SPECTRUM AUCTIONS AND THE PUBLIC INTEREST

ELLEN P. GOODMAN*

INTRODUCTION

Last year, the Federal Communications Commission (FCC) held its largest spectrum auction, selling exclusive rights to use coveted wireless frequencies for approximately $20 billion.[1] Not only was this the largest ever auction of spectrum, it was the largest ever single auction of public property in U.S. history.[2] Aside from its sheer magnitude, this auction of frequencies in the 700 MHz band was notable for other reasons, including the federal government's attempt to use the auction as a mechanism to value contested public policy goals.[3] In essence, the FCC

* Professor, Rutgers University School of Law – Camden. My thanks to Phil Weiser for encouraging me to present these ideas at Silicon Flatirons and to symposium participants for their comments.

1. Saul Hansell, *Verizon and AT&T Win Big in Auction of Spectrum*, N.Y. TIMES, Mar. 21, 2008, at C3 (reporting generally on results of auction, noting that Verizon Wireless won licenses in an auction that raised $19.12 billion after more than seven weeks of secret bidding).

2. J.H. Snider, *Is the Spectrum Just too Complex for Reporters?*, NEIMAN WATCHDOG, Feb. 21, 2008, http://www.niemanwatchdog.org/index.cfm?fuseaction=ask_this.view&askthisid=00327&stoplayout=true&print=true.

3. Service Rules for the 698-746, 747-762 and 777-792 MHz Bands, *Second Report &*

acknowledged that its policy goals for use of the spectrum involved tradeoffs, and that pursuing one of its principal goals might exact a toll in auction revenue. The FCC set out to ascertain, for the first time ever, just how much a policy goal would cost in foregone auction revenue and vowed to give up the goal if it cost too much.[4]

This use of auctions as a heuristic for valuing public interest goals raises interesting questions about the relationship between markets and policy, and between government as a proprietor of public resources and as a regulator of those resources. In this Article, I argue that it is possible to use auction results to inform the policy process without elevating revenue goals over other public policy objectives. In the 700 MHz auction, however, the FCC misunderstood what information auctions can yield and then failed to design an auction that would supply even that information. Correcting these problems for the spectrum auctions of the future – what may be the last great "land rush" to obtain wireless resources valued at more than $1 trillion – would lead to a more rational, transparent, and equitable communications policy.

Part I below shows how the FCC attempted to use auctions to evaluate communications policy goals in the 700 MHz proceeding. It is sometimes suggested that substantive communications policy goals, such as competition and innovation, should not be permitted to intrude on an otherwise neutral, market-based auction process. This ideal of value-free license assignments is neither possible nor desirable, I argue in Part II. Rather, the assignment process that culminates in auctions is invariably shot through with substantive communications policy goals. Auction results serve both signaling and substantive functions and these should be exploited. Auctions can be structured to reveal private valuations of regulatory burdens that the FCC must otherwise only guess at, thereby aiding in a regulatory process that accounts for policy tradeoffs. Of course auctions can also be structured to yield more or less revenue for the purchase of communications policy objectives. Part III shows the flaws in the FCC's first attempt to use auctions as a sophisticated policy tool and how this attempt is instructive for future policymaking.

I. 700 MHZ AUCTION

The expansion of broadband communications capacity and services

Order, 22 FCC Rcd. 15,289 (2007), http://hraunfoss.fcc.gov/edocs_public/attachmatch/FCC-07-132A1.pdf [hereinafter *700 MHz Order*].

4. Ultimately, the revenue goal for the auction was met, so the FCC never had to compromise on its policy goal, nor to assess its cost, using the re-auction procedure established in case the auction revenue target was not met. *See* Susan Crawford, *700 MHz C Block Reserve Price Met*, PUBLIC KNOWLEDGE, Jan. 31, 2008, http://www.publicknowledge.org/node/1376.

is among the chief goals of U.S. communications policy.[5] One of the main impediments to better and more plentiful mobile broadband service is a shortage of wireless spectrum.[6] It is thus a significant event whenever the FCC makes additional spectrum available to wireless service providers. No such event has generated more interest than the reallocation of 700 MHz spectrum from television broadcasting to mobile wireless services.[7] This 700 MHz reallocation culminated in a January 2008 spectrum auction – what one FCC Commissioner called the "auction of the century."[8] The FCC auctioned off 1099 licenses covering 62 MHz of what is known as "low band" spectrum – frequencies that are particularly well suited for mobile wireless services.[9]

Because of the importance of the spectrum, interested parties lobbied intensively to get the FCC to structure the licenses and subsequent auctions in ways that would achieve their objectives.[10] As is

5. *See generally* JONATHAN E. NEUCHTERLEIN & PHILIP J. WEISER, DIGITAL CROSSROADS 23 (2007) [hereinafter DIGITAL CROSSROADS]; Appropriate Framework for Broadband Access to the Internet Over Wireline Facilities, *Policy Statement*, 20 FCC Rcd. 14,986 (2005), http://hraunfoss.fcc.gov/edocs_public/attachmatch/FCC-05-151A1.pdf.

