarship.law.berkeley.edu/cgi/viewcontent.cgi?article=1283&context=facpubs.

132. *Id.* at 4-5.

133. *See* Robert S. Pindyk, *Mandatory Unbundling and Irreversible Investment in Telecom Networks*, (2003), MIT Sloan School of Management Working Paper 4452-03, *available at* http://digilander.libero.it/vergalli/pdf/19.pdf.

134. In the Matter of Implementation of the Local Competition Provisions in the Telecommunications act of 1996, Interconnection between Local Exchange Carriers and Commercial Mobile Radio Service Providers, First Report and Order, ¶¶6, ¶625 (1996), *available at* https://transition.fcc.gov/Bureaus/Common_Carrier/Orders/1996/fcc96325.pdf.

135. *Id*. ¶618.

profit.[136] The model they developed included price ceilings for each state,[137] and specifically listed the resale-pricing standard.[138]

In 1999, this unbundling regime was expanded to require local exchange carriers (LECs) to share a portion of their lines with resellers of DSL service at regulated rates ("line sharing"). Although DSL was not reclassified as an information service until August 2005, the appeals courts largely disemboweled the FCC's common-carrier regime well before 2005. The D.C. Circuit vacated the FCC's *Line Sharing Order* in May 2002,[139] and the FCC eliminated line sharing as an unbundled network element in August 2003.[140] Other portions of the FCC's unbundling rules were vacated even earlier. While TELRIC was ultimately a legal and regulatory quagmire brought on by provisions of the 1996 Act, the FCC can be credited with attempting to determine mandated prices in an economically coherent way.

6. The Brewing War Over Net Neutrality (2005-10)

As Oxman predicted, the FCC was constantly showered during the aughts with recommendations from self-styled consumer interest groups. Around the turn of the century, the burning issue was "Open Access"—establishing rules that cable systems had to open up their facilities to virtual ISPs, similar to how mandated unbundling at regulated rates opened telephone access lines (including DSL service) to competitive local exchange carriers.[141] One author (Faulhaber) recalls his time as Chief Economist at the FCC (in 2000), when he found a television crew filming a group of about fifteen young people parading around the FCC's front door with signs and placards demanding the FCC mandate Open Access. Upon questioning, group members had only a hazy understanding of the issues, admitting they were students at local universities who had been hired by a consumer group (again, hazy on the name) to parade around with said signs. The television crew soon packed up and left, and the protestors left soon afterwards. At the time, such pressure was routine, but if there were no supporting economic data to back up the demands, the FCC gave those efforts short shrift.

Fast forward five years, and "Open Access" had morphed into "Network Neutrality," largely based on the seminal article by Wu.[142] Under Chairman Michael Powell, the FCC published four principles of net neutrality[143] under the agency's Title I authority. The first net neutrality case involved the Madison River Telephone Company, which had blocked a provider of voice telephony over the Internet in its North Carolina operations. The FCC resolved the issue

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136. *Id.*
137. *Id.* Tables A, D.
138. *Id.* §51.609.
139. US Telecom Ass'n v. FCC, 290 F. 3d. 554, 585 (D.C. Cir. 2004).
140. Review of the Section 251 Unbundling Obligations of Incumbent Local Exchange Carriers, CC Docket Nos. 01-338 et al., FCC 03- 36, 18 FCC Red 16978 (Aug. 21, 2003) (Triennial Review Order), ¶199.
141. The requirement that telephone companies had to unbundle and resell DSL service was eventually rescinded. However, most European countries mandate resale of broadband facilities (often a state-owned monopoly) to virtual ISPs.
142. Tim Wu, *Network Neutrality, Broadband Discrimination*, 2 J. TELECOM. & HIGH TECH. 141 (2003).
143. In brief, the principles were: Transparency, No blocking or unreasonable discrimination, reasonable network management, and lighter rules for mobile.

quickly, with a fine and commitment from the firm not to engage in further blocking. A second case, involving Comcast blocking BitTorrent (a peer-to-peer video file sharing application) was much more prominent in the news in 2007-08. Comcast voluntarily agreed to change its network management practice, but the Commission nonetheless proceeded months later to find Comcast's practice to be unlawful.

Comcast sued the FCC, arguing that the four "principles" it had adopted earlier did not have the force of regulation. The D.C. Circuit did not reach that conclusion but agreed with Comcast that the FCC had not established legal authority to regulate Internet practices,[144] much to the chagrin of consumer groups who had lobbied hard for network neutrality regulation. The FCC understood that an actual regulation was required to put network neutrality in place, and opened the Open Internet proceeding, to satisfy the Court's requirement that an actual regulation, as opposed to an informal statement of principle, was needed for enforcement purposes.

The FCC responded to this loss with a curt and curious statement: "Today's court decision invalidated the prior Commission's approach to preserving an open Internet. But the Court in no way disagreed with the importance of preserving a free and open Internet; nor did it close the door to other methods for achieving this important end."[145] In other words, the FCC was committed to its position. It would find a way to enforce its version of net neutrality, one way or another.

The 2010 *Open Internet Order* (*2010 OIO*) was the FCC's codified rulemaking on the matter. After seeking a public commentary period in which "100,000 commenters have provided written input," the Commission stated that their "economic analysis demonstrate, however, that the openness of the Internet cannot be taken for granted, and that it faces real threats."[146]

What were these threats? In the FCC's initial inquiry, the Commission cited developments in network technology that allowed providers to "offer different qualities of service to different traffic (service differentiation), which enables charging different prices for different traffic (price differentiation)."[147] Such disparate treatment would allow ISPs to prioritize packets either based on origin or on class. The example given was Skype, which required low latency and reliable delivery.

There was general concern that, "absent appropriate oversight, broadband Internet access service providers could make the Internet less useful for some users or applications by differentiating traffic based upon the user, the application provider, or the type of traffic."[148] Critically, these potential problems were not realized. For example, in the *2010 OIO*, the FCC

144. Comcast v. FCC, ___ F.3d ___ (D.C. Cir. 2010).

145. FCC Statement on Comcast v. FCC Decision (April 6, 2010), *available at* https://apps.fcc.gov/edocs_public/attachmatch/DOC-297355A1.pdf.

146. In the Matter of Preserving the Open Internet Broadband Industry Practices, Report and Order (hereinafter *2010 OIO*), ¶4 (2010), *available at* https://apps.fcc.gov/edocs_public/attachmatch/FCC-10-201A1_Rcd.pdf

147. FCC, *In the Matter of Preserving the Open Internet Broadband Industry Practices, Notice of Proposed Rulemaking* (2010 Open Internet Order Proposed Rulemaking), ¶57 (2009)

148. *Id*. ¶60.

wrote that "the record in this proceeding reveals that broadband providers potentially face at least three types of incentives to reduce the current openness of the Internet."[149] These claims were not grounded in economic analysis done by the Commission or any economist, but instead were based on the comments of DISH, Google, Netflix, Skype, and other vested interest groups.[150] Critics of the Commission's approach pointed to the fact there was no evidence of this practice adversely affecting users; they asserted that net neutrality is "a solution in search of a problem."[151]

Lacking evidence of harm, the Commission nonetheless determined that the benefits of pursuing an "Open Internet" policy exceeded the costs. Harkening back to the FCC's early years, the issue was settled on public commentary of non-economic, vested entities. No economic analysis of the situation took place. Of the 24 citations the Commission lists in its "cost and benefit analysis" in the *2010 OIO*, not a single citation links to any economically rigorous study of the situation.[152] The Commission's analysis rested on the basis of casual logic and the court of public opinion.

Despite its flaws, one redeeming quality of the *2010 OIO* was its treatment of "reasonable discrimination." The Order did not flat-out ban network shaping, so long as the broadband provider was transparent and gave the end-user some control over this shaping.[153] In addition, the Commission did not prevent tiered or usage-based pricing packages, so that lighter users of Internet services would not subsidize heavy ones.[154] In sum, the Commission offered a discrimination policy of "reasonableness" based on "achieving a legitimate network management purpose."[155] This reluctance to ban practices that might be motivated for pro-competitive reasons would melt away in the FCC's subsequent populist period.

III. The Stripping of Economics from FCC Decision-Making

When it comes to regulating broadband, the Telecom Act's mandate leaves the FCC with a narrow role. The Act could not be clearer regarding regulation of the Internet: "The Internet and other interactive computer services have flourished, to the benefit of all Americans, *with a minimum of government regulation.*"[156] In light of this finding, the Act declares the policy of the United States is "to preserve the vibrant and competitive free market … for the Internet and other interactive computer services *unfettered by Federal or State regulation*."[157] Congress also made clear that information services are among the interactive computer services that should remain free from regulation, and that services that "provide[] access to the Internet" are information

149. *2010 OIO* ¶21 (emphasis added).
150. *Id.* n.11-21
151. *Id*. See Dissenting Statement of Commissioner Meredith Attwell Baker at 193.
152. *Id*. at 23-27.
153. *Id*. at 40.
154. *Id*.
155. *Id*. ¶82.
156. 47 U.S.C. § 230(a)(4)(1996) (emphasis added).
157. 47 U.S.C. § 230(b)(2)(1996) (emphasis added).

services.[158]

The focus of the Act was regulating wireline voice services, once the centerpiece of communications but now a dying industry. Soon after the Act's passage, landline connections began to be displaced by wireless ones.[159] Even voice over wireless is being replaced with VoIP, text messages, emails, and direct messaging through social media sites. This shift in the way we communicate severely limits the FCC's jurisdiction and thus its reason for being. Put differently, the evaporation of the core businesses subject to FCC oversight minimizes the relevancy of the FCC in the Internet era. Without a new mandate from Congress, the agency chose in its 2015 *Open Internet Order* to embrace populism, grounding its newfound "authority" in the will of the people.

A. The Shunning of Cost-Benefit Analysis in the Wheeler Era

Economics guides regulators to act only when confronted with an empirically demonstrated market failure (such as monopoly or an externality). If there is no market failure to correct, then there can be no benefit to any new regulation, only costs, and the regulator should stay out. After identifying a perceived market failure and proposing a remedy to address it, economics teaches us that the proposed remedy must pass a cost-benefit test. A regulatory agency may fail a cost-benefit test in three ways. First, the agency can overstate the benefits of its proposed remedy. Second, the agency can understate the costs of its proposed remedy. Third, and a bit less obvious, the agency can ignore a less-restrictive alternative that would generate the same purported benefits but at a lower cost, thereby rendering its proposed remedy inefficient. For example, if the net benefits of a proposed remedy are $10 million per year, but a less-restrictive alternative generates net benefits of $15 million, then the proposal fails a cost-benefit test, even though the proposed remedy would have generated benefits in excess of costs.

Eschewing the lessons of cost-benefit analysis in particular and economics generally, the FCC has steered towards a new era of populism during the Wheeler administration. Three decisions from 2013-15 make clear that economics has been all but removed from the FCC's decision-making process. We briefly review those decisions, contrasting the policies implied by economic reasoning to those adopted by the FCC.

1. The *2015 Open Internet Order*

Paid prioritization arrangements, which involve a payment by an edge provider to an ISP for special handling, could be beneficial for all parties, including end users, so long as edge rivals that forgo such offers are not worse off in *absolute* terms; by design, edge rivals that forgo paid prioritization are worse off in *relative* terms. This recognition puts the lie to the "zero-sum hypothesis" peddled by net neutrality proponents—namely, that any priority arrangement must

158. 47 U.S.C. § 230(e)(2)(1996).

159. Kevin Caves, *Quantifying Price-Driven Wireless Substitution in Telephony*, 35 TELECOM. POL'Y 984-998 (2011).

come at the expense of non-prioritized traffic.[160] Paid prioritization has existed in other portions of the network, and can be readily engineered to keep others whole.[161]

There are four options to dealing with paid prioritization arrangements: (1) no sector-specific regulation, with a reliance instead on antitrust; (2) case-by-case adjudication, with a presumption against any such deals; (3) case-by-case adjudication, with a presumption in favor of any such deals; and (4) a blanket prohibition on all paid prioritization deals. Assuming the case for regulation were satisfied, an economist would tend to favor case-by-case treatment over blanket bans, as paid prioritization arrangements can be motivated for legitimate business reasons. By extinguishing procompetitive arrangements—the proverbial tossing the baby with the bathwater—a blanket ban would generate an intolerably high number of errors (alongside the associated error costs). With respect to the optimal setting of the presumption, antitrust dictates that the presumption should be in favor of vertical arrangements, with the burden of proof on some outside party (typically, an excluded rival). Economics dictates that the burden (and hence the proper presumption) should fall on the party in the most efficient position to gather the evidence. From this vantage point, an edge provider claiming that its packets were degraded (in an absolute sense) as a result of not taking a paid-priority offer, would be in the best position to prove it.

From this list of policy options, the FCC's *2010 OIO* elected option (3), by rejecting a blanket prohibition in favor of case-by-case treatment,[162] but declaring that paid prioritization deals "would raise significant cause for concern" and were "unlikely [to] satisfy the no-reasonable-discrimination standard."[163] This presumption, among other part of the *2010 OIO*, was appealed by Verizon. In *Verizon v. FCC*, the D.C. Circuit ruled that such a presumption effectively barred pay-for-priority deals and was tantamount to common carriage: "If the Commission will likely bar broadband providers from charging edge providers for using their service, thus forcing them to sell this service to all who ask at a price of $0, we see no room at all for 'individualized bargaining.'"[164]

Critically, the D.C. Circuit laid out a legal path for the FCC to regulate pay-for-priority deals without resort to common carriage:

> Given these principles, we concluded that the data roaming rule imposed no per se common carriage requirements because it left "substantial room for individualized

160. For an accessible technical explanation of how priority on the Internet works, see George Ou, Oct. 11, 2014, available at https://plus.google.com/+GeorgeOu/posts.

