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

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Past regulations informed by economic analysis at the Federal Communications Commission (FCC) have positively affected the U.S. economy: from opening long-distance telephone markets, to enabling the proliferation of enhanced data Internet services, to spurring the growth of new wireless markets. The failure of the FCC to ground its regulations in economic reasoning in the past few years has led to inefficient policies and proposals that threaten to eviscerate prior benefits. 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 reinject economics into FCC policymaking is via a Congressional mandate. 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.

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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

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neutrality, in an "economics-free" zone (Crovitz, 2016). Professor Brennan offers an insider's view of how economics has been marginalized in the FCC's decision-making process. 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 (Wheeler, 2015). The voices—no matter how disconnected from the ultimate policy outcome—trumped whatever the economists had to say.

To economists with allegiances 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 exceed the expected costs, and (3) even if the net benefits are positive, whether there exists a less-restrictive alternative that would achieve even greater net benefits. This three-part test for intervention is not a rejection of regulation or some homage to free-market economics; many forms of regulation could be justified under this standard economic prescription. But the FCC did not perform a rigorous cost–benefit analysis in the proceeding; instead, it released a two-page statement in March 2015 noting that "the Commission is not required to prepare a cost benefit analysis" (FCC, 2015, p. 2). As described more fully below, in his dissent to the opinion accepting the legality of the FCC's 2015 Open Internet Order, Judge Stephen F. Williams sharply criticized the agency for not even considering the alternative regulatory interventions advanced by three former FCC chief economists. Our complaint is not about policy outcomes; instead, it is about process—how to reinject economics into FCC decision making.

The year 2015 appears to mark the nadir of economic influence at the agency, as evidenced by anecdotal measurements of the FCC's internal economic activity. For example, from 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 (see FCC, n.d.a). In 2015, when the agency's controversial Open Internet Order was being finalized, the FCC conducted just four. Moreover, the FCC's internal economic think tank, originally called the Office of Plans and Policy, produced 46 working papers that guided FCC decision making from the 1980s until 2012, when they mysteriously disappeared, only to be replaced with cursory "fact sheets" that are largely devoid of economics (see FCC, n.d.c).

What are the implications of removing economic analysis from agency rulemakings? In this article, we seek 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 with 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, Faulhaber, Hahn, and Singer (2012) similarly take issue with the FCC's shifting standard for assessing competition in mobile telephony. Based on a review of the FCC's merger conditions involving spectrum transfers, Manne, Rinehart, Sperry, Starr, and Szoka (2013) found 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" (p. 2). This article is the first to characterize the influence of economic analysis at the FCC over time.[2]

The Rise and Fall of Economic Influence at the FCC

The FCC's use of economic theory, thought, and analysis has evolved over the past hundred years. From its precursor agencies in the early 1900s to the 1950s, economic consideration was largely absent from Commission policymaking and regulation. This era ended in the 1960s when the Commission began to use economic theory to shape its policies and regulatory reach. The 1990s and early 2000s marked the economic zenith of the FCC, when both theory and analysis played 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.

The Early Years (1910s–1950s)

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. The Commission suffered from a degree of regulatory capture, working hand-in-hand with the incumbent interests of the day.

Federal Radio Commission and the First Spectrum Reallocation (1927)

From 1912 until 1926, regulation of the airwaves was overseen by the Commerce Department (Federal Radio Commission, 1927), where broadcasting regulation was largely developed in concert with private enterprise (McChesney, 1994, p. 3). The precursor to 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 relative regulatory anarchy.

Fatefully, the original 1912 Radio Act held no specific provision on the method to allocate spectrum licenses. The Radio Act of 1927, which created the FRC, merely mandated the new agency to issue licenses if it "determine[d] that public interest, convenience, or necessity would be served by the granting thereof" (The Radio Act of 1927, sec. 11). The discretion of what the public interest was left up to the regulators.

The solution to the allocation problem was decidedly noneconomic. The FRC first grandfathered all existing 733 stations across 90 frequencies. New licenses, given out at a zero price, largely went to commercial broadcasters. The FRC eventually came to rule that a "general public service broadcaster" (McChesney, 1993, pp. 20–28) had preference over any nonprofit station with a policy position.

[2] Several FCC economists have written on the influence of economics during their tenure (see, e.g., Baker et al., 2011).

Accordingly, the FRC's ad hoc allocation was mostly to the benefit of existing commercial networks. Of the 25 "clear" (national) channels created, 23 were owned by the National Broadcasting Company. By 1934, nonprofit broadcasting accounted for only 2% of all airtime (McChesney, 1993, pp. 30–31).