6. *See* Thomas W. Hazlett, *The Wireless Craze, the Unlimited Bandwidth Myth, the Spectrum Auction Faux Pas and the Punchline to Ronald Coase's "Big Joke": An Essay on Airwave Allocation Policy*, 14 HARV. J. L. & TECH. 335, 471 (2001) (quoting former FCC official Rudy Baca as forecasting "*chronic spectrum shortages*" that threaten "U.S. leadership in innovation and growth of broadband digital voice, data, and video wireless services." Press Release, Rudy L. Baca, Precursor Group Research, U.S. Disadvantaged by Spectrum Scarcity (July 25, 2000), http://www.precursorgroup.com (emphasis in original)); Comments of ArrayComm, Inc., to the *Request for Comments on Deployment of Broadband Networks & Advanced Telecomms. Servs.*, Dkt. No. 011109273-1263-01, RIN 0660-XX13 (Nov. 19, 2001) ("the most immediate barrier to wireless broadband deployment [is] the lack of available spectrum."), http://www.ntia.doc.gov/ntiahome/broadband/comments/arraycomm.html.

7. Another aspect of the proceeding dealt with a perplexing and critically important communications problem: The lack of a nationwide broadband network over which first responders (e.g., fire and police) can communicate. The FCC allocated spectrum for a public-private partnership whereby a private entity would build out a nationwide network for public safety use and, in return, have access to dedicated public safety spectrum at times when emergency communications were unnecessary. *See 700 MHz Order*, *supra* note 3, at 15,428. The complexity of this proposed partnership, combined with the credit crunch, deterred private entities from bidding for the spectrum. Because the reserve price was not met, the spectrum was not assigned, and the FCC will now have to decide how it will assign rights to the spectrum. Press Release, FCC, FCC Delinks 700 MHz Upper D Block from Other Blocks, Will Release Information on 700 MHz Auction Winning Bidders (Mar. 20, 2008), http://hraunfoss.fcc.gov/edocs_public/attachmatch/DOC-280948A1.pdf.

8. *700 MHz Order*, *supra* note 3, at 15,571 (statement of Comm'r Robert M. McDowell, approving in part, dissenting in part).

9. *Id.* at 15,316; *see also* Philip J. Weiser & Dale Hatfield, *Spectrum Policy Reform and the Next Frontier of Property Rights*, 15 GEO. MASON L. REV. 549, 577-78 (2007) (describing the propagation characteristics of the 700 MHz band that make it so desirable for wireless communications, namely that signals are able to travel long distances, penetrate walls, and navigate around buildings and other obstructions).

10. *See generally* Susan P. Crawford, *Radio and the Internet,* 23 BERKELEY TECH. L.J. 933 (2008).

usually the case in FCC rulemakings, all parties contended that their favored policies would advance public interest goals – in this case, competition, innovation, and the provision of affordable broadband service.[11] The FCC, for its part, adopted largely compromise positions in designing the licenses to be auctioned and the rules governing wireless operation in the band.[12]

The most controversial rule was a requirement that those winning the largest licenses must abide by "open platform conditions." These conditions grew out of one of the key communications policy quandaries of the digital era, known as the "net neutrality" debate. This debate poses the question of whether broadband network operators, who control cable, fiber, and wireless communications networks, should be required to act as common carriers in transmitting traffic over their networks. That is, should they be required to carry all traffic without discrimination or should they be left alone to control network traffic?[13]

A somewhat different, but related, question is whether consumers should have the "right to attach" devices of their choice to the networks or should operators be able to control what devices their networks will support?[14] Proponents of net neutrality argue that regulation is required to ensure unfettered consumer access to third party applications (such as web-based video services or search functionality) and devices.[15]

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11. *Compare* Comments of Public Interest Spectrum Coalition to *Google's Motion to Condition Grant*, Report No. AUC-73, File No. 0003382444, May 9, 2008, http://www.newamerica.net/files/PISC-Google-Motion-Comments.pdf (favoring the imposition of open platform conditions on licensees in the name of innovation and the public interest), *with* Comments of Verizon Wireless to the *700MHz Order*, DA 07-3415, AU Docket No. 07-157 (Aug. 31, 2007), http://fjallfoss.fcc.gov/prod/ecfs/retrieve.cgi?native_or_pdf=pdf&id_document=6519721231 (opposing the imposition of open platform conditions on licensees in the name of innovation and the public interest).

12. *See 700 MHz Order*, *supra* note 3, at 15,360.

13. For analyses of the net neutrality debate, see generally Philip J. Weiser, *The Next Frontier for Network Neutrality*, 60 ADMIN. L. REV. 273 (2008); Brett M. Frischmann & Barbara van Schewick, *Network Neutrality and the Economics of an Information Superhighway: A Reply to Professor Yoo*, 47 JURIMETRICS J. 383 (2007); Tim Wu, *Why Have a Telecommunications Law?*, 5 J. ON TELECOMM. & HIGH TECH. L. 15 (2006).

14. *See, e.g.,* Tim Wu, *Wireless Net Neutrality: Cellular Carterfone and Consumer Choice in Mobile Broadband* 5-9 (New Am. Found.: Wireless Future Program, Working Paper No. 17, 2007), http://www.newamerica.net/files/WorkingPaper17_WirelessNetNeutrality_Wu.pdf (advocating the extension to wireless networks of the *Carterfone* rules, which mandated that AT&T permit consumers to attach devices of their choosing to the wired telephone network); Skype Commc'ns. S.A.R.L., Petition to Confirm a Consumer's Right to Use Internet Commc'ns Software and Attach Devices to Wireless Networks, RM-11361 (Feb. 20, 2007), *available at* http://svartifoss2.fcc.gov/prod/ecfs/retrieve.cgni?native_or_pdf=pdf&id_document=6518909730 (proposing the same).