161. *See*, e.g., Peter Rysavy remarks, at 26:40, *available at* http://www.c-span.org/video/?322383-1/discussion-mobile-telephony-regulation.

162. *2010 Open Internet Order*, ¶76 n. 229 ("The Open Internet NPRM proposed a flat ban on discrimination and interpreted that requirement to prohibit broadband providers from "charg[ing] a content, application, or service provider for enhanced or prioritized access to the subscribers of the broadband Internet access service provider." Open Internet NPRM, 24 FCC Rcd at 13104–05, paras. 104, 106. In the context of a "no unreasonable discrimination" rule that leaves interpretation to a case-by-case process, we instead adopt the approach to pay for priority described in this paragraph.").

163. *2010 Open Internet Order*, ¶76.

164. Verizon v. FCC, 740 F.3d ___ (D.C. Cir. 2014) [[at 59-60]]

> bargaining and discrimination in terms." The rule "expressly permit[ted] providers to adapt roaming agreements to 'individualized circumstances without having to hold themselves out to serve all comers indiscriminately on the same or standardized terms.'" Id. That said, we cautioned that were the Commission to apply the "commercially reasonable" standard in a restrictive manner, essentially elevating it to the traditional common carrier "just and reasonable" standard, see 47 U.S.C. § 201(b), the rule might impose obligations that amounted to common carriage per se, a claim that could be brought in an "as applied" challenge.[165]

So long as broadband providers were free to bargain individually with edge providers, the court signaled, these arrangements could be regulated under the FCC's 706 authority along the lines of *Cellco*, a case distinguished by the D.C. Circuit from common carriage in 2012.[166]

How can such freedom be established? By flipping the presumption around, so that priority deals are reasonable until a complaining edge provider can prove otherwise. One can envision two types of complaints arising under this case-by-case framework: (1) an edge provider was denied a priority offering that was extended to its rival, or (2) an edge provider who declined priority from a broadband provider suffered an absolute degradation in its quality of service. After a complaining edge provider demonstrates discrimination or degraded service, the burden should shift back to the broadband provider, thereby sparing the edge provider of significant legal expense.

Quarantined from political forces, smart lawyers at the FCC set about drafting rules that would thread this needle—again, without resort to Title II reclassification. The agency released a Notice of Proposed Rulemaking (NPRM) in May 2014, a few months after the D.C. Circuit's ruling, which explained that pay-for-priority deals would be subjected to a "commercially reasonable" standard, and "prohibited under that rule if they harm Internet openness."[167] In other words, such deals were presumed to be commercially reasonable unless an edge provider could prove otherwise. The NPRM also proposed to adopt a rebuttable presumption that a broadband provider's exclusive pay-for-priority deal would be commercially unreasonable. From an economic perspective, those two strokes were brilliant, as they efficiently placed the burden on the appropriate party.

Not so, said John Oliver[168] and millions of angry letters ostensibly submitted to the FCC. (Given the esoteric language of those letters, which invoked Title II authority, a great many likely were form letters generated by public-interest groups clamoring for Title II-based solutions. In November 2014, President Obama called on the FCC to take up the "strongest

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165. *Id*. at ___ (citing Cellco, 700 F.3d at 548–49).

166. Cellco Partnership v. FCC, 700 F.3d (D.C. Cir. 2012).

167. See Protecting and Promoting the Open Internet, GN Docket No. 14-28, Notice of Proposed Rulemaking, 29 FCC Rcd ____ (2014) [¶97] (hereinafter *2014 Open Internet NPRM*).

168. *See, e.g*, Ben Brody, *How John Oliver Transformed the Net Neutrality Debate Once and For All*, BLOOMBERG POLITICS, Feb. 26, 2015, *available at* http://www.bloomberg.com/politics/articles/2015-02-26/how-john-oliver-transformed-the-net-neutrality-debate-once-and-for-all.

possible rules to protect net neutrality."[169] Ever since that political groundswell, Wheeler backpedaled from the elegant, light-touch solution of the NPRM, and instead imposed a blanket ban on paid prioritization.[170]

By banning paid prioritization, the FCC violated the standards of cost-benefit analysis in its *2015 OIO* in several ways. First, the *2015 OIO* fails to provide an empirically supported finding of market failure. Second, the *2015 OIO* overstates the benefits of the ban. The *2015 OIO* fails to consider that the profitability of (and thus the incentive to engage in) discriminatory conduct vis-à-vis content providers depends on whether the Internet service provider (ISP) could generate higher profits from the promoted (affiliated) products to cover the lost margins from departing broadband customers. The anticompetitive behavior feared by the Commission has simply not come to pass, which explains why the *2015 OIO* is hard-pressed to cite any recent examples of consumer harm. A very limited number of service disruptions or degradations have actually occurred—among literally millions of opportunities for such behavior—and many of these have been dealt with expeditiously through private negotiations.[171]

Third, the *2015 OIO* understates the costs of the ban. The *2015 OIO* ignores or dismisses the economic evidence of the impact of Title II on investment in the late 1990s and early 2000s, and thereby dismisses the real threat to ISP investment. Rather than ground its findings on economic scholarship, the *2015 OIO* relies instead on the casual empiricism of an advocacy group that operates outside of the constraints of academic reputations, to reach the extraordinary conclusion that telco investment was "55 percent higher under the period of Title II's application" than in the later period.[172] These results hinge on which years are included in the Title II era: If one includes the years 1999 and 2000 as part of the pre-2005 period, then removal of Title II appears to have caused a decline in Bell investment.[173] But those early years are associated with the dot.com boom and long-haul fiber glut, and it is difficult to remove Bell investments in backbone infrastructure from the capex figures.

Fourth, the *2015 OIO* casually dismisses a less-restrictive alternative for handling paid prioritization disputes—namely, case-by-case enforcement—as being too "cumbersome"[174] to enforce, despite the fact that: (1) the *2015 OIO* itself embraces case-by-case review to address interconnection disputes[175] and other conduct such as zero-rating;[176] (2) the *2010 OIO* embraced

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169. Net Neutrality: President Obama's Plan for a Free and Open Internet, *available at* https://www.whitehouse.gov/net-neutrality.

170. *2015 OIO, supra*.

171. *See, e.g*, Hal Singer, Mandatory Interconnection: Should the FCC Serve as Internet Traffic Cop?, PPI Policy Brief, May 2014, *available at* http://www.progressivepolicy.org/wp-content/uploads/2014/05/2014.05-Singer_Mandatory-Interconnection_Should-the-FCC-Serve-as-Internet-Traffic-Cop.pdf.

172. *2015 OIO*, ¶414 n. 1210 (citing Free Press Comments).

173. *See, e.g*., Hal Singer, Three Ways The FCC's Open Internet Order Will Harm Innovation, PPI Policy Brief, May 2015, *available at* http://www.progressivepolicy.org/publications/policy-memo/three-ways-the-fccs-open-internet-order-will-harm-innovation/ (hereinafter *Three Ways*).

174. *2015 Open Internet Order*, ¶19.

175. *Id.* ¶29 ("As a result, commercial arrangements for the exchange of traffic with a broadband Internet access provider are within the scope of Title II, and the Commission will be available to hear disputes raised under sections 201 and 202 on a case-by-case basis: an appropriate vehicle for enforcement where disputes are primarily

case-by-case to address paid prioritization disputes; (3) the FCC's May 2014 Notice of Proposed Rulemaking would have permitted ISPs and content providers to engage in "individualized bargaining" subject to ex post review; and (4) the FCC relies upon case-by-case to adjudicate discrimination complaints against traditional video distributors. Why is this form of mild preference different from any other favoritism?

Recognizing this disparate treatment of paid prioritization and interconnection, the *2015 OIO* argues that case-by-case enforcement "is an appropriate vehicle for enforcement where disputes are primarily over commercial terms and that involve some very large corporations. . ."[177] But interconnection disputes can involve small content providers as well. And if the concern is an asymmetry in litigation resources, the case-by-case regime can level the playing field by shifting evidentiary burdens and providing interim relief. Interestingly, FCC staff economists opined in 2015 that leaving interconnection to market forces could raise or lower welfare, which supports the case-by-case approach.[178] This same logic would apply equally to the case of paid prioritization. But it did not.

The *2015 OIO*'s embrace of a ban presumably pushed the FCC towards its dreaded reclassification decision. Logic dictates that a ban could not be sustained under section 706 of the Communications Act so long as case-by-case with a presumption against such deals could not be sustained under section 706, as indicated by *Verizon*. This dramatic policy reversal begs the question: What happened in the intervening five years that caused the Commission to lose confidence in case-by-case adjudication for paid prioritization? The *2015 OIO* does not give an answer.

It would seem that an overt and pronounced shift in regulatory policy would necessitate a clear and confident finding that such an alternative policy approach toward the Internet would produce better results—more innovation, more investment, and more consumer benefits. When viewed with an economic lens, the *2015 OIO* fails a basic cost-benefit analysis.

Although the *Order* was upheld in a 2-1 opinion by the D.C. Circuit in July 2016,[179] Judge Williams' dissent vindicated our concerns relating to the absence of serious economic

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over commercial terms and that involve some very large corporations, including companies like transit providers and Content Delivery Networks (CDNs), that act on behalf of smaller edge providers.").

176. *Id.* ¶108 ("This no-unreasonable interference/disadvantage standard will operate on a case-by-case basis and is designed to evaluate other current or future broadband Internet access provider policies or practices—not covered by the bright-line rules— and prohibit those that harm the open Internet.").

177. *2015 Open Internet Order,* ¶29 ("As a result, commercial arrangements for the exchange of traffic with a broadband Internet access provider are within the scope of Title II, and the Commission will be available to hear disputes raised under sections 201 and 202 on a case-by-case basis: an appropriate vehicle for enforcement where disputes are primarily over commercial terms and that involve some very large corporations, including companies like transit providers and Content Delivery Networks (CDNs), that act on behalf of smaller edge providers.").

178. D. Bring, et al., *Year in Economics at the FCC: 2014-15*, 47 REV. IND. ORG. 437-62, 404 (2015) ("Going forward, the Commission could choose to allow the interconnection market to work freely, with the possible benefit of lower broadband access rates for consumers, but also the possibility of anti-competitive interconnection rates charged by ISPs due to excessive market power.").

179. U.S. Telecom Ass'n. et al. v. FCC, No. 15-1063 (D.C. Cir. 2016).

analysis. The majority of three-judge panel refused to question the *OIO* on policy grounds or on the economics:

> Critically, we do not inquire as to whether the agency's decision is wise as a policy matter; indeed, we are forbidden from substituting our judgment for that of the agency." Nor do we inquire whether "some or many economists would disapprove of the [agency's] approach" because "we do not sit as a panel of referees on a professional economics journal, but as a panel of generalist judges obliged to defer to a reasonable judgment by an agency acting pursuant to congressionally delegated authority."[180]

With economic considerations off the table, the majority narrowly focused on whether the FCC had the legal authority to subject ISPs to common-carrier rules under *Brand X* and *Chevron*.

In another show of deference to the expert agency, the D.C. Circuit declined to criticize the FCC's findings on likely investment effects, asserting that "we ask not whether [the FCC's predictions] 'are correct or are the ones that we would the ones that we would reach on our own, but only whether they are reasonable.'"[181] The majority further noted that such "predictive judgments about areas that are within the agency's field of discretion and expertise are entitled to *particularly deferential review*, as long as they are reasonable."[182]

Judge Stephen Williams offered a blistering 69-page dissent, filled with citations to the economics literature, which might prove pivotal in any future challenge by the ISPs. The dissent forcefully explained why a blanket ban on paid prioritization cannot be legally sustained even under Title II, and why such a ban makes no economic sense, particularly when paid peering arrangements were treated by the Order under a "wait-and-see" approach:

> The Commission's disparate treatment of two types of prioritization [paid peering versus paid prioritization] that appear economically indistinguishable suggests either that it is ambivalent about the ban itself or that it has not considered the economics of the various relevant classes of transactions. Or perhaps the Commission is drawn to its present stance because it enables it to *revel in populist rhetorical flourishes* without a serious risk of disrupting the net.[183]

Economists recognize that some and perhaps most episodes of paid prioritization could improve the lots of ISPs (more revenues), edge providers with applications that need quality of service to function properly (more revenues), and broadband customers (greater quality of service). A ban denies those benefits. If the FCC is permitted to ignore the teachings of economics, then populism—the antithesis of economics—will fill the void.

Judge Williams lamented how the *OIO* gave three of its former chief economists "the

180. *Id*. at 23 (citations omitted).
181. *Id*. at 44.
182. *Id*. (emphasis in original).
183. Dissent at 50 (emphasis added).

silent treatment."[184] He noted that two of those (Michael Katz and Tim Brennan) offered less-restrictive alternatives to the ban on paid prioritization, but that the FCC casually dismissed those alternatives.[185] The FCC offered no serious explanations as to why case-by-case treatment (offered by Dr. Katz) or a requirement that ISPs meet minimum-quality standards (offered by Dr. Brennan) were inferior to the ban.