The 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. (Communications Act of 1934, sec. 1)

A major spectrum conflict on wireless television arose in 1945, which led to a second reallocation. The Radio Corporation of America, one of the largest manufacturers of black-and-white televisions, desired the VHF spectrum occupied by FM radio stations for its colorless TV sets. The Radio Corporation of America's competitor and upstart manufacturer, CBS, wanted television allocations to rest on the UHF band, which could support its color broadcasting (Ismail, 2010, p. 5).

Faced with these competing interests, the FCC split the differences in an ultimately disjointed way. TV was allocated 12 channels within the black-and-white VHF band, and FM had its allocation moved up from the 42- to 50-MHz to the 88- to 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 an additional 70 channels in the UHF band years later.

The Commission's reasoning was again devoid of economics (FCC, 1945, p. 20). The matter was decided by hearings and commentary, as well as a faulty technical analysis of the FM band (Ismail, 2010, p. 6). 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 the FM radio spectrum rendered obsolete nearly 500,000 FM radio sets, which arrested the growth of the industry for more than a decade (Ismail, 2010, p. 8).

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

Throughout this early period, 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," in which 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" (FCC, 1997, p. 6). Instead of being informed by economics, this process was wholly based on rhetoric. Congress reformed the system into a lottery in 1981, but this did not address the underlying issue of inefficiency (FCC, 1997, p. 7).

In his landmark 1959 paper "The Federal Communications Commission," Nobel Laureate Ronald Coase argued that giving out valuable spectrum for free was incredibly wasteful. He was not the first to notice this: There had been at least eight different instances between 1927 and 1959 in which the FCC's zero-price policy had been questioned (Hazlett, 1998). Coase's paper was prompted in part by a feeble rejoinder by former FCC chief economist Dallas Smythe (1952) against a previous proposal to sell spectrum to the highest bidder. When Coase presented his analysis to the FCC, one commissioner asked, "Are you spoofing us? Is this all a big joke?" (Hazlett, 2011, p. 13).

Why did the FCC resist economics in these early years? One theory is that the FCC's initial policies were a deliberate *quid pro quo* between regulators and incumbent radio broadcasters (Hazlett, 1998, p. 569). The evidence of any economic thinking in the FCC prior to the 1960s is scant.

The Rise of Economic Analysis in the 1960s and 1970s

The FCC's noneconomic 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. External pressure to reform came from "court-assisted liberalizations," which had the effect of pushing the FCC along the path toward using economic theory as a principle 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."

The Carterfone Decision (1968)

This economic liberalization was made plain in 1968, when the FCC permitted nontelephone devices (although not third-party telephones themselves) to be connected to the network (Ismail, 2010, p. 17). 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" (FCC, 1968, sec. 420). The FCC found that "Carterfone fills a need and that it does not adversely affect the telephone system" (FCC, 1968, sec. 423).

This was an important shift from the FCC's earlier policy. The decision contained nods to economic reasoning. The FCC concluded that private manufacturers of devices could connect to the telephone system, provided that they met reasonable network standards (FCC, 1968), opening ancillary markets to competition in ancillary markets that functioned alongside the monopoly network.

The FCC Gives Microwave Communications, Inc., Authority to Offer Long-Distance Services in Select Markets (1977)

Further 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. 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 (Kagami, Tsuji, & Giovannetti, 2004, p. 72).

Concerned that this new service was posing a threat to its traditional long-distance telephone monopoly, AT&T complained to the FCC that MCI was offering long-distance telephone service under the guise of their "Execunet" point-to-point microwave service. 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" (*MCI Telecommunications Corporation, Microwave Communications, Inc., and N-Triple-C Inc., Petitioners, v. Federal Communications Commission et al.*, 1977, para. 14). 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" (*MCI Telecommunications Corporation, Microwave Communications, Inc., and N-Triple-C Inc., Petitioners, v. Federal Communications Commission et al.*, 1977, para. 63).

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—but using mainframe computers rather than live operators to pass along messages.

The second problem was how to regulate common carriers. 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" (*MCI Telecommunications Corporation, Microwave Communications, Inc., and N-Triple-C Inc., Petitioners, v. Federal Communications Commission et al.*, 1977, para. 25).

Instead of relying solely on public commentary, as it had in the past, the FCC additionally commissioned the Stanford Research Institute to study the problem in detail from an economic and technical perspective (FCC, 1970). After reviewing the public commentary, the Stanford Research Institute conducted its own economic analysis of the issues and presented its findings to the FCC in a series of seven reports. The Stanford Research Institute reached three conclusions: (1) "Data communication services" were rapidly growing and FCC action may not be required (but should be studied further); (2) data processing services would benefit from free entry and unregulated competition by noncarriers; and (3) allowing common carriers to enter the data processing field could be problematic (Dunn, 1969).