15. *See, e.g.*, *Net Neutrality*: *Hearing Before the S . Comm. on Commerce, Science and Transp.*, 109th Cong. 9-14 (2006) (statement of Vinton G. Cerf, Vice President and Chief Internet Evangelist, Google, Inc.) (

Opponents counter that network operators have no incentives to get in consumers' way unless doing so is necessary to manage network quality or to support investments in network upgrades.[16]

Although in some respects quite technical, the net neutrality debate has profound implications for digital communications. What net neutrality proponents fear is a world in which several powerful companies are able to pick and choose what kinds of services – and therefore what kinds of expression – are privileged on their networks. In such a world, those who create innovative Internet applications and services will have to strike deals with the network operators before being able to reach consumers in a meaningful way. By contrast, what network operators fear is a world in which the government "dumbs down" their networks, preventing them from offering different levels of service or managing their networks efficiently. At stake is who gets to exercise what forms of control over communications traffic in the digital era and what role the government has in framing and securing a healthy communicative sphere.

Prior to the 700 MHz proceeding, the FCC had refrained from imposing net neutrality requirements, although in 2005, it did adopt non-binding net neutrality principles.[17] In the 700 MHz proceeding, the FCC went farther. It was moved by evidence "that wireless service providers are blocking or degrading consumer-chosen hardware and applications without an appropriate justification" and therefore decided "to take a measured step to encourage additional innovation and consumer choice at this critical stage in the evolution of wireless

> The Internet's open, neutral architecture has proven to be an enormous engine for market innovation, economic growth, social discourse, and the free flow of ideas. The remarkable success of the Internet can be traced to a few simple network principles – end-to-end design, layered architecture, and open standards – which together give consumers choice and control over their online activities.

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16. *700 MHz Order*, *supra* note 3, at 15,358; *see also* Christopher S. Yoo, *Network Neutrality and the Economics of Congestion*, 94 GEO. L.J. 1847, 1852-53 (2006) (arguing that networks owners that manage their networks in a way that harms consumers will be at a competitive disadvantage); Letter from John T. Scott, III, Vice President & Deputy General Counsel, Verizon Wireless, to Marlene H. Dortch, Secretary, FCC (July 24, 2007), http://fjallfoss.fcc.gov/prod/ecfs/retrieve.cgi?native_or_pdf=pdf&id_document=6519560209; Reply Comments of Verizon Wireless, RM-11361, Apr. 30, 2007, at 5, http://fjallfoss.fcc.gov/prod/ecfs/retrieve.cgi?native_or_pdf=pdf&id_document=6519411455 (arguing that inter-brand competition prevents wireless providers "engage[ing] in any conduct that would result in the loss of customers.").

17. Michael K. Powell, Chairman, FCC, Preserving Internet Freedom: Guiding Principles for the Industry, Remarks at the University of Colorado Silicon Flatirons Symposium on The Digital Broadband Migration: Toward a Regulatory Regime for the Internet Age (Feb. 8, 2004), http://hraunfoss.fcc.gov/edocs_public/attachmatch/DOC-243556A1.pdf (stating that broadband users should have the unfettered ability to access content, use applications, attach personal devices, and obtain service plan information).

broadband services, by removing some of the barriers that developers and handset/device manufacturers face in bringing new products to market."[18] In order to "promote innovation" on the largest and most desirable block of spectrum (known as the C Block), the FCC imposed conditions "to provide open platforms for devices and applications."[19]

The open platform conditions the FCC adopted go some distance toward implementing net neutrality mandates. They require a licensee to permit consumers to use any wireless device (e.g., an iPhone) on the network so long as the device causes no harm.[20] Moreover, a licensee may not block consumer access to, or otherwise discriminate against, particular applications (e.g., WiFi) unless it is necessary to do so to manage the network.[21] These conditions were incorporated into the licenses that were auctioned, thus helping to define the set of rights that an entity buys when it is the winning bidder.

By adopting the open platform conditions, the FCC was taking a highly controversial step that was opposed by the incumbent wireless operators thought to be the most likely (and ultimately the actual) winners of the C Block licenses, Verizon Wireless and AT&T.[22] The conditions were supported by entities predicted to be the most serious challengers to the incumbents, especially Google.[23] Indeed, Google informed the FCC that it would commit to bid in the auction and meet the FCC's announced reserve price *only* if the FCC adopted open

18. *700 MHz Order*, *supra* note 3, at 15,363.

19. *Id.*

20. Simon Wilkie, Open Access for the 700 MHz Auction: Wholesale Access Licensing and Could Increase Auction Revenue, NEW AM. FOUND., July 23, 2007, http://www.newamerica.net/publications/policy/open_access_700_mhz_auction (a licensee may not impose "prohibitions against devices that may be connected to the network so long as the devices are compatible with, and do not harm, the network").

21. *700 MHz Order*, *supra* note 3, at 15,363 (a licensee "may not block, degrade, or interfere with the ability of end users to download and utilize applications of their choosing on the licensee's C Block network, subject to reasonable network management.").

22. *See, e.g.,* Letter from John T. Scott, III, Vice President & Deputy General Counsel of Regulatory Law, Verizon Wireless, to Marlene H. Dortch, Secretary, FCC, Skype Communication's Petition, RM-11361 (Aug. 28, 2007), http://fjallfoss.fcc.gov/prod/ecfs/retrieve.cgi?native_or_pdf=pdf&id_document=6519708296 (arguing that open platform conditions are unnecessary in a competitive environment, would unduly burden wireless operators, and would depress auction values).