Any economist tasked with assessing whether a blanket ban on payments from edge providers to ISPs would appeal to the economics literature on two-sided markets in justifying their policy prescription. Yet as Judge Williams remarked, "[t]wo-sided markets are barely discussed at all, with the only mentions of any sort in the Order"[186] relegated to three footnotes. The Commission "nowhere develops any particular consequences from that classification or taps into the vast scholarly treatment of the subject."[187] Had it done so, it would have been forced to grapple with the fact that contributions from edge providers puts downward pressure on access prices for broadband users through what economists call the "topsy-turvy" or "seesaw" effect,[188] expanding broadband penetration and deployment.

Finally, Judge Williams explained how the Commission can reach "arbitrary and capricious" decision when it eschews economic analysis:

> Given the Commission's assertions elsewhere that competition is limited, and its lack of economic analysis on either the forbearance issue or the Title II classification, the combined decisions to reclassify and forbear—and to assume sufficient competition as well as a lack of it—are arbitrary and capricious. The Commission acts like a bicyclist who rides now on the sidewalk, now the street, as personal convenience dictates.[189]

To foster confidence among ISPs to continue investing billions in broadband infrastructure,[190] the FCC needs to stay in its designated bike lane; swerving across lanes in response to political winds signals to investors that broadband infrastructure is not worthy of continued investment.

2. The 2015 *Muni-Broadband Order*

In March 2015, the FCC also granted the petition of the City of Chattanooga, Tennessee to preempt a state law that restricts municipal broadband (muni-broadband) deployment.[191] As

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184. *Id*. at 43.
185. *Id*. at 39.
186. *Id*. at 20.
187. *Id*.
188. *See, e.g.,* E. Glen Weyl, The Price Theory of Two-Sided Markets, University of Chicago Working Paper, Dec. 2006, available at http://economics.uchicago.edu/pdf/Weyl_011507.pdf.
189. Dissent at 66.
190. USTelecom, Broadband Investment, *available at* https://www.ustelecom.org/broadband-industry/broadband-industry-stats/investment.
191. In the Matter of City of Wilson, North Carolina, Petition for Preemption of North Carolina General Statute Sections 160A-340 et seq.; The Electric Power Board of Chattanooga, Tennessee, Petition for Preemption of a Portion of Tennessee Code Annotated Section 7-52-601, FCC 15-25, Memorandum Opinion and Order, 30 FCC

was the case for the *2015 OIO*, the FCC's *Muni-Broadband Order* was preceded (and potentially caused) by a direct request from the White House.[192] Much of the debate concerning this action was whether the FCC has authority to preempt state laws that restrict or prohibit muni-broadband development. Some legal scholars argue that the only preemption authority at the FCC's disposal, which derives from section 253 of the 1996 Telecommunications Act, concerns preempting state laws that deter entry for private-sector network deployment.[193] As the Supreme Court noted in *Nixon v. Missouri*, the issue of preemption "does not turn on the merits of municipal telecommunications services."[194] To an economist, however, the merits should dictate FCC policies; authority to act is essential, but not something that lends itself to economic analysis. In response to the D.C. Circuit's ruling in *Verizon*, which provided a potentially alternative source of preemption authority in section 706, Chairman Wheeler stated that "I believe the FCC has the power—and I intend to exercise that power—to preempt state laws that ban competition from community broadband."[195]

Setting aside the issue of authority, an economist can ask whether it makes sense for the FCC to preempt state laws that deter entry for muni-broadband projects in the first place. Put differently, could a state have *any* reasonable economic basis for discouraging its municipalities from entering the broadband business? If so, then FCC preemption seems to undercut those reasonable bases. And if economics dictates that the best policy is for the FCC to stay out of these affairs, the question of legal authority vanishes.

Economists have broadly recognized that broadband investment generates spillover effects into related markets that rely on broadband access.[196] These spillovers have been measured to be roughly equal in magnitude to the direct employment effects generated by broadband investment.[197] Yet Deignan (2014) shows that, in contrast to earlier findings of

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Rcd 2408, (rel. March 12, 2015) (hereinafter *2015 Preemption Order*). As of the time of this writing, the *Preemption Order* is on appeal is on appeal before the Sixth Circuit as *The State of Tennessee et al. v. FCC & USA* (Case No. 14-3291).

192. Fact Sheet: Broadband That Works: Promoting Competition & Local Choice In Next-Generation Connectivity, The White House, Office of the Press Secretary, Jan. 13, 2015, *available at* http://tinyurl.com/ks2eyod.

193. Lawrence J. Spiwak, Why the FCC Can't Preempt States on Muni-Broadband, Bloomberg BNA, Feb. 2015, *available at* http://www.phoenix-center.org/oped/BloombergBNAMuniBroadbandPartII20February2015.pdf.

194. Nixon v. Missouri Municipal League, 541 U.S. 124 (2004).

195. Remarks of Tom Wheeler, before the National Cable & Telecommunications Association, Apr. 30, 2014, *available at* http://transition.fcc.gov/Daily_Releases/Daily_Business/2014/db0430/DOC-26852A1.pdf.

196. *See, e.g.*, Justin Horner, Telework: Saving Gas and Reducing Traffic from the Comfort of your Home, Mobility Choice, *available a*t http://www.mobilitychoice.org/MCtelecommuting.pdf ("By taking more than 4.7 million cars off the road every day, telecommuting already has a positive effect on congestion."); Ted Balaker, The Quiet Success: Telecommuting's Impact on Transportation and Beyond, Reason, Nov. 2005, *available at* http://reason.org/files/853263d6e320c39bfcedde642d1e16fe.pdf ("In fact, an analysis of Washington D.C. commuting by George Mason University's Laurie Schintler found that traffic delays would drop by 10 percent for every 3 percent of commuters who work at home."); Joseph Fuhr and Stephen Pociask, Broadband and Telecommuting: Helping the U.S. Environment and the Economy, Low Carbon Economy, 2011, 41-47, available at http://file.scirp.org/Html/4227.html ("Studies show that telecommuters reduce daily trips on days that they telecommute by up to 51% and automobile travel by up to 77%. ").

197. Raul Katz & Stephan Suter, Estimating the Economic Impact of the Broadband Stimulus Plan, NTIA Papers, Feb. 2009, at 20, *available at* https://www.ntia.doc.gov/legacy/broadbandgrants/comments/1EA7.pdf. They

significant employment effects attributable to private broadband,[198] muni-broadband deployment has *no discernible impact* on private sector employment.[199] Using a difference-in-difference regression on panel data consisting of 23 years of observations from core-based statistical areas (CBSA), Deignan finds that after ridding the data of time-constant unobserved heterogeneity and temporal shocks via CBSA and yearly fixed effects, the private-sector employment effect from muni-broadband is not statistically significant.[200] To address this paradox, he posits that "physical capital is an important input into the production process, but it does not create economic growth by itself. Therefore, public investment plans that focus on end-states, such as attracting a certain business or building a fiber network, are focusing on the inputs of economic growth rather than a root cause, which could end up misallocating resources and encouraging rent-seeking."[201]

Why does muni-broadband investment not result in the customary lift in private-sector employment? Public investment in a service that is competitively provided could perversely discourage future private investment, which would have a depressing effect on private employment.[202] The reason is that publicly owned firms are not profit-maximizers, and thus can be expected to engage in predation.[203] From the perspective of an incumbent private ISP (or potential private entrant), the prospect of competing against a publicly-owned ISP could be sufficient to discourage the next round of investment. Ford (2016) notes that "[t]his deterrence effect is particularly pernicious at a time when private providers are undergoing widespread and costly upgrades to their networks. Paradoxically, the resulting lack of private supply may then be used to justify the municipal entry that caused the perceived lack of competition in the first place."[204] Accordingly, there can be legitimate economics bases for a state to limit how one city may seek to induce economic migration from another city. As Ford notes, "While it is easy to see a city's leadership wanting to advantage its city over others, it is not clear why the federal and state governments should be complicit in the act."[205] Although it might be welfare reducing on

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estimate that this (net) spillover multiplier can range from 0.07 to 7.28 of the direct effects, with a mid-point estimate of 3.65. Expressed as a multiple of the total multiplier effect (direct, indirect, and induced effects combined), their midpoint estimate is slightly above one.

198. Raul Katz & Fernando Callorda, Assessment of the Economic Impact of the Repeal of the Tax Exemption on Telecommunication Investment in Minnesota (Feb. 2014), *available at* http://www.mncca.com/doc/minnesota-study-final-version.pdf; David Sosa and Marc Van Audenrode, Private Sector Investment and Employment Impacts of Reassigning Spectrum to Mobile Broadband in the United States, Analysis Group (August 2011), *available at* http://www.analysisgroup.com/uploadedFiles/News_and_Events/News/Sosa_Audenrode_SpectrumImpactStudy_Aug2011.pdf.

199. Brian Deignan, Community Broadband, Community Benefits? An Economic Analysis of Local Government Broadband Initiatives, Mercatus Graduate Policy Essay, Summer 2014, *available at* http://grad.mercatus.org/sites/default/files/MGPE_Deignan_0.pdf.

200. *Id*. at 32 (Table 5).

201. *Id*. at 36.

202. George Ford, The Impact of Government-Owned Broadband Networks on Private Investment and Consumer Welfare, State Government Leadership Foundation, Apr. 2016, *available at* http://sglf.org/wp-content/uploads/sites/2/2016/04/SGLF-Muni-Broadband-Paper.pdf.

203. *See, e.g.,* J. Gregory Sidak & David E.M. Sappington, *Are Public Enterprises the Only Credible Predators?*, 67 U. CHICAGO L. REV. 271-292 (2000).

204. Ford, *supra*, at 9.

205. *Id*. at 10.

net in cities currently served by private ISPs, muni-broadband may still have a role to play in broadband deployment in markets where private entry is not profitable. Ford concludes that muni-broadband "may be a symptom of the lack of a coherent, economically-informed federal (and state) policy for broadband deployment and adoption in economically-marginal communities."[206]

In a complete disregard of these economic considerations, the FCC pressed forward in March 2015 by preempting certain laws in the states of Tennessee and North Carolina at the request of cities in those states. In the FCC's 2015 Preemption Order, the FCC claimed, *without citation to any evidence*, that "threat of entry or actual entry of a municipal provider spurs positive responses by the incumbent broadband provider [which] serves the goals of section 706."[207] While it is documented that incumbent ISPs react positively (by increasing speeds) to new entry by Google Fiber and other *private* competitors that take profits into consideration when setting prices, there is no evidence in the record to suggest the same reaction follows muni-broadband deployments. Based on the economics, we would expect (but are not aware of any evidence indicating) that ISPs would be inclined to reduce their investment when a muni-broadband entity enters their market. Indeed, the FCC acknowledged in its National Broadband Plan that "[m]unicipally financed service may discourage investment by private companies."[208]

As noted by Ford, the root cause of (any perceived) under-investment in broadband infrastructure is the existence of a positive externality (not captured by ISPs nor broadband consumers). ISPs will not deploy to neighborhoods where the private returns do not exceed the cost of capital, even when the social returns might exceed the cost of capital. More competition in the form of muni-broadband does not treat the problem of under-investment; instead, to increase the private returns, the solution should involve a subsidy to any willing provider, and incumbent providers likely have the lowest costs of serving unserved homes. To an economist, this is second nature. But when economics is not part of the discussion, such wisdom may go unnoticed.

3. The 2013 *Inmate Calling Service Order*

Due to its compensation structure, prisons have incentives to restrict competition in support of a monopoly concession for telephone service, a portion of which is remitted to the prison as a concession fee. This fee-based compensation is precisely what induced group purchasing organizations and local cable franchise authorities to restrict competition in the supply of medical devices[209] and cable television service,[210] respectively, despite the purported mandate of those "gatekeepers" to promote the welfare of their customers. This is not to say that

206. *Id*. at 11.

207. *2015 Preemption Order*, ¶49.

208. *See, e.g*., FCC, Connecting America: The National Broadband Plan, Mar. 16, 2010, at 153 n. 2, *available at* http://hraunfoss.fcc.gov/edocs_public/attachmatch/DOC- 296935A1.pdf.

209. Litan et al., *An Empirical Analysis of Aftermarket Transactions by Hospitals,* 28 J. CONTEMP. HEALTH L. & POL'Y. (2011).

210. Crandall et al., *Does Video Delivered Over a Telephone Network Require a Cable Franchise?*, 59 F.C.C. L. J. 251 (2007).

consumer welfare does not enter their utility functions; instead, the revenue-sharing component of their compensation, which increases with prices, is in conflict with consumer welfare, which decreases as prices are increased.

To see why, consider the following simple example. Suppose the monopoly price for long-distance phone service is $5 per minute, the marginal cost of providing phone service is zero (so that revenues maximization and profit maximization are the same), and that an incumbent telephone provider offers the prison at a concession fee (often referred to as a "site commission") of 10 percent. In response to this offer, an entrant has little incentive to offer a lower price for its competing telephony service, holding the concession fee constant, as doing so would reduce the revenue share for the prison. The only remaining lever by which entrants may compete is through higher site commissions. The equilibrium outcome for this concession is the monopoly price for phone service with a site commission equal to 100 percent less *X*, where *X* is the residual share that will allow the provider to cover its fixed costs. Recognizing this distortion, New York, among other states,[211] barred kickbacks in 2008, which—as predicted by economics—resulted in newfound competition along the pricing dimension. Prior to ending its commission payments, New York's prison phone rates were $2.30 for a 15-minute call; after banning site commissions, New York rates fell to $0.72 for a 15-minute call, a decline of 69 percent.[212] The Commission itself has previously recognized how competition for these kickbacks decreases incentives for cost-reduction and technological innovation.[213]

As an externality causes under-provision of broadband service, excessive fees for Inmate Calling Services (ICS) is caused by a distortion of a different sort—namely, site commissions. The clear implication from economic theory is to attack the source of the distortion. Ignoring this economic counsel, the FCC imposed rate regulations on ICS providers in its 2013 Inmate Calling Services Order (*2013 ICS Order*).[214] Indeed, the FCC recognized in the *Order* that New York has "already accomplished reforms, and thereby shown that rates can be reduced to reasonable, affordable levels,"[215] and noted that New York exhibits "one of the lowest" rates for a 15-minute collect call in the nation ($0.72).[216]

That the FCC may not have authority to ban site commissions is irrelevant. If the root of the problem is something outside of the FCC's discretion, then economics dictates that the FCC stands pat. The FCC could educate other states, similar to how the Federal Trade Commission files comments in state proceedings, explaining the need to end site commissions. But adding

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211. *See* Letter from Lee G. Petro, Counsel to Petitioners, to Marlene H. Dortch, Secretary, FCC, CC Docket No. 96- 128, Exh. A, at 16 (filed July 27, 2011).