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.

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, and produced economic analysis until 2003, when it was rebranded the Office of Strategic Planning and Policy Analysis (FCC, 2002, 2003).

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 also the cost of computer equipment began to plummet as its complexity exploded. Microcomputers began to 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 (FCC, 1979, p. 358).

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" (FCC, 1980, p. 384). 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.

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" (FCC, 1980, para. 212) for his 1971 work *The Economics of Regulation*, which examined how competition affected innovation. The FCC also cited academic literature on predatory-pricing practices, other economic papers on monopoly and innovation, and on how bundling restricts the choices of consumers (see FCC, 1980, paras. 149, 153, and 212).

Peak of Economic Analysis in the 1990s

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 gave way to allocating spectrum by auction, as suggested by FCC economists Evan Kwerel and Alex Felker (1985; based on earlier work by Ronald Coase). The FCC adopted a light-touch regulation of wireless service and held fast to the strict separation between regulated basic service (voice telephony and pure data transmission) and unregulated "enhanced" services (data processing, especially Internet), established by the earlier Computer Inquiries. 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.

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.

In 1993, Congress amended the Communications Act of 1934 to require the FCC to award spectrum based on competitive bidding. 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" (H.R. 2264, § 6002 (a)). The Commission developed a simultaneous multiple-round bidding system, which successfully fulfilled the new mandate (FCC, 1997, p. 3). 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 10 licenses, and auction receipts totaled $650 million (see FCC, n.d.b). One indication of the program's success was the decline of the secondary market transactions. Between 1994 and 1996, only 12 licenses were resold, compared with 75 resales in the 1991 cellular license lottery (FCC, 1997, p. 23).

Unregulation of the Internet and Wireless Services

Although our policy preference is to err on the side of nonintervention, we can envision cases in which the FCC establishes a market failure, and then demonstrates that its proposed remedy (1) eliminates the failure, (2) does not generate costs in excess of the benefits, and (3) is not inferior to some alternative intervention that generates greater net benefits. That the FCC decided originally not to regulate the Internet or cellular services is not proof, by itself, that the FCC relied on rigorous economic analysis to reach those decisions.

The unregulated treatment of the Internet was not an accident, and there are signs that economic analysis was at least partially responsible for that outcome. In 1999, OPP economist Jason Oxman (1999) published a working paper on the agency's light-handed approach to regulating the Internet. Oxman claimed that the Internet owed much of its success to the FCC's consistent refusal to regulate any part of it. The key deregulatory decision occurred in 1983, when the FCC concluded that enhanced service providers, which would become dial-up Internet service providers (ISPs), should not have to pay access charges, which permitted them to avoid per-minute measured usage charges that would otherwise have been passed along to end users (Oxman, 1999, p. 17). By enjoying near-zero marginal costs, ISPs were able to keep their retail prices low, and as a result, narrowband Internet access uptake in the United States exploded, especially compared with that in Europe, which did not heed this economic advice. In 1998, the FCC reaffirmed that ISPs were not required to make direct contributions to

the universal service fund, as this too would raise their marginal costs, potentially slowing (now) broadband adoption (Oxman, 1999, p. 18).

One can also see how economics influenced the agency when it came to deregulating wireless services. The FCC's 1995 memorandum and order on cellular services 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 returns (FCC, 1995). Although the general policy course was set before 1995, the continued justification for the liberalization of the wireless markets was based on a pragmatic economic analysis of competition.

The Aughts and the Brewing War Over Net Neutrality

Around the turn of the century, economics began to take a backseat to policy outcomes that were preordained, either by some outside force (Congress or the president) or the FCC chairman. In 1998, Alfred Kahn observed that the FCC had abandoned economics in its mandatory unbundling proceeding under Chairman Reed Hundt (appointed by President Bill Clinton). In fairness, the FCC was following explicit instructions from Congress, pursuant to the 1996 Telecommunications Act, to open local telephone markets via an open access regime; that mandatory unbundling of telcos could no longer be justified in the presence of a competitive and superior alternative to DSL (cable modem) was not the agency's fault. Appellate courts also took issue with whether certain inputs that were subject to sharing rules were in fact necessary for rivals to compete.

The lack of economic rigor at the FCC was not correlated with a single party. In 2008, a bipartisan congressional investigation asserted that FCC Chairman Kevin Martin (appointed by President George W. Bush) effectively neutered economic analyses, particularly with respect to staff reports on "à la carte pricing" and cable industry competition (U.S. Cong., 2008). Although the process by which Martin's FCC undertook analysis was potentially compromised, his preferred prescription (mandatory à la carte programming) was never implemented.