23. *See* Letter from Richard Whitt, Washington Telecom and Media Counsel, Google, Inc., to Marlene H. Dortch, Secretary, FCC, WT Dkt. No. 06-150 (July 9, 2007), *available at* http://fjallfoss.fcc.gov/prod/ecfs/retrieve.cgi?native_or_pdf=pdf&id_document=6519548049. Similar conditions were first proposed by Frontline Wireless, the principal proponent to build the joint public-safety/commercial network. Comments of Frontline Wireless, LLC, PS Dkt. No. 06-229 30 (Feb. 26, 2007), http://fjallfoss.fcc.gov/prod/ecfs/retrieve.cgi?native_or_pdf=pdf&id_document=6518908196 (proposing that operators using a portion of the spectrum be required to support "open devices . . . open services and content, [and] . . . open offerings [wholesale or roaming]").

platform conditions.[24]

The FCC approved the open platform conditions by a vote of 4-1 with obvious trepidation.[25] There were good policy arguments, proffered not only by potential licensees, but also by public interest groups, that the open platform conditions would spur innovation and competition.[26] Google's support of the conditions made them more appealing by promising to enlarge the group of prospective bidders for the spectrum, thereby increasing bidding activity, and raising auction yield.[27] On the other hand, the incumbents submitted credible evidence that the conditions would mire the FCC in continual oversight of a competitive industry and would deter investment in wireless broadband.[28] Furthermore, they argued that open platform conditions would depress auction revenue.[29]

The FCC acknowledged the complexity of the public interest calculation and the statutory requirement that it balance potentially conflicting objectives, including innovation and the recovery of value from the spectrum to be auctioned.[30] The open platform requirements, it

24. Letter from Eric Schmidt, Google, Inc., to Kevin Martin, Chairman, FCC, WC Dkt. No. 06-150 (July 20, 2007), http://www.google.com/intl/en/press/pressrel/20070720_wireless.html. In fact, Google had proposed two conditions in addition to the no-locking, no-blocking conditions that the FCC actually adopted, and Google insisted that all four be adopted. *Id.* ("[S]hould the Commission expressly adopt the four license conditions requested in our July 9th letter – with specific, enforceable, and enduring rules – Google intends to commit a minimum of $4.6 billion to bidding in the upcoming auction.").

25. *700 MHz Order*, *supra* note 3, at 15,386 (discussing and rejecting Google's broad open platform proposal).

26. *Id.* at 15,358-61.

27. Cone of Silence (Finally) Lifts on the Spectrum Auction, GOOGLE PUBLIC POLICY BLOG, Apr. 3, 2008, http://googlepublicpolicy.blogspot.com/2008/04/cone-of-silence-finally-lifts-on.html.

28. *See, e.g.*, CTIA, 700MHz Spectrum Auction, http://www.ctia.org/advocacy/policy_topics/topic.cfm/TID/2; 700Mhz Statement, VERIZON POLICY BLOG, July 26, 2007, http://policyblog.verizon.com/PolicyBlog/Blogs/policyblog/DavidFish9/337/700MHz-statement.aspx.

29. Google itself asserted that the open platform conditions would reduce auction revenue. *See* Letter from Richard Whitt, *supra* note 23 (asserting that open platform conditions would drive down the price for the spectrum being auctioned).

30. *700 MHz Order*, *supra* note 3, at 15,368*; see also* U.S. Airwaves, Inc. v. FCC, 232 F.3d 227, 234 (D.C. Cir. 2000) (quoting Fresno Mobile Radio, Inc. v. FCC, 165 F.3d 965, 971 (D.C. Cir. 1999)) (recognizing competing statutory goals contained in the FCC's auction authority, 47 U.S.C. § 309(j)(3) (2006), and that a "regulatory decision in which the Commission must balance competing goals is . . . valid if the agency can show that its resolution 'reasonably advances at least one of those objectives and [that] its decisionmaking process was regular.'"); Melcher v. FCC, 134 F.3d 1143, 1154 (D.C. Cir. 1998) (recognizing that even within one of the 47 U.S.C. § 309(j)(3) objectives – subsection (B) – Congress set forth "a number of potentially conflicting objectives" and that the Commission can choose which to privilege) (citing MobileTel, Inc. v. FCC, 107 F.3d 888, 895 (D.C. Cir. 1997)).

predicted, "may result in a net gain of efficiency, given the potential that it holds for encouraging the development of new and innovative devices and applications in connection with such spectrum use."[31] On balance, it concluded that this potential gain outweighed "whatever possible negative effect [the open platform conditions] have with respect to the other [statutory] objectives" and that the benefits of such conditions justify any "potential for reducing the monetary value and decreasing efficient use of spectrum in some respects…."[32]

Despite this confident conclusion, the FCC was concerned that the incumbent wireless providers would be proved right and the open platform conditions would result in an auction that underperformed, leaving the FCC open to charges that it had mismanaged the sale of a great public asset. It therefore decided to hedge its bets by doing something it had never done in the past. It announced that if bidders for the C Block licenses failed to meet the FCC-adopted reserve price of $4.6 billion, the agency would remove the open platform conditions and re-auction the licenses.[33] In addition, the FCC vowed to change the geographic area and channel size of the licenses in any re-auction to make the licenses cheaper and thus more attractive to a larger set of potential bidders.[34]

It is difficult to know exactly what the agency's reasoning was in adopting this novel procedure because, disturbingly, there was no notice and comment on it.[35] In its order, the FCC merely stated that the re-auction procedure would "address the possibilities that license conditions adopted today significantly reduce values bidders ascribe to those licenses and/or have unanticipated negative consequences."[36] The Order said very little about how the FCC conceived of the relationship between the competitive bidding process and the valuation of license conditions. One can only conclude that the FCC wanted open platform conditions so long as they did not cost too much. In other words, the agency was acknowledging that the innovation and competition to be gained through open platform conditions might exact a price in auction revenues that was too great to bear.