212. Rates for Interstate Inmate Calling Services, Report and Order and Further Notice of Proposed Rulemaking, WC Dkt No. 12-375, Sept. 26, 2013, ¶ 38 (hereinafter *2013 ICS Order*), *available at* https://apps.fcc.gov/edocs_public/attachmatch/FCC-13-113A1.pdf.

213. *See, e.g.*, Implementation of the Pay Telephone Reclassification and Compensation Provisions of the Telecommunications Act of 1996, CC Docket No. 96-128, Order on Remand & Notice of Proposed Rulemaking, 17 FCC Rcd 3248, 3253, ¶ 12 (2002).

214. *2013 ICS Order*, ¶¶60, 71.

215. *Id*. ¶4; n. 15 (noting that call volume in New York increased by 36 percent following the decline in rates).

216. *Id*. ¶36.

rate regulation as a bandage when the forces pushing toward higher rates are still active (in certain states) threatens the viability of the ICS industry. In particular, prisons will still be in position to extract the (now modest) surplus from site concessions, leaving ICS providers scraping for profits.

Through the lens of cost-benefit analysis, the incremental benefits from the FCC's intervention in states that have adopted a ban on site commissions is zero; to the extent the regulated rates generate *any* costs (fewer services, less innovation, or otherwise), the *2013 ICS Order* fails. Even in states that have yet to ban site commissions, the FCC's rate controls could lead to inefficient outcomes, and could perversely perpetuate the system of kickbacks.

Assuming counterfactually that some intervention beyond the banning of site commissions by states is warranted, the form of rate regulation in the *2013 ICS Order* also fails to heed the teachings of economics. The *Order* essentially imposed full-scale rate-of-return (ROR) regulation on ICS providers.[217] By eschewing price caps (or no intervention at all) in favor of ROR regulation, the FCC will be required to sort out a provider's legitimate costs from illegitimate costs, and to separate intrastate costs from interstate costs. The *ICS Order* commences a mandatory data collection effort on ICS rates, an admission that regulation precedes data that would inform the nature of the rates. As noted by Commissioner Pai in his dissent,[218] the ICS NPRM made no mention of rate-of-return regulation, which could represent a violation of the Administrative Procedures Act. As a result, the record does not contain any comments on the efficacy of a rate-of-return pricing regime, nor does it contain comments on how the requisite inputs (cost data) to implement such a regime could be acquired.[219]

The *ICS Order* also established an across-the-board safe harbor of 12 cents a minute and an across-the-board cap of 21 cents a minute for debit calls at all correctional institutions.[220] This uniform rate erroneously presumes that all facilities, regardless of size or type (prisons versus jails), face the same costs in providing ICS. But as Commissioner Pai pointed out, one ICS provider's cost study showed that it costs 12 cents more a minute to serve midsize jails than statewide prisons or the largest jails, while another provider's study shows that the average cost of serving jails is almost 20 percent higher than that of serving state prisons.[221] Costs may vary over different institution for several reasons, including (1) the majority of costs for ICS service are fixed, permitting larger facilities to achieve lower average costs;[222] (2) jails experience a significantly heavier turnover of inmate populations than do prisons, leading to higher set-up costs relating to debit account creation;[223] and (3) inmates in jails are more likely than inmates in prison to use free telephone services (such as attorney calls), leading to higher uncompensated costs.[224] By establishing a uniform rate, the *ICS Order* ignored these economic realities,

217. *Id.* ¶73.
218. *Id*. Pai Dissent at 113.
219. *Id*.
220. *Id*. ¶60.
221. *Id*. Pai Dissent at 116.
222. *Id*. Pai Dissent at 117 (citing Wood Study).
223. *Id*. Pai Dissent at 117 (citing Trathen Letter).
224. *Id*. Pai Dissent at 117 (citing Telmate Comments).

potentially causing some ICS providers to operate below average costs.

The rate caps for debit and pre-paid calls, as well the FCC's restriction on ancillary fees, were challenged by prison phone companies and several states, which argued that the FCC had exceeded its statutory authority and failed to consider the carriers' costs. In March 2016, the D.C. Circuit put on hold the rate caps for (local and in-state) calling rates and fees for single-call services, but allowed the elimination of ancillary fees to take effect, and left in place interim rates for interstate calls.[225] As with the *OIO* and the *Muni-Broadband Order*, the *ICS Order* is yet another example in which the FCC failed to heed the lessons of economics.

B. A Dispassionate Expert Agency Becomes Politicized

The *2015 OIO* was the FCC's major turning point away from economic analysis toward "economics-free," politically driven decision-making. As noted above, at no point in the Order was reference made to any market failure to justify imposing regulations, nor did the FCC conduct a cost-benefit analysis of the impact of its regulation. The Order explained that in the history of the broadband industry, there were only a handful incidents of violations of network neutrality principles.[226] The agency's actions were, to use their term, "prophylactic" in the sense that there was minimal evidence to suggest a current problem, but regulations were to be adopted to ensure no such problems occurred in the future. There was no evidence adduced to empirically demonstrate that such problems may in fact occur, other than references to what *might* happen based on unsupported claims of consumer groups. The expressed concerns, which echo those outlined by law professor Barbara van Schewick,[227] are concerns about the economics of broadband ISPs, but nowhere in the Order (nor in the van Schewick paper) can we find anything approaching an economic analysis of these hypotheses (or allegations).[228]

The FCC paid significant lip service to its economic traditions. For example, the 2014 Open Internet NPRM sought the "best strategy to implement data-driven decision-making."[229] Chairman Wheeler was also clear that the FCC would use "tools [given by Congress] in a fact-based, data-driven manner."[230] Far from being "fact-based," the *2015 OIO* appears to be based on speculation, fears, and scare-mongering by advocates, pundits, and law school professors. So much for economic principles.

The point is not whether the FCC made a good decision regarding net neutrality. (We happen think it was not a good thing based on our balancing of the costs and benefits of the rule.)

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225. GlobalTel*Link v. FCC, No. 15-1461 (D.C. Cir. 2016).

226. *2015 OIO,* ¶65 n. 69.

227. Barbara Van Schewick, *Towards an Economic Framework for Network Neutrality Regulation*, 5(2) J. TELECOM. & HIGH TECH. L. 329 (2007).

228. For a full critique of this order, see Gerald Faulhaber, *The Economics of Net Neutrality: Are 'Prophylactic' Remedies to Nonproblems Needed?*, REGULATION (Winter 2011-2012), at 18; Gerald Faulhaber & David Farber, *The Open Internet: A Customer-Centric Framework,* 4 INT'L J. OF COMM. 302 (2010).

229. *2014 Open Internet NPRM*, 29 FCC Rcd at 5619, ¶ 163.

230. Testimony of Thomas Wheeler, Before the Subcommittee on Communications and Technology Committee on Energy and Commerce, U.S. House of Representatives, "Oversight of the Federal Communications Commission," Dec. 12, 2013*, available at* https://apps.fcc.gov/edocs_public/attachmatch/DOC-324644A1.pdf.

Rather, the point is that the FCC abandoned economic analysis entirely in its decision process, relying instead on advocates and pundits to carry the day. Much has been written about the economics of net neutrality, both pro and con, but none of that analysis entered into the FCC's decision.

By the time the D.C. Circuit vacated the FCC's *2010 OIO* in January 2014, consumer advocacy groups were in an absolute frenzy. They added to their demands that net neutrality should include forbidding paid prioritization. The FCC quickly complied, again without any evidence that this would produce a desirable economic outcome. But the demands kept coming; the FCC had indicated in its second-round deliberations that it would justify regulation under Section 706 of the 1996 Act.[231] However, activists were not satisfied; they demanded that the FCC adopt Title II regulation, the very regulation imposed on the old monopoly Bell System from 1934. They mounted demonstrations at the FCC and even picketed the Chairman's driveway to press their point. The FCC received more than four million letters weighing in on net neutrality under Title II. President Barak Obama sent a clear message to Chairman Wheeler via YouTube that the "strongest possible regulation" was needed in the form of Title II.[232] The result: the new order imposed net neutrality via Title II.[233]

What was the role of economics, if any, in this outcome? According to one sympathetic source, this was the result of "one of the most sustained and strategic activist campaigns in recent memory," which successfully "framed net neutrality as a social justice issue, warning about how an Internet with fast lanes would harm the ability of activists to spread their message."[234] Financial analysts have suggested that Title II regulation will cause substantial reductions in investment in broadband, various Internet innovators have said that Title II will dry up innovation in the Internet.[235] It is highly unlikely that this is what most activists wanted, but unconstrained by solid facts and economic analysis, this is what they will get.

The FCC is now in charge of ISPs using the blunt tool of Title II. While the agency can claim they have no interest in regulating any part of the Internet except ISPs, the FCC has already expanded their purview to include interconnection agreements among Internet networks.[236] It has also taken on the job of monitoring privacy on the Internet.[237] The history of regulation suggests that regulation will inevitably expand, as this regulation already is, generally due to requests by interested parties who see expanded regulation as a way to further their organization's interest, be they advocates or corporations.

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231. *2014 Open Internet NPRM,* ¶ 4 ("Per the blueprint offered by the D.C. Circuit in its decision in *Verizon v. FCC*, the Commission proposes to rely on section 706 of the Telecommunications Act of 1996.").

232. Edward Wyatt, *Obama Asks FCC to Adopt Tough Net Neutrality Rules*, NEW YORK TIMES, Nov. 10, 2015, *available at* http://www.nytimes.com/2014/11/11/technology/obama-net-neutrality-fcc.html?_r=0

233. *2015 OIO*, ¶ 5.

234. Jay Cassano, *The FCC Just Adopted Strong Net Neutrality Rules – Thanks to Activists*, IN THESE TIMES, Feb. 26, 2015, *available at* http://inthesetimes.com/article/17687/the-fcc-just-adopted-strong-net-neutrality-rulesthanks-to-activists.

235. Gerald Faulhaber, *What Hath the FCC Wrought?* REGULATION at 50 (2015).

236. *2015 OIO*, ¶ 31.

237. *2015 OIO*, ¶ 53.

IV. The New Battleground for Economics-Free Regulation

The absence of economic analysis can be seen in several new FCC initiatives. A common theme that emerges is that the FCC appears to be acting in the private interest of certain entities, and that there is no serious empiricism that undergirds the FCC's proposals. As in the case of the *2015 OIO*, the FCC's set-top box (STB) campaign received a boost from the White House, when the Counsel of Economic Advisers' Jason Furman prepared a video and a blog, claiming the FCC's initiative would "allow for companies to create new, innovative, higher-quality, lower-cost products."[238] Rather than acting like a dispassionate, independent expert agency, the FCC appears to have become a political extension of the White House.

A. Unbundling Set-Top Boxes: The FCC's "Unlock the Box" Campaign

In the spring of 2016, the FCC announced its intention to unbundle set-top boxes (STBs)—those anachronistic devices that are collecting dust in your cabinets connecting the outside cable to your TV—from cable television service. The FCC claims it is seeking to encourage entry in STBs, thereby reducing the rental prices and expanding consumer choice. The facts of the matter belie a different motivation.

First, the FCC's proposal is predicated on a fictitious factoid about the consumer costs to rent STBs. Second, programmers, pay-TV providers, privacy advocates and network security experts have erupted in opposition to the FCC's proposal having nothing to do with the STBs but rather the mandate to unbundle content and dis-intermediate the consumer relationship. Clearly the FCC's proceeding is about more than what a dwindling set of American consumers are paying to rent a STB.

1. Reliance on Fictitious Factoids

According to an April 2016 FCC "Fact Sheet," cable customers are experiencing runaway inflation for leasing STBs at a nominal clip of 185 percent since 1994.[239] The eye-popping figure comes from a study co-authored by Consumer Federation of America (CFA) and Public Knowledge (PK).[240] Did any FCC economists vet this claim?

The immediate challenge in constructing an inflation index for STBs is that nobody knows what cable subscribers are paying *on average* for the equipment. To this end, the CFA/PK study leans on a July 2015 query of the nation's top ten cable providers, conducted by Senators

238. Jason Furman & Jeffrey Zients, Thinking Outside the Cable Box: How More Competition Gets You a Better Deal, White House Blog, Apr. 15, 2016, *available at* https://www.whitehouse.gov/blog/2016/04/15/ending-rotary-rental-phones-thinking-outside-cable-box.

239. FCC Chairman Proposal to Unlock the Set-Top Box: Creating Choice and Innovation, *available at* http://transition.fcc.gov/Daily_Releases/Daily_Business/2016/db0127/DOC-337449A1.pdf.