During the aughts, the FCC was constantly showered with recommendations from self-styled consumer interest groups. Around the turn of the century, the burning issue was "open access" for the Internet—establishing rules that cable systems had to open up their facilities to virtual ISPs. One author (Faulhaber) recalls his time at the FCC in 2000, when he found a television crew filming a group of about 15 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 afterward. 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 (2003). Under Chairman Michael Powell, the FCC published four principles of net neutrality 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 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 2007–8. Comcast voluntarily agreed to change its network management practice, but the Commission nonetheless proceeded months later to find Comcast's practice to be unlawful.

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 its "economic analysis demonstrate[s], however, that the openness of the Internet cannot be taken for granted, and that it faces real threats" (FCC, 2010, paras. 2–4). 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 (FCC, 2010, paras. 69–71). 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. In sum, the Commission offered a discrimination policy of "reasonableness" based on "achieving a legitimate network management purpose" (FCC, 2010, para. 82). This reluctance to ban practices that might be motivated for procompetitive reasons would melt away in the FCC's subsequent populist period.

The Waning Influence of Economics in FCC Decision Making

The FCC's jurisdiction appears to be limited to specific technologies such as plain-old telephone service by the 1996 Telecommunications Act. As the market gravitates to newer technologies, the agency certainly has less to worry about than it used to. When it comes to regulating broadband, the 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*."[3] 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*."[4] 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 services.[5] Under Chairman Tom Wheeler, the FCC has moved in the opposite direction, subjecting ISPs to common carrier regulation. And to get there, he needed to ignore the teachings of economics.

[3] 47 U.S.C. § 230(a)(4), 1996.
[4] 47 U.S.C. § 230(b)(2), 1996.
[5] 47 U.S.C. § 230(e)(2), 1996.

The Absence of Cost–Benefit Analysis in the Wheeler Era

The Wheeler era is marked by several landmark proposals that potentially impact the return to investing in broadband, a social cost that should be considered in any cost–benefit analysis. The Business Data Services proposal would require ISPs to share their business data connections with rivals at regulated rates; the set-top box proposal would put at risk an ISP's ancillary revenues from equipment rentals, pay-per-view, and local advertising; and the OIO removed the prospect of revenues from content providers. In this section, we focus on two proceedings that highlight the lack of economic influence generally and of cost–benefit analysis in particular.

The Open Internet Proceeding

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. 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 in favor of any such deals; (3) case-by-case adjudication, with a presumption against any such deals; and (4) a blanket prohibition on all paid prioritization deals.

From this list of policy options, the FCC's 2010 OIO elected the third option by rejecting a blanket prohibition in favor of case-by-case treatment, but declaring that paid prioritization deals "would raise significant cause for concern" and were "unlikely [to] satisfy the no-reasonable-discrimination standard" (FCC, 2010, para. 76). This presumption, among other parts of the 2010 OIO, was appealed by Verizon. In *Verizon v. FCC* (2014), 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." (pp. 59–60)

Critically, the D.C. Circuit laid out a legal path for the FCC to regulate pay-for-priority deals without resort to common carriage. 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 Partnership v. Federal Communications Commission* (2012), a case distinguished by the D.C. Circuit from common carriage. 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.

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 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" (FCC, 2014, para. 97). In other words, such deals were presumed to

be commercially reasonable unless an edge provider could prove otherwise. The Notice of Proposed Rulemaking 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 and four million angry letters ostensibly submitted to the FCC (Brody, 2015). (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 possible rules to protect net neutrality" (see "Net Neutrality," n.d.). Ever since that political groundswell, Wheeler backpedaled from the elegant, light-touch solution of the Notice of Proposed Rulemaking, and instead imposed a blanket ban on paid prioritization (FCC, 2015).

Although there might be cost–benefit reasons to prefer an outright ban of paid prioritization arrangements over a case-by-case approach, the FCC did not credibly make them in the 2015 OIO. Not only does the order fail to estimate the benefits of a ban, it ignores or dismisses the economic evidence of the impact of Title II (the purported regulatory authority for the ban) on investment in the late 1990s and early 2000s, and thereby dismisses the very real threat to ISP investment (Hazlett & Caliskan, 2008). 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 (FCC, 2015, para. 414, n. 1210).

Moreover, the 2015 OIO casually dismisses a less-restrictive alternative for handling paid prioritization disputes—namely, case-by-case enforcement—as being too "cumbersome" (FCC, 2015, para. 19) to enforce, despite the fact that the 2015 OIO itself embraces case-by-case review to address interconnection disputes (FCC, 2015, para. 29) and other conduct such as zero-rating (FCC, 2015, para. 108) and the FCC relies on case-by-case in many other areas.