Before addressing the FCC's use of the auction mechanism in 700

31. *700 MHz Order*, *supra* note 3, at 15,368 (discussing the requirements of 47 U.S.C. § 309(j)(3)(D) that the FCC foster the most efficient and intensive use of the spectrum).

32. *Id.* at 15,368.

33. *Id.* at 15,399. For the FCC's statutory authority to adopt reserve prices for spectrum licenses, see 47 U.S.C. § 309(j)(4)(F); 47 C.F.R. § 1.2104(c) (2006).

34. *700 MHz Order*, *supra* note 3, at 15,402-03.

35. The Notice of Proposed Rulemaking did not propose the re-auction procedure. At some point during the administrative deliberations, the FCC did let parties know about its intent to adopt the procedure and there were *ex parte* comments on the matter. *See, e.g.*, *700 MHz Order*, *supra* note 3; Letter from Richard Whitt, *supra* note 23 .

36. *700 MHz Order*, *supra* note 3, at 15,402.

MHz policymaking, there is a more basic question to consider: The proper relationship between auction revenue and the public interest.

II. AUCTIONS AND THE PUBLIC INTEREST

After the 700 MHz auctions concluded in March 2008, Congress held oversight hearings to investigate their outcome.[37] Members criticized the FCC for having sold the C Block spectrum at a bargain price – a discount they attributed to the open platform conditions.[38] In addition to the C Block, the FCC had also auctioned smaller licenses of reduced frequency size and geographic scope in other blocks of the 700 MHz spectrum. Because of the difference in license size and composition, it is hard to make an apples-to-apples comparison of the prices paid. But according to the conventional measurements of spectrum value, the C Block spectrum sold for about one-third of the unit price of the spectrum that was not burdened by open platform conditions.[39]

Should policymakers care about the prices that spectrum fetches? The Communications Act forbids the FCC from regulating spectrum licenses, and designing auctions, for the purpose of maximizing auction revenue, rather than pursuing non-fiscal public interest goals.[40] At the same time, the law mandates that the FCC pursue as one public interest objective "recovery for the public of a portion of the value of the public spectrum resource made available for commercial use…."[41] As many commentators have recognized, the single-minded pursuit of revenue

37. For general information regarding the hearings, see Committee on Energy and Commerce, Oversight of the Federal Communications Commission – The 700 MHz Auction, http://energycommerce.house.gov/index.php?option=com_content&task=view&id=237&Itemid=106; *see also Oversight of the Federal Communications Commission – The 7 [sic] MHz Auction: Hearing Before the H. Subcomm. on Telecomm. & the Internet*, 110th Cong. Rec. D437 (daily ed. Apr. 15, 2008) (statement before Committee on Energy and Commerce) (Witness prepared testimony is available at http://energycommerce.house.gov/index.php?option=com_content&task=view&id=237&Itemid=106) [hereinafter *Auction Hearings*].

38. *Auction Hearings, supra* note 37 (statement of Rep. Stearns, Ranking Member, House Comm. on Energy and Commerce) (citing "other studies" valuing the C Block "anywhere up to $30 billion" and Commissioner McDowell stated that the auction "could have done better.").

39. *Auction Hearings, supra* note 37 (statement of Harold Feld, Senior Vice President, Media Access Group, on behalf of the Public Interest Spectrum Coalition) (citing AT&T claims that it paid roughly $2.68 MHz/Pop for B Block licenses rather than the roughly $0.76 MHz/Pop that Verizon Wireless paid for C Block licenses to avoid the open platform conditions – a reduction of nearly $1.90 MHz/Pop).

40. 47 U.S.C. § 309(j)(7)(A) ("[T]he Commission may not base a finding of public interest, convenience, and necessity on the expectation of Federal revenues from the use of a system of competitive bidding . . . .").

41. *Id.* § 309(j)(3)(c).

maximization would result in poor communications policy.[42] What has been less commented upon is how the FCC should balance among competing public interest values in the use of spectrum, including value recovery.

This Section argues that the process of defining spectrum rights is never neutral, nor is the process of auctioning them. Auction and license design share responsibility with the "market" for picking "winners" and "losers" in the contest for spectrum rights.[43] Given this, auctioning licenses with an eye towards revenue capture as one of many goals is not a distortion of neutral licensing practices, but of a piece with policymaking. In addition, consideration of revenue generation as one among competing policy values is appropriate because auction results can supply useful information about the costs of regulatory burdens. This information can then be fed into the public interest balance, making it more efficient and transparent.

A. Auctions as a Market Allocation Tool

For nearly fifteen years, auctions have been the principal mechanism used to assign exclusive rights to use the spectrum for wireless communications.[44] There is almost universal agreement that auctions are superior to other FCC methods of license assignment.[45] Before Congress granted the FCC auction authority, the agency had assigned licenses by lottery and by comparative hearing.[46] Throughout the second half of the twentieth century, economists urged the FCC to abandon these methods in favor of auctions.[47] The argument was that competitive bidding would

42. *See, e.g.,* Thomas W. Hazlett, *Liberalizing US spectrum allocation*, 27 TELECOMMS. POL'Y 485, 492 (2003) ("a pre-occupation with government revenue extraction leads to anti-consumer policies."); Glen O. Robinson, *Spectrum Property Law 101*, 41 J. L. & ECON. 609, 621 (1998) (using auctions "as a means of filling a depleted treasury . . . has the effect of making communications policy a simple tool of fiscal policy, probably to the detriment of both.").

43. *See, e.g.*, *Auction Hearings, supra* note 37 (statement of Harold Feld) (criticizing the FCC for its refusal to "pick winners" in designing the 700 MHz auction and, as a result, allowing the best-capitalized incumbents to win).