240. PK and Mark Cooper Set-top Box Letter to FCC, Jan. 20, 2016, *available at* https://www.publicknowledge.org/documents/pk-and-mark-cooper-set-top-box-letter-to-fcc

Markey and Blumenthal.[241] Question 2 of the Senators' query asked respondents "What is the monthly leasing cost of each set-top box that your company offers?" Question 3 asked "What was the total revenue your company earned from leasing set-top boxes to customers in fiscal year 2014?" The cable providers held this information close to the vest, and the answers they did provide do not permit one to compute an average price for STBs. Table 1 summarizes the data the Senators compiled.

TABLE 1: CURRENT PRICES FOR SET-TOP BOXES

Respondent	*Question 2*	*Question 3*
AT&T	$0 for the first STB; $8 for non-DVR STBs thereafter	"Commercially sensitive information"
Bright House	$1 limited service STB; $8 standard STB; $2 Digital adapter	"Not publicly available"
Cablevision	$6.95 (with some individualized discounts)	"Not publicly available"
Charter	$6.99 (not including promotional discounts)	"Confidential information"
Comcast	$1-$2.50 for standard-definition STBs; $2.20-$2.50 for high-definition STBs	"Not Publicly available"
Cox	$1.99 for Mini Box; $8.50 for all others (with some individualized discounts)	"Confidential and proprietary"
DIRECTV	$6 (not including fees for advanced services)	"Not publicly available"
DISH	$0 for the first STB; $7 thereafter (not including advanced service fees)	"Not publicly available"
Time Warner Cable	$7-$11.25 (with some individualized discounts)	"Confidential and proprietary"
Verizon	$11.99 for the first STB; $7.99 for the second and third; $6.99 for the fourth and fifth (not including DVR service)	"Competitively sensitive"

While the answers to Question 2 serve as a useful rate card, they would need to be married with data on how many customers take each flavor of STB to be helpful. How the Senators used these data to arrive at an average monthly price of $7.43 (or $231 per year based on an assumed average 2.6 boxes per home) is a mystery. Ford revisited the questionnaire, assigning weights to prices based on subscriber shares and noting that two large providers (AT&T and DISH) give away the first STB; he arrives at a weighted average monthly price of $5.15.[242]

Not to be deterred by this black-box method, the CFA/PK study compares the "average" STB rental price in 2015 per the Senators' letter ($7.43) to the "average" STB rental price in 1994 per an FCC study ($2.60). Ignoring any changes in quality of STBs over the intervening two decades, the CFA/PK study derives the 185 percent inflation figure (equal to $7.43/$2.60 – 100%).

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241. Markey, Blumenthal Decry Lack of Choice, Competition in Pay-TV Video Box Marketplace, July 30, 2015, *available at* http://www.markey.senate.gov/news/press-releases/markey-blumenthal-decry-lack-of-choice-competition-in-pay-tv-video-box-marketplace.

242. George Ford, *The Obama Administration is misleading consumers on set-top boxes*, THE HILL, Apr. 21, 2016, available at http://thehill.com/blogs/pundits-blog/technology/276969-the-obama-administration-is-misleading-consumers-on-set-top-box.

Of course, the 2015 version of STBs include an array of new features (such as DVR, high-definition, two-way interactive support) not available in the plain-vanilla boxes of yesteryear (offering descrambling only). The fact that the modern STB can pause live TV and be effortlessly programmed to record (or even intuitively suggest) hours of programming, (remember what it used to be like to program a VCR to record even one show?) arguably represents *more* than a 185 percent improvement. In any case, to control for this difference in quality, as the Bureau of Labor Statistics does for its price indices,[243] the authors could have compared 1994 STB prices to the 2015 prices of *standard* STBs. But that apples-to-apples comparison would have yielded STB inflation of close to zero or even slightly negative (using Bright House's or Comcast's prices).

2. Unintended Consequence

The unbundling of STBs from cable television service is expected to upend the entire content industry and the relationship between multi-video programming distributors (MVPDs) and advertisers. Spot cable ads sold by pay-TV providers allow local businesses to show their television ads on national cable networks without having to buy airtime from those networks. The prices are based on time of day, the program on which your ad airs, size of the audience, and length of the ad. Implicit in the price charged and paid is the operator's *control over channel placement and other delivery options*, which could no longer be guaranteed under the new regime. For example, TiVo (or some other third-party box provider) would control how the channels are displayed to the customer, and it could insert additional advertisements that would vie for the viewers' attention. The problem here is that TiVo is not the party in contract with the advertiser.

What is the potential cost to pay TV providers of losing control over channel placement? According to Statista, local cable advertising revenue was approximately $5 billion in 2015.[244] Because the television advertising business is built on guaranteed placement in programs and narrow time windows on specific networks, as well as guaranteed impressions on delivery of audience levels in these purchased ad placements, the inability to offer such guarantees could significantly diminish the value of those ads.

As a second unintended consequence, the proposed rulemaking would also introduce new and serious privacy concerns. Under the current rule proposal, third party device manufactures would be able to gather a consumer's television viewing data and then use that data to sell targeted ads outside of the restrictions currently in place for MVPDs. In addition, features like voice recognition on third party STBs could capture distribute any spoken personal information at will.[245] Outside of the protected contract between the consumer and the MVPDs, consumers would have no expectation of privacy outside of their trust in the device manufactures, some of

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243. BLS, Hedonic Quality Adjustment to the CPI, *available at* http://www.bls.gov/cpi/cpihqaitem.htm.

244. Statista, Local cable television advertising revenue in the United States from 2010 to 2019 (in billion U.S. dollars), *available at* http://www.statista.com/statistics/411648/local-cable-tv-advertising-revenue-us.

245. *See* Comments of the National Cable & Telecommunications Association, In the Matter of Expanding Consumers' Video Navigation Choices, MB Docket No. 16-42, CS Docket No. 97-80 (April 22, 2016) *at 83, available at* https://www.ncta.com/sites/prod/files/NCTA%20Comments%204-22-16%20FINAL.pdf

whom have a dicey track record of misusing personal information.[246]

Unbundling STBs would also jeopardize intellectual property licensing and disrupt the agreements that underpin the current television market. Under the current NPRM, device manufacturers would have neither incentive nor reason to comply with the terms of content distribution agreements painstakingly negotiated between MVPDs and content providers. Copyright owners will have no preventative measure or immediate legal recourse to prevent STB manufactures from pirating or modifying their copyrighted content.[247] Inserting an unwanted, uncontracted party into the delivery of copyrighted content needlessly lowers the security of that content opens it up to theft, misuse, and unintended distribution.

In addition, the loss of control over the promoting content and advertising will bring forth its own host of problems. The placement and organization of channels in STB features such as "Guide" would be stripped away. The ability to strategically place certain channels into "channel neighborhoods" and groups would interfere with channel navigation and the strategic placement of content.[248] As some content providers will often pay for strategic channel placement in the guide, the lack of this option may lead to higher overall prices. The rules would also remove the ability of a content provider to favor or disfavor advertisements and branding it deems appropriate for its content.[249] This would enable thematically inappropriate content to be displayed despite potential objections of the content provider, for example, life insurance ads appearing between content depicting a tragic loss of life.

This is yet another example of the FCC setting up rules for one set of market participants (MVPDs) but not their direct competitors (device makers), a form of protectionist regulation that we see again in the FCC's privacy rules and *Open Internet Order*.

B. Unbundling Fiber Connections from Business Broadband Service

In 2015, the FCC also embarked a multi-pronged regulatory agenda that seeks to manage the inner workings of one segment of the broadband Internet access market aimed at business customers ("business broadband market"). Although this regulated segment of the larger business broadband market is largely quarantined to relatively slow connections running over a fading technology (copper), the agency's recent efforts threaten to expand its foothold into a much larger and growing segment of the business broadband market, allowing the agency to regulate high-speed Ethernet services running over fiber lines.[250]

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246. *Id.*

247. *See* Comments of Comcast Corporation and NBCUniversal Media, LLC, In the Matter of Expanding Consumers' Video Navigation Choices, MB Docket No. 16-42, CS Docket No. 97-80 (April 22, 2016), *available at* https://www.fcc.gov/ecfs/filing/60001655594/document/60001688881

248. Michael L. Katz, An Economic Assessment of the Commission's Proposed MVPD Access Device Regulation, MB Docket No. 16-42 (April 22, 2016), at 63, *available at* https://www.fcc.gov/ecfs/filing/60001657214/document/60001690487

249. *See* Comments of the National Cable & Telecommunications Association at 20.

250. Unlike TDM-based DS-1 and DS-3 service, Ethernet service is not tariffed.

Regulatory intervention in competitive markets to push prices downward is likely to generate costs (dynamic inefficiency from less investment and innovation, allocative inefficiency from prices that do not cover marginal costs) in excess of benefits (static welfare gains from lower prices). And the business broadband market is competitive by most measures.

For example, monthly Ethernet prices (per unit) of a leading broadband business provider (Zayo) declined between seven and seventeen percent from December 2013 to June 2015.[251] Gartner Group expects the price of Ethernet access to fall by about nine percent per year from 2015 to 2018.[252]As of April 2016, nearly 30 competitive broadband providers had lit at least 1,000 buildings each with fiber. Collectively, these competitors serve over 267,000 buildings with fiber, laying over 650,000 route miles of fiber, or 2.42 route miles per building.[253] AT&T, Verizon, and CenturyLink, the three largest ILECs, collectively accounted for only 47 percent of Ethernet service revenue in the first half of 2013[254]—the future of the business broadband market—and for only 39 percent of U.S.-based, browser-based business Internet traffic as of September 2011.[255]

Those competitive outcomes were driven by robust competitive entry by cable business service providers and CLECs. Price controls aimed at both incumbents and entrants will discourage further competitive entry. The policies envisaged by the FCC will not only impose net costs, but are wholly unnecessary.

1. The Special Access NPRM

The segment of the business broadband market currently regulated by the FCC is referred to as "special access" services. As its name suggests, the FCC compels incumbent local exchange carriers (ILECs) to provide access at regulated rates to their copper-based lines used to serve businesses, including wholesale access to competitive providers, such as resellers,[256]

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251. Zayo FY2015 Supplemental Earnings Information, *available at* http://investors.zayo.com/~/media/Files/Z/Zayo-IR/earnings-releases/2015/zgh-fy2015q4-pricing-trends.pdf.

252. Danielle Young, U.S. Ethernet WAN Access Enables Digital Business Strategies, Gartner Group, Oct. 6, 2015 ("Compared to broadband, T1 or T3 access, fiber-based Ethernet access is more reliable and agile. Ethernet can support higher bandwidths at lower cost.").

253. Metro Fiber and On-Net Buildings List, Telecom Ramblings, *available at* http://www.telecomramblings.com/metro-fiber-provider-list/.

254. Business Services Grab Spotlight, LightReading, *available at* http://www.lightreading.com/ethernet-ip/ethernet-services/business-services-grab-spotlight-at-esdn-/d/d-id/705860. This figure does not distinguish an ILEC's revenue from that of its out-of-region affiliates. On the other hand, some portion of the out-of-region revenue may be retail revenue for services using wholesale last-mile inputs, and some of those wholesale inputs may be purchased from one of these other ILECs.

255. Sean Buckley, *AT&T, Verizon carry most U.S. business traffic, but competitors gain ground*, FIERCE WIRELESS, Nov. 15, 2011 (citing comScore data), *available at* http://www.fiercetelecom.com/story/att-verizon-carry-most-us-business-traffic-competitors-gain-ground/2011-11-15.

256. Competitive local exchange carriers rely on special access to supply or supplement capacity for resale to their own business customers. For a review of the history of special access regulation, see Larry Downes, The Losing Case for Special Access Regulation, Georgetown Center for Business and Public Policy Paper, Nov. 2015, *available at* http://cbpp.georgetown.edu/sites/cbpp.georgetown.edu/files/Larry_Downes_PolicyPaper_SpecialAccess%2012.14.15.pdf.

mobile operators,[257] and middle-mile providers.[258] Competitive providers can exploit two regulated entry paths: (1) purchase an ILEC's DS-1 or DS-3 service for resale at a term- or volume-based discount from the tariffed retail rate; or (2) purchase an ILEC's unbundled network elements (for example, a copper loop) at regulated rates, which in turn can be combined and used to provide DS-1 or DS-3 service.[259] Like mandatory access or mandatory unbundling, special access allows competitive providers to obtain an ILEC's network elements or services on a wholesale basis, at terms and conditions that are superior to those that would be achieved under a voluntary access arrangement.

Over the last decade, since the FCC granted forbearance from regulating Ethernet services, special-access obligations have been limited to an ILEC's time-division multiplexing (TDM)-based services running on copper networks, which are typically used to provision DS-1 and DS-3 connections to business customers.[260] Relative to these TDM-based services running on copper networks, fiber-based connections give business customers greater flexibility, as they can be configured to accommodate any desired bandwidth (typically over 10 Mbps). Because business customers increasingly demand greater speed[261] and flexibility,[262] fiber connections offering IP-based services are displacing TDM-based services.[263] One analyst conservatively projects that access providers could discontinue selling DS-1 and DS-3 lines in seven years at the current rate of substitution.[264] Recent regulatory developments threaten to expand the scope of

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257. Mobile operators rely on special access to provide backhaul for mobile voice and data traffic.

258. Middle-mile providers rely on special access to provide last-mile connections for their business customers.

259. FCC, Special Access Data Collection—Glossary of Terms, *available at* https://www.fcc.gov/general/special-access-data-collection-glossary-terms.