Although the legality of the 2015 OIO was upheld in a 2-1 opinion by the D.C. Circuit in July 2016, Judge Williams's dissent vindicated our concerns relating to the absence of serious economic analysis. The majority of three-judge panel refused to question the OIO on policy grounds or on the economics (D.C. Circuit, 2016, p. 23). 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 contrast, Judge 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 (p. 50). He lamented how the OIO gave three of its former chief economists "the silent treatment" (p. 43). 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 (p. 39).

The Set-Top Box Proceeding

In Spring 2016, the FCC announced its intention to unbundle set-top boxes (STBs) from cable television service. The FCC claimed it was seeking to encourage entry in STBs, thereby reducing the rental prices and expanding consumer choice.

Rather than produce any report or economic white paper, the FCC issued a cursory "fact sheet" in April 2016, which claimed that cable customers were experiencing runaway inflation for leasing STBs at a nominal clip of 185% since 1994 (FCC, 2016). The eye-popping figure came from a study coauthored by the Consumer Federation of America (CFA) and Public Knowledge (PK; Cooper & Bergmayer, 2016). 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-10 cable providers, conducted by Senators Ed Markey and Richard Blumenthal ("Markey, Blumenthal Decry," 2015). 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.

Although 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 Senate staffers 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 (2016) 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 arrived at a weighted average monthly price of $5.15.

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) with the "average" STB rental price in 1994 per an FCC study ($2.60) (Cooper and Bergmayer, 2016, para. 3). Ignoring any changes in quality of STBs over the intervening two decades, the CFA/PK study derived the 185% inflation figure (equal to $7.43/$2.60 – 100%).

The 2015 version of STBs included 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). That 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% improvement. In any case, to control for this difference in quality, as the Bureau of Labor Statistics does for its price indices (Bureau of Labor Statistics, 2016), CFA/PK could have compared 1994 STB prices with 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). And yet, the FCC was perfectly willing to embrace the CFA/PK study's (as

well as Senate staffers') findings in its public-relations campaign. Finally, the FCC failed to recognize that STB prices are determined in conjunction with video prices pursuant to a metering strategy; so long as the demand for STBs is positively correlated with the demand for watching cable television, the bundling of STBs and video implies a lower price for video.

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 past 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 substitutes for wirelines, and the number of wireless-only homes began to rise quickly. In addition, customers opted for VoIP phones rather than traditional wirelines. 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% 10 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.

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 from allocating spectrum, what is left for the FCC to regulate? When the Civil Aeronautics Board deregulated the airlines in the late 1970s, it did not take too long for it 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 readopting economic analysis, which would tend to discourage regulatory intervention in competitively supplied markets. (To be fair, there are some very good economists who believe that regulation of ISPs can be justified; see Economides & Hermalin, 2012.) 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 the Commission that it 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—willing to listen to naïve, ill-informed advocacy 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 for which 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 when economic analysis suggests that regulation is not needed. On the other hand, if the FCC, having taken the aggressively 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? We certainly hope not. The data, however, suggest that this hypothesis needs to be seriously considered. Over the next few years, FCC actions will tell the tale.

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. This stunning and disturbing policy reversal gives rise to important questions: (1) What are the implications for innovation in the sectors regulated by the FCC? (2) What can be done to avoid these outcomes and reinsert economics into the decision making?

Because the D.C. Circuit upheld the 2015 OIO, common carriage regulation of the Internet/wireless would not be undone without a change in political power or a Supreme Court decision. Early evidence suggests that, until it is repealed, common carriage will suppress investment (Singer, 2016) and likely undermine innovation, which is the lifeblood of both the Internet and the wireless industries. By barring paid prioritization arrangements, the 2015 OIO undermines innovation in the nascent market for real-time applications such as telemedicine and HD voice; there is a class of applications that need a certain level of quality of service that is not always consistently available on networks and that require prioritization to function well. 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.

Even though the 2016 election may have replaced one form of populism with another—both forms holding experts of all stripes including economists in disdain—we believe that there is a constructive way 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. This is not to equate politicization with actions of a single party; both the (Democratic) president, by interfering in the FCC's process, and (Republican) Congress, by conditioning the agency's funding on policy outcomes (Brodkin, 2016), had a role in politicizing what should be an independent agency. Based on that diagnosis, policymakers should shield the technocrats at the FCC from political pressure of the kind we observed in the open Internet and STB proceedings.

How so? 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 (Copeland, 2013). For example, in the case of its STB 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.

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