44. *See* FCC, About Auctions (Aug. 8, 2006), http://wireless.fcc.gov/auctions/default.htm?job=about_auctions.

45. *See, e.g.*, Peter Cramton, *The Efficiency of the FCC Spectrum Auctions,* 41 J.L. & ECON. 727, 728 (1998).

46. *See* STUART MINOR BENJAMIN ET AL., TELECOMMUNICATIONS LAW AND POLICY 144-46 (2001) [hereinafter TELECOMMUNICATIONS LAW AND POLICY].

47. *See, e.g.,* Ronald H. Coase, *The Federal Communications Commission*, 2 J. L. & ECON. 1, 30 (1959) (urging the FCC "to dispose of the use of a frequency to the highest bidder, thus leaving the subdivision of the use of the frequency to subsequent market transactions."); David Porter & Vernon Smith, *FCC License Auction Design: A 12-Year Experiment*, 3 J.L. ECON. & POL'Y 63 (2006) ("Economists have long argued that auctions would promote efficiency in various ways, including the reduction of rent seeking and the avoidance of transaction costs used to reassign licenses in secondary markets."); *see also* Thomas W. Hazlett, *Assigning*

deliver initial entitlements to use the spectrum to those who valued them most.[48] Even in the absence of auctions, transactions in secondary markets for wireless assets could transfer licenses to their highest valued use, but these transactions entailed significant costs and sacrificed desirable efficiencies.[49]

In 1993, seeking to ensure that the FCC allocated spectrum efficiently for its most productive uses,[50] Congress gave the agency the authority to auction spectrum licenses in cases of mutually exclusive license applications.[51] Four years later, Congress made auctions obligatory for most commercial services.[52]

What is auctioned is a license to transmit an electrical signal over a particular frequency band at a particular power in a certain geographic area. Auctions determine who gets the initial entitlements to use spectrum, which may be sold thereafter subject to continued regulatory oversight. Licenses are for a limited period of time, typically 10-15 years, but are usually subject to renewal and function effectively as permanent entitlements.[53] As the law stands today, the FCC *must* auction spectrum when there are mutually exclusive applications for any initial license to provide a commercial service, unless the spectrum use is one of several

Property Rights to Radio Spectrum Users: Why Did FCC License Auctions Take 67 Years?, 41 J. L. & ECON. 529 (1998); Gregory L. Rosston & Jeffrey S. Steinberg, *Using Market-Based Spectrum Policy to Promote the Public Interest*, 50 FED. COMM. L. J. 87 (1997).

48. *See* Clayton P. Gillette & Thomas D. Hopkins, *Federal User Fees: A Legal and Economic Analysis*, 67 B.U. L. REV. 795, 805 (1987) (An alternative to auctions would have been spectrum user fees that "can successfully ration limited supplies of currently available goods and services to more highly valued uses, signal whether particular output levels should increase or decrease, avert wasteful usage, and encourage use of more suitable substitutes" as "an alternative to first-come, first-served, to lotteries, and to administrative judgment."); *see generally* EVAN KWEREL & ALEX FELKER, FCC OFF. FOR PLANS & POL'Y, USING AUCTIONS TO SELECT FCC LICENSEES (1985), http://www.fcc.gov/Bureaus/OPP/working_papers/oppwp16.pdf..

49. *See* Coase, *supra* note 47.

50. H.R. REP. NO. 103-111, at 253 (1993), *reprinted in* 1993 U.S.C.C.A.N. 378, 580 ("a carefully designed system to obtain competitive bids from competing qualified applicants can speed delivery of services, [and] promote efficient and intensive use of the electromagnetic spectrum").

51. Omnibus Budget Reconciliation Act of 1993, Pub. L. No. 103-66, § 6002, 107 Stat. 312, 388 (1993) ("If mutually exclusive applications are accepted for filing for any initial license or construction permit which will involve a use of the electromagnetic spectrum. . . then the Commission shall have the authority . . . 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.").

52. Balanced Budget Act of 1997, Pub. L. No. 105-33, § 3002, 111 Stat. 251, 258 (1997) (codified at 47 U.S.C. § 309(j)) ("If . . . mutually exclusive applications are accepted for any initial license or construction permit, then, except as provided [herein], the Commission shall grant the license or permit to a qualified applicant through a system of competitive bidding that meets the requirements of this subsection.").

53. *See* Eli Noam, *Spectrum Auctions: Yesterday's Heresy, Today's Orthodoxy, Tomorrow's Anachronism. Taking the Next Step to Open Spectrum Access*, 41 J.L. & ECON. 765 (1998).

enumerated exceptions.[54]

B. Auction Revenue as Compensation

As important as efficiency was in the adoption of spectrum auctions, another motivation was equally powerful: the desire to capture revenue from commercial use of the spectrum. One of the problems with the private markets for spectrum licenses that were initially assigned by lottery or by hearing was that the revenue went to private parties, not the government.[55] By holding auctions for initial licenses, the government could capture this "windfall" for the public at the same time that it facilitated an efficient allocation of the spectrum resource. It was no accident that Congress gave the FCC auction authority during the budget crisis of the early 1990s when the desire to monetize public assets was particularly keen.[56] The legislative history of the auction legislation makes clear that the efficiency gains associated with spectrum auctions were of no more importance than the distributional effects, namely that the Treasury was compensated for licensee use of the spectrum.[57]

The law does not say exactly how much the pursuit of auction revenue should influence federal spectrum policy. In deciding when to use auctions, who is eligible to bid in them, and what the characteristics of the auctioned licenses should be, the FCC is instructed to pursue public interest objectives.[58] It is forbidden from merely equating the public interest with auction revenue.[59] And yet, one of the public interest objectives it must pursue is "recovery for the public of a portion of the value of the public spectrum resource made available for commercial

54. The FCC is not permitted to auction licenses for public safety radio services, for noncommercial educational or public broadcast stations, or for digital television service provided by incumbent television broadcast licensees. 47 U.S.C. § 309(j)(1)-(2). The FCC is also prohibited from auctioning licenses for satellite orbital slots or to provide international or global satellite communications services. *Id.* § 765f.