260. DS-1 and DS-3 connections offer users (in this case, employees of a firm) bandwidth of 1.5 Mbps and 45 Mbps, respectively.

261. For example, Comcast advertises that its "Business Ethernet Network Services can seamlessly network you with 10 Mbps, 100 Mbps, 1 Gbps, or 10 Gbps Ethernet User-to-Network Interfaces (UNI) that are Certified MEF Compliant." Comcast Business Ethernet Network Services, *available at* http://business.comcast.com/ethernet/products/network-services (accessed Dec. 30, 2015).

262. Danielle Young, U.S. Ethernet WAN Access Enables Digital Business Strategies, Gartner Group, Oct. 6, 2015 ("Compared to broadband, T1 or T3 access, fiber-based Ethernet access is more reliable and agile. Ethernet can support higher bandwidths at lower cost.") [hereafter *Gartner Group*].

263. Roger Entner, *Special access—How government preference for some may mean higher prices for all*, FIERCE WIRELESS, Oct. 21, 2015 ("Zayo's data shows a *massive shift to Ethernet connections*, which are both faster and cheaper than DS1/DS3, and where the marketplace is essentially even as new entrants and incumbents are building capacity at the same time.") (emphasis added), *available at* http://www.fiercewireless.com/story/entner-special-access-how-government-preference-some-may-mean-higher-prices/2015-10-21; Vertical Systems, Mid-Year 2015 U.S. Carrier Ethernet Leaderboard, Aug. 24, 2015 ("Primary drivers for growth [in the Ethernet segment] are *massive migration from TDM to Ethernet services*, robust demand for higher speed Ethernet private lines and rising requirements for connectivity to public and private Clouds.") (emphasis added), *available at* http://www.verticalsystems.com/vsglb/mid-year-2015-u-s-carrier-ethernet-leaderboard/. See also Report of Dennis Carlton, Mark Israel, Allan Shampine & Hal Sider, In the Matter of Investigation of Certain Price Cap Local Exchange Carrier Business Data Services Tariff Pricing Plans, WC Dkt. No. 15-247, Jan. 7, 2016, ¶ 19 (noting that between January 2013 and October 2015, AT&T's sales of TDM DS-1 services to non-affiliates declined rapidly).

264. Entner, *supra* ("If we take Zayo's data and project out the current decline rate then they will have stopped selling DS1s in three and a half years and DS3s in less than seven years. But these projections are deceiving, and likely too conservative, as declines are accelerating as the DS1/DS3 technology becomes increasingly obsolete.").

special-access obligations considerably, including into areas of the business broadband market for which the FCC granted forbearance and other regulatory relief less than a decade ago.[265]

In December 2012, the FCC released an order calling for the mandatory collection of data from entities that provide or purchase special access services.[266] Rather than limit its inquiry to TDM-based services, however, the FCC sought information on "the full array of traditional special access services, including DS1s and DS3s, and packet-based dedicated services such as Ethernet."[267] By including Ethernet in its investigation, the FCC blurred the traditional lines that segmented regulated from unregulated enterprise services, and thereby raised the specter of expanding price regulations to fiber-based connections. The FCC concurrently issued a *Further Notice of Proposed Rulemaking*, which sought comment on, among other things, the terms and conditions offered by ILECs for the sale of special access services.[268] In particular, the NPRM asked whether "is it *still* appropriate to grant Phase I and Phase II pricing flexibility and, if so, what factors should guide the level of relief granted."[269] Phase I flexibility permits price-cap LECs to lower their rates, while Phase II flexibility permits price-cap LECs to raise or lower their rates throughout an area. The NPRM was agnostic as to the ILEC's technology—copper versus fiber—used to establish a connection to a business.[270]

How would price regulation of Ethernet services manifest itself? Although the FCC's December 2012 NPRM was opaque, comments by Competitive Local Exchange Carriers (CLECs) in the proceeding make clear precisely what they are after. For example, a coalition of CLECs including Level 3 lamented that "[d]ue to the Commission's forbearance decisions, the major incumbent LECs are not subject to dominant carrier regulation in the provision of certain Ethernet-based services."[271] They urged the FCC to "apply price cap regulation to incumbent LECs' DSn-based dedicated services subject to Phase II pricing flexibility and to their packet-

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265. In 2003, the FCC relieved ILECs of most obligations to lease advanced fiber-to-the-home (FTTH) network facilities to competitors at a regulated, cost-based price. In the Matter of Review of the Section 251 Unbundling Obligations of Incumbent Local Exchange Carriers, CC Dkt. No. 01-338 (released Aug. 21, 2003). However, until December 2015, ILECs were still required to provide unbundled access to a voice grade equivalent channel and high capacity loops utilizing TDM technology, such as DS-1s and DS-3s. *Id*. at 11. In 2006, the FCC granted Verizon's petition for forbearance from Title II for certain business broadband services, including "packet-switched broadband services, such as Frame Relay and Asynchronous Transfer Mode Cell Relay (ATM) as well as non-time division multiplexing-based (non-TDM-based) optical networking, optical hubbing, and optical transmission services." Joint Statement of Chairman Kevin J. Martin and Commissioner Deborah Taylor Tate, Petition of the Verizon Telephone Companies for Forbearance under 47 U.S.C. § 160(c) from Title II and Computer Inquiry Rules with Respect to Their Broadband Services, WC Dkt. No. 04-440 (released Mar. 21, 2006). In 2007, the FCC granted similar relief to AT&T. In Petition of AT&T Inc. for Forbearance Under 47 U.S.C. § 160(c) from Title II and Computer Inquiry Rules with Respect to Its Broadband Services, Memorandum Opinion and Order, WC Dkt. No. 06-125 (released Oct. 12, 2007).

266. In the Matter of Special Access for Price Cap Local Exchange Carriers, WC Dkt. No. 05-25, Report and Order and Further Notice of Proposed Rulemaking, released Dec. 18, 2012.

267. *Id*. ¶17.

268. *Id*. ¶57.

269. *Id*. ¶85 (emphasis added).

270. *Id*. ¶15 n.38 ("We note that this definition [of a connection] does not depend on the medium used (e.g., whether it is fiber, copper, or coaxial cable), but instead on the capability of the facility.").

271. Comments of Birch, BT Americas, EarthLink and Level 3, In the Matter of Special Access Rates for Price Cap Local Exchange Carriers, WC Dkt. No 05-25 (filed Jan. 27, 2016), at 8.

based dedicated services (i.e., by adding these services to the price cap basket for special access services)."[272] With regard to wholesale rates, they proposed "that each incumbent LEC provide dedicated services to wholesale customers at prices that are no higher than the incumbent LEC's retail price minus the costs that are 'avoided' when the services are offered at wholesale."[273] Similarly, Sprint asked the FCC to take action by "returning services subject to Phase II pricing flexibility to the price cap regime and taking steps necessary to include Ethernet services under the price cap regime."[274] With regard to pricing, Sprint proposed "using existing models that measure costs of service to set appropriate caps on prices."[275]

Another indication of price regulation of Ethernet services can be gleaned from the FCC's *Technology Transition Order*, which sought to extend the FCC's purview into an ILEC's fiber-based connections for business customers.[276] In particular, the FCC adopted a rule that required ILECs "that discontinue a TDM-based service to provide competitive carriers *reasonably comparable wholesale access* on reasonably comparable rates, terms, and conditions during the pendency of the special access proceeding."[277] If an ILEC seeks to replace its copper-based connections to a business, it now faces a fresh disincentive to invest in fiber, in that the wholesale-access requirements will extend to its Ethernet services provided over a fiber-based network. The FCC clarified that "the reasonably comparable wholesale access condition that we adopt applies to two categories of service: (1) special access services at DS-1 speed and above; and (2) commercial wholesale platform services such as AT&T's Local Service Complete and Verizon's Wholesale Advantage."[278] Put differently, the FCC plans to regulate both entry paths—special access *retail* services (acquired at a discount) and the *wholesale* inputs (or platforms) used to provide those services—for competitive providers.

For the first time, these wholesale-access requirements would implicate an ILEC's fiber connections. In his dissent, Commissioner Pai explained that "the Commission now leverages its discontinuance authority to get a foothold in the Ethernet market, exporting its legacy economic regulations into an all-IP world."[279] Commissioner O'Rielly similarly recognized the threat to fiber investment: "Providers that had voluntarily agreed to offer a commercial wholesale platform service to ease the transition for competitive carriers after the obligation to provide UNE-P was struck down by the Courts are now being forced to carry it forward into an IP world for a to-be-determined duration."[280]

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272. *Id*. at 9.
273. *Id*.
274. Comments of Sprint Corporation, In the Matter of Special Access for Price Cap Local Exchange Carriers, WC Dkt. No. 05-25 (filed Jan. 27, 2016), at vi.
275. *Id*.
276. In the Matter of Technology Transitions Policies and Rules Governing Retirement Of Copper Loops by Incumbent Local Exchange Carriers, Report and Order, Order on Reconsideration, and Further Notice of Proposed Rulemaking, GN Dkt. No. 13-5, released Aug. 7, 2015 [hereafter *Tech Transitions Order*].
277. *Id*. ¶101 (emphasis added).
278. *Id*. ¶132.
279. Dissenting Statement of Commissioner Ajit Pai, at 175.
280. Dissenting Statement of Commissioner Michael O'Rielly, at 177.

In October 2015, the FCC launched an investigation of the non-price terms in ILECs' special-access contracts with competitors.[281] The Order sought to determine whether, for example, the use of percentage commitments, shortfall fees, overage penalties, and long-term commitments in certain tariffed pricing plans is just and reasonable or unreasonably discriminatory under various section of the Communications Act.[282] Because the FCC signaled a willingness to unwind contracts between ILECs and access seekers, potentially invading the purview of antitrust laws designed to address these very non-price terms, the investigation exposed special access providers to a new regulatory risk.

In April 2016, the FCC adopted the Tariff Investigation Order,[283] which declared unlawful certain terms and conditions in tariff pricing plans deemed to decrease competition.[284] It also adopted a *Further Notice of Proposed Rulemaking (FNPRM)* in which it proposed "a tailored set of rules to safeguard customers in non-competitive markets, including the use of price regulation and the prohibition of certain tying arrangements that harm competition."[285] If adopted, these price regulations would apply to all access technologies, including the facilities of new entrants in business broadband such as cable providers.[286] The *FNPRM* proposed to retain the existing price-cap regulation for TDM business data services in so-called non-competitive markets,[287] and to restore the use of a productivity-based X-factor and a corresponding inflation measure to inform the price-cap structure.[288] The *FNPRM* also proposed that rates for Ethernet business data services in so-called non-competitive markets be just and reasonable,[289] by anchoring those rates to regulated TDM service prices.[290] Finally, the *FNPRM* signaled that wholesale rates in excess of retail rates for business data services could be considered *per se* unreasonable.[291]

2. Unintended Consequences

Singer (2016) models the likely impact of the FCC's effort to preserve and extend its special access rules on broadband deployment by incumbent telcos.[292] The deployment impact of expanded special access rules can be measured as the difference between (1) how many buildings would have been lit with fiber by telcos in the absence of the rules and (2) how many

281. In the Matter of Investigation of Certain Price Cap Local Exchange Carrier Business Data Services Tariff Pricing Plans, Order Initiating Investigation and Designating Issues for Investigation, WC Dkt. No. 15-247 (released Oct. 16, 2015).

282. *Id*. ¶¶30-105.

283. In the Matter of Business Data Services in an Internet Protocol Environment, WC Dkt. No. 16-143 (released May 2, 2016).

284. *Id*. ¶11.

285. *Id*.

286. *Id*. ¶344.

287. *Id*. ¶351.

288. *Id*. ¶356.

289. *Id*. ¶420.

290. *Id*. ¶422.

291. *Id*. ¶444.

292. Hal Singer, Assessing the Consequences of Additional FCC Regulation of Business Broadband: An Empirical Analysis (on behalf of USTelecom), April 2016, *available at* http://www.ei.com/wp-content/uploads/2016/04/assessingtheconsequences.pdf.

buildings will be lit with fiber by telcos in the presence of the rules. With an estimate of the cost per building, the deployment impact can be converted into an investment impact. And with estimates of broadband-specific multipliers, the fiber-to-the-building network investment impact can be converted into job and output effects.

The model shows that a significant number of buildings in Charlotte would qualify for investment in the absence of any expanded special access regulation. The model then measures the extent to which regulation—including price-cap and/or wholesale requirements (that reduce expected revenues)—erodes the ILEC business case for fiber extension. Assuming this scenario reduces an ILEC's expected Ethernet revenue by 30 percent—the typical price effect associated with prior episodes of price-cap regulation[293] and unbundling[294]—the model predicts that an ILEC will increase business-fiber penetration in Charlotte from 10 to 14 percent (compared to 20 percent in the Baseline Case), an increase of only 265 lit buildings, 10.8 metro fiber route miles, and $21.4 million in investment. Thus, the special access obligations under this scenario result in a 55 percent reduction in an ILEC's CapEx relative to the baseline case without special access regulation.

It is reasonable to expect a scaling back of future CLEC fiber investment in the last mile as well. Not only would expected Ethernet revenue for CLECs decline, but CLECs could avail themselves of wholesale Ethernet options that would not otherwise exist; both forces would push CLECs away from facilities-based entry and towards resale. To make matters worse, the FCC extended the regulations to cable operators. By performing a similar analysis of lit building profitability and assuming similar cost structure for CLECs to that of the ILECs, price regulation should have a similar depressing investment effect on CLECs in last-mile facilities. The theoretical underpinnings of the ILEC model discussed earlier—that is, price regulations eroding the business case for ILEC fiber deployment—apply equally to cable business service providers and CLECs. That means the actions envisaged by the FCC will lead to less investment, deployment and competition.

CLECs' claims of higher costs of deployment (relative to ILECs) or insurmountable entry barriers (such as building access and rights of way) are not convincing. A recent financial assessment revealed that CLEC investment was rapid and profitable in high density markets, but

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293. *See, e.g.*, OECD, Price Caps for Telecommunications: Policies and Experiences (1995), *available at* http://www.oecd.org/sti/ieconomy/1909801.pdf. *Id*. at 34 (showing BT's prices under various price cap systems fell by 26 percent between 1984 and 1992); *id*. at 35 (showing connection charges for BT fell by 32 percent from 1990-1994); *id*. at 36 (showing AT&T's private line price cap index decline by 21 percent from 1989 to 1991).

294. *See, e.g.*, Lisa Wood, William Zarakas, and David Sappington, Wholesale Pricing and Local Exchange Competition, Jan. 2004, at 3 n.7 ("Casual observation suggests the rate for wholesale services (i.e., resale) is roughly 20% less than retail services. (For example, the wholesale discount in New York is 19.1% with telephone company-provided operator services and 21.7% without these services.) Across all states (excluding Alaska), UNE-P prices averaged about $18 per line as of July of 2003, while revenue per access line per month averaged about $34. This $15 difference is approximately 44% of average revenue."). *See also* Kevin Hassett, Zoya Ivanova, Laurence J. Kotlikoff, Increased Investment, Lower Prices—the Fruits of Past and Future Telecom Competition, Sept. 2003, at 5 ("Unfortunately, only a few PUCs have, thus far, set their UNE-P rates close to what we measure to be their own state-specific TELRIC levels. Indeed, the average state-specific actual UNE-P rate and the average state-specific TELRIC UNE-P rate differ by 27.9 percent. Indeed, across all counties, the average broadband price under TELRIC pricing of UNE-P ends up almost 22.9 percent lower than the regulated monopoly price.").

lagged in areas that had low expected penetration.[295] Because ILECs account for less than half (roughly 40 percent) of lit buildings nationwide,[296] there are at least two or more effective players in the market with scale and cost structures on par with the ILECs. Moreover, due to towers, data centers, and long-haul facilities, several operators have comparable metro footprints in other geographic areas. Many CLECs have newer core fiber networks with greater fiber density and more availability for laterals; they also have flexibility to use contractors and lower cost resources for deployment in many cases.

CLECs' additional claim that expansion of special access rules for last-mile deployment would bolster their investments in metro rings is equally dubious; there has been a surge in investment in that segment of the industry over the past five years.[297] The artificial savings induced by regulatory advantages could just as likely be pocketed by the CLECs as they would be invested in other segments of their networks.

Finally, cable operators have indicated in filings with the Commission that mispriced resale opportunities for CLECs will undermine cable's incentive to invest their own facilities, further undermining deployment.[298] Accordingly, the market-wide investment effect of Ethernet price regulation would be considerably higher than what Singer (2016) estimated for ILEC providers.

C. Un-Leveling the Playing Field: The FCC's Privacy Proposal

In April 2016, the FCC proposed to subject ISPs to a different and heightened level of privacy scrutiny relative to what the FTC previously asserted over ISPs.[299] The FCC's Privacy NPRM requires ISPs to seek affirmative opt-in consent from each customer for use of data for any purpose other than uses of information related to the provisioning of broadband service or marketing of "communications-related services."[300] The universe of data subject to the opt-in requirements include any and all consumer data—everything from passport numbers, to cookies, to network traffic statistics.[301] The FCC's opt-in model would require an ISP to inform consumers as to how it intends to use their data and then to obtain consent from users, even if the ISP never discloses the data to third-party advertisers and even though that exact data is being (or has been) used by other Internet businesses for marketing and advertising purposes. In contrast,

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295. Anna-Maria Kovacs, Business Broadband: Assessing the Case for Reregulation, March 2016 ("In other words, where costs are low, CLECs build their own networks. Where costs are high, they lease from ILECs at prices that do not reflect those high costs."), *available at* http://innovatewithus.org/wp-content/uploads/2016/03/Business-Broadband-Assessing-the-Case-for-Reregulation-Kovacs-3.14.16.pdf

296. Singer (2006), at 26, 32.

297. *See, e.g.*, Telecom Ramblings, Metro Fiber Miles and Lit Buildings by Select Providers (showing that Level 3, Lightower, and tw telecom increased their metro route miles by 29,600, 24,500, and 4,000 miles, respectively), *available at* http://www.telecomramblings.com/metro-fiber-provider-list.

298. Reply Comments of NCTA, In the Matter of Special Access for Price Cap Local Exchange Carriers, WC Dkt. No. 05-25, RM-10593, Feb. 19, 2016, at 4 ("Given the substantial consumer benefits that have resulted from this facilities-based competition, the most important task for the Commission in this proceeding is to ensure that it preserves incentives for continuing and expanding facilities-based competitive entry and investment.").

299. *See* Notice of Proposed Rulemaking, WC Dkt. No. 16-106 (April 1, 2016).

300. *Id.* ¶¶ 127-133.

301. *Id.* ¶ 62.

for decades, the FTC has been able to reserve its opt-in requirements to limited situations involving "specific uses like making material retroactive changes to privacy representations, or collecting sensitive information, such as information about children, financial and health information, Social Security numbers, and precise geolocation data."[302] According to former FTC commissioner Josh Wright, the FCC has proposed "a rigid, one-size-fits-all regulatory approach, forgoing the individualized analyses that leave space for innovative, welfare-enhancing uses of customer information."[303] FTC Commissioner Maureen Ohlhausen also remarked that "opt in mandates unavoidably *reduce* consumer choice" by setting both a privacy baseline too high as well as preventing unanticipated beneficial uses of customer data.[304] And in comments filed in response to the NPRM, the FTC was quite critical of the FCC's proposal, warning that the asymmetric treatment of ISPs relative to other organizations that utilize consumer data was "not optimal" and providing a number of suggested improvements to the rules.[305]

The competitive implication is that edge providers, which already have developed highly successful businesses entirely in the model of tracking and monetizing user behavior pursuant to the FTC's consumer-welfare-oriented privacy rules, will be effectively immunized from competitive inroads by ISPs in online advertising markets. It follows that an incumbent provider of online ads, particularly one with market power such as Google,[306] that is shielded by government regulation will be less inclined to innovate, relative to a world in which ISPs were nipping at its heels. It also follows that ISPs will be reluctant to innovate, if not outright or severely restrained from innovating, in the highly concentrated online advertising marketplace, as doing so could run afoul of the FCC's new privacy rules. The NPRM restricts an ISP's ability to market to its own customers ("first-party advertising"), and forecloses an ISP's ability to engage with third parties for advertising opportunities ("third-party advertising") without first obtaining affirmative and expressed consumer opt-in. If the FCC's privacy NPRM is adopted in its current form, advertisers will never experience these competitive alternatives.

Moreover, former FTC chair Jon Leibovitz noted that the FCC's proposal prohibits the potential offering of discounted ISP services in exchange for greater access to consumer data.[307]

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302. See Dissenting Statement of Commissioner Michael O'Rielly.

303. Josh Wright, An Economic Analysis of the FCC's Proposed Regulation of Broadband Privacy, May, 27, 2016, at 6.

304. Maureen K. Ohlhausen, *Privacy Regulation in the Internet Ecosystem*, Remarks at the Free State Foundation's Eighth Annual Telecom Policy Conference (Mar 23, 2016), *available at* https://www.ftc.gov/system/files/documents/public_statements/941643/160323fsf1.pdf

305. Comment of the Staff of the Bureau of Consumer Protection of the Federal Trade Commission, In the Matter of Protecting the Privacy of Customers of Broadband and Other Telecommunications Services, WC Docket No. 16-106, FCC 16-39, May 27, 2016, *available at* https://www.ftc.gov/system/files/documents/advocacy_documents/comment-staff-bureau-consumer-protection-federal-trade-commission-federal-communications-commission/160527fcccomment.pdf

306. Statista, Share of search queries handled by leading U.S. search engine providers as of April 2016 (showing Google's share consistently above 60 percent since April 2008), *available at* http://www.statista.com/statistics/267161/market-share-of-search-engines-in-the-united-states.

307. *FCC Overreach: Examining the Proposed Privacy Rules: Hearing Before the House Energy & Commerce Subcommittee on Communications and Technology,* 114th Cong. (2016) (statement of Jon Leibowitz, Co-

In other words, the NPRM in its current form precludes the potential for cheaper broadband access to willing customers. As further explained by Professor Wright, an ISP's inability to monetize these data will place upward pressure on broadband access prices, as advertising revenue earned from the other side of the two-sided broadband platform would be perceived as a reduction in the marginal cost of serving broadband users.[308]

In summary, the FCC failed to consider (1) the transactions costs associated with an opt-in policy, (2) the potential revenue reductions that impact an ISP's ability to build broadband networks, and (3) the competitive impact of keeping ISPs from competing with edge providers for advertising dollars. The FCC offered no cost-benefit analysis of its proposed privacy rules. Lacking a statutory requirement to conduct a cost-benefit analysis like the FTC (for its general rulemaking), the FCC is evidently unaware of these legitimate economic issues until they are brought to light by an understandably concerned public.

D. Why Has the FCC Abandoned Economics Now, After Its Record of Great Success?

The record of economics at the FCC since 1980 is of great success; what possible reason might the FCC have for ignoring it for the last few years? The FCC has been silent on this issue, so we have no direct evidence. We can, however, hypothesize based on facts as to why this sudden turnabout.

A consequence of the regulatory forbearance of the last decades is that the FCC's scope of authority has gradually lessened. The FCC simply has less to do than it did even a decade ago. Local wireline access to the telephone network was the last real area of regulatory activity. Everyone had a wireline telephone in their home, there was virtually no competition to the incumbent local exchange carrier, and none on the horizon. A major thrust of the 1996 Act was to press the FCC to remedy this problem, and the Commission spent a decade trying to introduce competition into local access, primarily by mandated local loop unbundling.

But a funny thing happened on the way to local access line competition—the market evolved. Americans began using cell phones as a substitute for wirelines, and the number of wireless-only homes began to rise quickly. Additionally, customers opted for VoIP phones rather than traditional wireline. The policy-driven option of providing wireline telephone service via competitive local exchange carriers simply died out, and customers opted to avoid wireline altogether using VoIP or wireless. Today, less than half of U.S. households have a copper wireline phone in their home, down from a high of 94 percent penetration ten years ago. The traditional wireline telephone is literally a dying business. The telephone companies realize this, and are desperately seeking strategies for exiting this business.

Chairman, 21st Century Privacy Coalition), available at http://docs.house.gov/meetings/IF/IF16/20160614/105057/HHRG-114-IF16-Wstate-LeibowitzJ-20160614.pdf

308. Josh Wright, An Economic Analysis of the FCC's Proposed Regulation of Broadband Privacy, May, 27, 2016, at 6.

A problem confronts the FCC: Now that traditional regulated wireline access service is rapidly dying, what is left for the FCC to regulate? Its traditional role of regulating telephone is disappearing; aside for allocating spectrum, what is left for the FCC to regulate?

When the Civil Aeronautics Board (CAB) deregulated the airlines in the late 1970s, it did not take too long for the CAB to actually go out of business. When the Staggers Act deregulated railroads in 1980, it was not too long before the Interstate Commerce Commission likewise went out of business.

We thus hypothesize that the FCC, apparently concerned for its own survival, does not wish for the same fate to befall it. Searching for relevancy, the FCC has found the perfect foil. Net neutrality has given it a mandate to extend its regulation to the Internet, where it will no doubt have a full and busy life.

How does this hypothesis explain the FCC abandonment of economics? Now that the Commission has found a new mandate to regulate the Internet, it certainly does not want to minimize that mandate by re-adopting economic analysis, which would argue that virtually no regulation is needed for the Internet, which has progressed amazingly well without regulatory intervention. As more advocates and interest groups ask for more regulation to meet their organizational objectives, however, the FCC appears happy to oblige, in effect keeping itself in the regulatory business into the far indefinite future.

In light of the FCC's need to establish a new mandate, the imposition of Title II on the Internet makes much sense. Regulating the Internet will be a much larger job than regulating the telephone system, and unlikely to go away in the near future. It also makes sense for the FCC to forswear economic analysis, which would tell them they need not regulate the Internet given its stellar performance without any regulation at all. For the FCC, this is about survival. Acting in rational self-interest, it will fight tooth and nail to preserve itself. It will surely be willing to listen to naïve, ill-informed advocate groups if their ideas align with its own survival. Of course, abandoning economics and welcoming advocates and pundits will have a high cost that the public will end up paying.

How can we test this hypothesis? If the hypothesis is false, we would expect that the FCC would apply economic analysis in determining whether or not to expand its regulatory writ, cutting back on regulation where empirical analysis failed to find market failure or benefits of regulation less than its empirically determined costs. If the FCC is truly not taking actions solely to expand its regulatory mandate, we would expect it to be quite cautious about its regulatory actions, cutting back where economic analysis suggests that regulation is not needed. On the other hand, if the FCC, having taken the aggressive regulatory step of imposing Title II regulation on a significant portion of the Internet, proceeds to expand its regulations to other transactions and players in the Internet industry, this would tend to confirm the hypothesis. Is this hypothesis correct? The authors certainly hope not. The data, however, suggests that this hypothesis needs to be seriously considered. Over the next few years, FCC actions will tell the tale.