55. *See* Harold J. Krent & Nicholas S. Zeppos, *Monitoring Governmental Disposition of Assets: Fashioning Regulatory Substitutes for Market Controls*, 52 VAND. L. REV. 1703, 1735-36 (1999) ("lotteries drew fire for precipitating a secondary auction" in which licensees could sell their spectrum usage rights "in the open market, reaping windfalls at the expense of the public at large.").

56. *See* Noam, *supra* note 53. Although communications legislation ordinarily comes out of the Congressional Commerce Committees, the auction legislation was the product of the Budget Committees whose main interests lie in the management of money, not communications.

57. H.R. REP. NO. 103-111, at 253 (1993), *reprinted in* 1993 U.S.C.C.A.N. 378, 580 (spectrum auctions would "prevent unjust enrichment, and produce revenues to compensate the public for the use of the public airwaves").

58. 47 U.S.C. § 309(j)(3).

59. *Id.* § 309(j)(7)(A) (FCC "may not base a finding of public interest, convenience, and necessity on the expectation of Federal revenues").

use".[60] In other words, the FCC should seek to collect a fair return on use of the public airwaves.[61] It is fair to say that, when it comes to auctions, the FCC must operate between two extremes, neither ignoring auction revenue in the design of spectrum policy nor focusing exclusively on revenue generation.

The FCC has had little success in assessing the relative importance of monetary recovery as a public interest goal. In one of the rare cases in which it has addressed the question, it suggested that monetary recovery should take a back seat to other goals: The "most basic spectrum-management power is to assign spectrum to achieve public interest benefits *other than* monetary recovery."[62] Two sentences later, however, the FCC suggested that monetary recovery is one among equally important public interest "factors the Commission must consider in establishing bidding qualifications and license conditions."[63]

However important the FCC believes monetary recovery to be, the fact is that the agency is motivated by money. Whenever Congress orders the FCC to assign licenses in a particular block of spectrum, it also commissions a spectrum valuation from the Congressional Budget Office (CBO). For example, the CBO estimated the value of the auctionable 700 MHz spectrum to be $12.5 billion.[64] Although the FCC is not required to achieve the "score" that Congress has given a particular spectrum asset, this number becomes a target that the FCC tries to hit when it conducts its auction.[65] It is the rare FCC Chairman who can resist reveling in the delivery of a large check to the Treasury, or who wants to bear the obloquy of delivering a small one. As an independent agency, the FCC is sensitive to Congressional criticism and the legislature's members have roundly criticized the agency when spectrum

60. *Id.* § 309(j)(3)(C).

61. To this end, Congress eliminated the "pioneer's preference" program which had allowed the FCC to bypass the auction process by awarding a license to an especially innovative technological pioneer. *See, e.g., id.* § 309(j)(13)(F); Qualcomm, Inc. v. FCC, 181 F.3d 1370, 1380-81 (D.C. Cir. 1999) (when Congress withdrew the FCC's authority to grant pioneer's preferences, "its focus was on increasing federal revenues" by requiring the FCC to recover for the public a portion of the value of the spectrum); *FCC Pioneer Preference Policy: Hearing Before the H. Comm. on Energy and Commerce*, 103d Cong. 24 (1994) (statement of Rep. Edward Markey, Chairman, House Subcomm. on Telecomm. and Finance).

62. Improving Public Safety Communications in the 800 MHz Band, *Report & Order*, 19 FCC Rcd. 14,969, 15,019 (2004) (emphasis in original).

63. *Id.*

64. Letter from Douglas Holtz-Eakin, Director, Cong. Budget Off., to Thad Cochran, Chairman, Sen. Comm. on Appropriations (Dec. 20, 2005), at 3, http://www.cbo.gov/ftpdocs/69xx/doc6990/hr2863.pdf (providing the cost estimate for H.R. 2863, Department of Defense Appropriations Act, 2006).

65. *See, e.g., Auction Hearings, supra* note 37 (statement of Deborah Taylor Tate, Comm'r, FCC) ("Given that the Congressional Budget Office estimated auction receipts of $10 billion to perhaps as much as $15 billion, the [700 MHz] auction was clearly a financial success").

auctions have failed to produce as much revenue as expected or desired.[66] Charges of spectrum "giveaways" abound whenever the FCC distributes spectrum usage rights at zero or reduced price.[67] To some extent, these complaints are rooted in efficiency concerns about non-market allocations of resources. But they also reflect a more basic insistence on the equitable distribution of public resources and on public compensation for their benefits.[68]

In addition to its distributional value, auction revenue is an appropriate consideration in shaping spectrum policy because of what it can signal.