V. Policy Implications

The past decade has seen a reversion back to the original regulatory paradigm at the FCC. The FCC has largely abandoned economics in policymaking. And old-fashioned Title II regulation, by which the monopoly Bell System was regulated, is once again being used to regulate both wireline and wireless Internet access. Never mind that Internet and wireless industries flourished beyond imagination without any regulation at all. This stunning and disturbing policy reversal gives rise to three important questions: (1) What are the implications for future policymaking?; (2) What are the implications for innovation in the sectors regulated by the FCC?; and (3) What can be done to avoid these outcomes and reinsert economics into the decision-making?

A. The Implications for Future Policymaking

It should be no surprise that when serious economic analysis is shown the backdoor, special interests and advocacy groups gain power. Without the economic requirement to examine the evidence, perform benefit-cost analysis, and justify regulation on the basis of market failure, political actors will seize control of the agenda. Even the White House intervened in the deliberations of a supposedly independent agency. The absence of dispassionate economic analysis in policymaking inevitably leads to politicization of the agency.

As explained in Part III, how the FCC reached this state is no great mystery. The scope of the FCC's regulatory writ in telecom threatens to shrink to zero, as the number of wired telephone access lines drops precipitously. In light of its shrinking mandate, the FCC needs to create a job for itself. It has reached for the biggest things it can find—the Internet access and wireless industries—and defines a new mandate of regulating these previously unregulated entities, with virtually no support from economics but lots of support from interest groups that stand to gain (or so they think) from FCC regulation, particularly of the ISPs.

Apparently, the firms that pressed for more regulation of the ISPs have not learned the basic lesson of regulation: Regulators will inexorably expand their control from their initial target (ISPs) to the next target (Netflix, mobile service providers), and eventually to the whole of the Internet. History provides the baleful evidence of this dynamic, including at FERC,[309] the FDA,[310] or even the FCC where regulation has expanded through merger review. Eventually, Google, a proponent of regulation, will find itself in the FCC's cross-hairs. Those who cannot remember the past are condemned to repeat it.[311]

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309. *See, e.g.,* Institute for Energy Research, FERC's Regulatory Mission Creep, Sept. 12, 2013, *available at* http://instituteforenergyresearch.org/analysis/fercs-regulatory-mission-creep/.

310. *See, e.g.,* Medical Device and Diagnostic Industry, FDA Mission Creep, Apr. 2, 2015, *available at* http://www.mddionline.com/blog/devicetalk/fda-mission-creep-don't-lease-your-510k-04-02-15 ("where 'just and reasonable' pricing was extended from interstate transmission to wellhead production in interstate commerce").

311. GEORGE SANTAYANA, I THE LIFE OF REASON (Charles Scribner's Sons 1905).

B. The Implications for Innovation in Sectors Regulated by the FCC

Because the D.C. Circuit upheld the *2015 OIO*, we expect to see FCC regulation of the Internet/wireless just like the old Bell System. Early evidence suggests that this will suppress investment[312] and likely undermine innovation,[313] which is the lifeblood to both the Internet and the wireless industries. Imagining these industries being transformed by regulation into the old Bell System, with its plethora of orders, regulations, prohibitions and restrictions should strike fear into the hearts of those of us dependent upon either or both (likely everyone).

To see the threat concretely, consider the 2015 *Open Internet Order*, which threatens innovation in three distinct ways. *First*, by barring paid prioritization arrangements, the *2015 OIO* undermines innovation in the nascent market for real-time applications like telemedicine and HD voice. These markets are expected to develop into billion dollar industries in the coming years.[314] Although no application needs priority to function *per se*, there is a class of applications that need a certain level of quality of service that is not always consistently available on networks, especially across wireless networks that are subject to congestion. The ban on payments for priority arrangements could undermine certain collaborations among ISPs and websites/application providers, and thereby thwart a non-trivial portion of these applications from taking root, potentially costing the U.S. economy hundreds of millions of dollars annually.

Second, because sponsored-data plans by wireless carriers (including zero-rating plans) may run afoul of its "general conduct" standard, the *2015 OIO* could discourage innovative offerings that would subsidize Internet access for low income Americans. By discouraging ISPs and content providers from pursuing different ways to subsidize Internet access for consumers—another form of collaboration—the *2015 OIO* could deny the poorest Americans hundreds of millions in benefits annually. There are millions of Americans for whom (wireless) broadband is just out of reach and who would otherwise be eligible for a subsidy in the form of a sponsored-data plan.

Third, by reclassifying ISPs as telecommunications providers under Title II of the 1934 Communications Act, the order will likely slow the flow of investment dollars by ISPs, which will adversely affect innovation. Subjecting telecommunications companies to Title II in the early 2000s caused their capital expenditures to decline by between five and thirteen percent under conservative assumptions. Exposing ISPs to the same regulatory risk could undermine core investment to the same degree. Based on U.S. Telecom's estimated $76 billion in aggregate capex among U.S. ISPs in 2014, such a reduction would amount to between a $4 and $10 billion decline in investment at the core of the network.[315]

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312. Hal Singer, ISP Capital Expenditures in the Title II Era (4Q Edition), Feb. 24, 2016, available at https://haljsinger.wordpress.com/2016/02/24/isp-capital-expenditures-in-the-title-ii-era-4q-edition/ (showing a decline in ISP capex of 0.4 percent in 2015, compared to an increase of 4.0 percent in 2014).

313. *Three Ways*, *supra*.

314. *See, e.g.*, The Virtual Reality Report: Forecast, market size, and the trends driving adoption, Business Insider, Apr. 29, 2015; IBIS, Telehealth Services in the U.S., Market Research Report.

315. *Three Ways*, *supra*.

Unfortunately, the *2015 OIO* is not the only threat to innovation from economics-free policymaking. The FCC's Privacy NPRM also poses a threat to innovation, this time in online advertising markets and ad-supported services. This is a classic example of asymmetric regulation on only one set of market participants (ISPs), while specifically exempting or ignoring direct competitors (edge providers) in the market for online ads. As explained above, if adopted in its current form, the Privacy NPRM will put upward pressure on broadband access prices and immunize edge providers from competition in online advertising markets, while reducing consumer welfare in various ways, including preventing consumers from receiving promotional information about service bundles and price discounts for home security or energy efficiency services. This reduction in competition will likely lead to less innovation by incumbent content providers that dominate online advertising, and by discouraging ISPs to innovate, as doing so could run afoul of the FCC's new privacy rules.

C. Reinserting Economics into the Debate

Despite the gloomy prospects of a sustained run of populism portrayed here, we believe there are constructive ways to reinsert economic analysis into FCC decision-making. The waning influence of economic analysis seems to be connected to the politicization of the agency and its search for a new mandate. Based on that diagnosis, policymakers should shield the technocrats at the FCC from political pressure of the kind we observed in net neutrality and set-top-box proceedings. Assuming the D.C. Circuit does not vacate the *2015 OIO*, action to end the FCC's re-application of Title II regulation can only come from Congress. We offer three concrete suggestions for lawmakers.

First, Congress should clarify its intent in the 1996 Telecom Act to keep the Internet, including fixed and mobile broadband access, free from common-carrier regulation. Although the Act shields private mobile services from such rules through Section 332, there is sufficient ambiguity when it comes to Internet access services such that further clarity is needed. Would such explicit language barring application of Title II to fixed and mobile broadband access give ISPs an opportunity to hurt customers? The historical evidence supports the view than when unfettered, ISPs generated little in the way of customer welfare loss, and certainly nothing that could not be handled by antitrust action by the Federal Trade Commission or the Justice Department.[316]

Second, Congress should give the FCC authority to regulate ISPs precisely along the lines dictated by the FCC's *2010 OIO*. This could be achieved by either expanding the agency's authority under section 706, or by issuing a new grant of authority. Recall the D.C. Circuit ruled that case-by-case adjudication of discrimination complaints against an ISP was tantamount to common carriage so long as paid prioritization was presumptively in violation of the FCC's rules. If the FCC had newfound authority to return to this presumption against paid prioritization without recourse to Title II, then this objection would be moot. Congress should further clarify that all forms of preferential treatment, including paid prioritization and zero-rating, should be subjected to case-by-case review (as opposed to a blanket ban), with challenges initially

316. *Id*. at 21.

adjudicated by an FCC-appointed administrative law judge. While this presumption against preferential treatment is certainly not a perfect solution from an economic perspective—efficiency dictates the presumption be reversed, with the burden placed on disadvantaged rivals—it avoids the dangers of Title II regulation and appears to be a reasonable political compromise.

Third, Congress should require that the FCC perform rigorous cost-benefit analysis before promulgating any new rules. Executive Order 12866, which requires cost-benefit analysis for certain regulatory actions, does not apply to "independent *regulatory* agencies" (as opposed to independent agencies) such as the FCC.[317] For example, in the case of its set-top-box proposal, the FCC should be required to quantify, to the best degree possible, the costs associated with higher basic cable prices (caused by a loss in ancillary revenues), less content innovation (caused by removal and insertion of ads by independent STB makers), and threats to privacy (caused by the presentation of pirated content alongside legitimate content in search results), and to weigh those costs against the benefits of any purported reduction in STB rental fees. Recall that when the FCC issued its *2015 OIO*, it issued a separate statement noting that it had no obligation to perform a cost-benefit analysis. Imposing such a constraint on the FCC would ensure that economics plays a vital role in future FCC decision-making. There is no reason why the Department of Labor (an executive agency), the Environmental Protection Agency (an independent agency), or the Consumer Financial Protection Bureau (an independent regulatory agency) should be held to a rigorous cost-benefit analysis, while the FCC is free to embrace populism as its guiding principle. The tech industries under the FCC's domain are equally if not more important to the U.S. economy.

VI. Conclusions

The history of economics at the FCC is a long, gradual adoption of economics' basic tenets into FCC policymaking. In brief, economics teaches us that markets, absent failures, work well for consumers and the industry generally. Do not regulate unless a market failure forces the issue, and even with a market failure, only regulate when the facts dictate that the benefits to regulation exceed its costs. The adoption of economics at the FCC has been an unalloyed benefit for U.S. consumers and the economy, both for the intended (short-run) impacts and the unintended and unanticipated (long-run) impacts.

Until the 1960s, the assumption had been that the FCC (and State commissions) needed to regulate every blessed service and product of the monopoly Bell System. Economists explained that terminal equipment (for example, telephones or private branch exchanges) exhibited no market failure and hence did not need to be regulated. The 1968 *Carterfone* decision permitted "any lawful device" to be connected to the telephone system, and ushered in an era of competitive supply of new and innovative terminal gear, just as the architects of *Carterfone* had intended. Similarly, MCI wished to offer long-distance telephone service, which had to interconnect with the Bell System's local network, and was approved by the FCC. The

317. Curtis Copeland, Economic Analysis and Independent Regulatory Agencies, Apr. 30, 2013, *available at* https://www.acus.gov/sites/default/files/documents/Copeland%20Final%20BCA%20Report%204-30-13.pdf.

D.C. Circuit ruled in 1978 that indeed the Bell System had to interconnect, thereby bringing competition to long-distance service, along with lower prices for customers, just as the architects of the MCI case had intended.

More impactful were the *Computer Inquiry* decisions, in which the FCC established that "enhanced" services (primarily data) were not to be regulated, and the monopoly Bell System was permitted to enter these markets only under limited conditions, to ensure that it did not extend its monopoly power into the emerging computer and data communications markets. As the architects intended, these markets were insulated from potential entry by the Bell System, and remained completely unregulated. But what was not anticipated was the birth and development of the Internet in the 1980s and 1990s, possible because of the complete absence of any form of regulation. Clearly, the technology of the Internet was well within the capabilities of the Bell System, which owned probably the greatest industrial laboratory ever, in the form of Bell Laboratories. And yet, it was software entrepreneurs in garages in California who gave us the consumer and business Internet as we know it today, free of any FCC regulation. The forbearance of the FCC in this market made the Internet possible; with no FCC regulation, entrepreneurial talent and energy brought one of the greatest innovations of the last fifty years into full bloom without regulation, a deliberate strategy of the FCC.[318]

Equally important is the story of wireless telephony. The FCC had a long history of regulating wireless telephony, which they carried forward into the 1980s with the invention of cellular technology. Only two carriers were permitted in any city, the incumbent telephone firm and a competitor chosen by the FCC. The FCC discussion paper by Kwerel and Felker (1985) offered an economics perspective; auction off the spectrum and allow competition to rule the market. After Congressional approval, the first spectrum auction was held in 1994. Since then, the wireless industry has exploded, not only in the United States but around the world. In most OECD countries, there are more wireless phones than people, and the number of smartphones is fast approaching that number. Again, the explosive development of one of the greatest innovations of the past fifty years was enabled by the FCC's judicious use of minimal regulation, a major change from its previous tradition of regulation, brought about by economic thinking.
The engineers, entrepreneurs, and savvy business people who took risks to develop the Internet and wireless telephony deserve full credit for bringing these great economic innovations to the world today. But this could not have happened had the FCC not stepped back from its traditional regulatory role and let these same people bring their revolution to fruition, and that would not have happened if economic thinking had not overcome the traditional regulatory thinking at the FCC. The FCC threatens this innovative arc as it lashes about for a new mandate. It is time for a rebirth of economics at the FCC. Based on our diagnosis of what ails the agency, Congress will have to right this ship.

318. See Kennard, *supra.*