C. Auction Revenue as a Signal

In spectrum auctions, the FCC does not act solely as auctioneer. Its more important function is to define the property rights that are auctioned off. The "metes and bounds" of the spectrum right are identified by the frequency range that the license covers, the geographic scope of the license and the conditions under which the licensee can operate.[69] Under the Communications Act, the FCC must define these license terms in accordance with the "public interest."[70] It is well known

66. *See, e.g.,* Ellen P. Goodman, *Spectrum Rights in the Telecosm to Come*, 41 SAN DIEGO L. REV. 269, 300 (2004) (describing the perceived under-performance of an early auction and the Congressional response). When the FCC auctioned several television channels in 2002, Representative John Dingell, currently Chair of the House Commerce Committee, jeered that a "jackass out of a barn lot could have done a better job of selling this public property" and chastised the FCC for "a gross mismanagement of the spectrum." J.H. Snider, *The Art of Spectrum Lobbying: America's $480 Billion Spectrum Giveaway, How it Happened, and How to Prevent It From Recurring* 12 (New Am. Found.: Wireless Future Program, Working Paper No. 19, 2007), http://www.newamerica.net/files/art_of_spectrum_lobbying.pdf (citing Molly M. Peterson's account of the proceedings, in *House Panel Votes to Kill Deadline for Airwaves Auction*, TECHNOLOGY DAILY, May 2, 2002).

67. Snider, *supra* note 66, at 26-27.

68. *See generally* Ellen P. Goodman, *Spectrum Equity*, 4 J. Telecomm. & High Tech L. 217, 227-31 (2005) (describing the role of fairness in spectrum allocation and access).

69. As Phil Weiser and Dale Hatfield have pointed out, the spectrum right is not nearly as clearly defined as a real property right. Weiser & Hatfield, *supra* note 9, at 587.

70. Congress commanded federal communications regulators from the earliest days of radio regulation to administer "[r]adio [c]ommunication" as "a public utility… in the public interest." THOMAS G. KRATTENMAKER & LUCAS A. POWE, JR., REGULATING BROADCAST PROGRAMMING 9 (1994) (quoting *To Amend the Radio Act of 1912: Hearings on H.R. 11,964 Before the House Comm. on the Merchant Marine and Fisheries*, 67th Cong., 4th Sess. 32 (1926) (statement of Hon. Herbert Hoover, Secretary of Commerce)); *see also* 47 U.S.C. § 302a (2000) (requiring that the FCC rulemaking power over broadcasting must be exercised in "the public interest, convenience, and necessity"); *id.* § 303 (2000) (requiring that the FCC power to classify, license, and regulate radio must be "as public convenience, interest, or necessity requires"); *id.* § 303(g) (requiring that the FCC study new uses for radio that are "in the public interest"); *id.* § 307(a) (2000) (requiring that the FCC grant radio broadcast licenses "if public convenience, interest, or necessity will be served"); *id.* § 307(e)(1) (2000) (providing that the FCC may authorize certain types of radio broadcasting without a license if it "serves the public interest, convenience, and necessity").

and has been repeatedly shown that the "public interest" standard is highly malleable and has yielded few satisfying rules of decision in communications policy.[71] Because the public is interested in competing social and economic goals, including efficiency, competition, innovation, universal service, public safety, diverse programming, *and* auction revenue, the process of constructing a license involves policy tradeoffs from beginning to end.

Once the government articulates a public interest goal in connection with licensed spectrum, it can "pay for" that goal in one of three ways (1) impose requirements on licenses to be auctioned, presumably at a discounted price that reflects the costs of the requirements; (2) impose requirements on licenses in lieu of auction payments, thereby effectively discounting the licenses 100%;[72] or (3) auction licenses without public interest requirements and reinvest the proceeds to achieve the same goals. Suppose, for example, that the government was considering auctioning off broadcast licenses conditioned on the provision of at least one hour per day of local political programming. The FCC could mandate the programming as a license condition in lieu of an auction. It could impose the mandate and auction the licenses at a discount, or it could auction the licenses and pay out of pocket (or through tax subsidies) for the desired programming.

It is difficult for a government agency to assess the relative merits of these options without attaching a price to the public interest requirements imposed – the price of compliance for the regulated entities plus the indirect costs that the regulations might impose on third parties or on the economy as a whole. As a general matter, federal administrative agencies use cost-benefit analysis in decisionmaking because it guides, and makes more transparent, the selection of regulatory options.[73]

71. *See* Erwin G. Krasnow & Jack N. Goodman, *The "Public Interest" Standard: The Search for the Holy Grail*, 50 FED. COMM. L.J. 605, 606–08 (1998) (criticizing the public interest standard as too vague and fluid); Randolph J. May, *The Public Interest Standard: Is It Too Indeterminate to Be Constitutional?*, 53 FED. COMM. L.J. 427, 428–29 (2001) (arguing that the public interest standard violates the nondelegation doctrine); *see also* Hazlett, *supra* note 6, at 401-05 (criticizing the public interest standard in the spectrum allocation context).

72. One way to look at public interest broadcast regulation is as a quid pro quo for foregone auction revenue. An early proponent of auctions criticized this regulation in lieu of auctions as a "tax" on the public for a government "purchase" of public interest benefits. Thomas W. Hazlett, *The Rationality of U.S. Regulation of the Broadcast Spectrum*, 33 J.L. & ECON. 133, 170 (1990).

73. *See* Jennifer Nou, *Regulating the Rulemakers: A Proposal for Deliberative Cost-Benefit Analysis*, 26 YALE L. & POL'Y REV. 601, 613-15 (2008) (describing the strong commitment to cost-benefit analysis in all three branches of the federal government). President George W. Bush has gone so far as to issue an Executive Order requiring federal agencies to measure total annual costs and benefits for every proposed regulation. Exec. Order No. 13,422, 72 Fed. Reg. 2,763 (Jan. 18, 2007). For a comprehensive overview of cost-benefit analysis in policymaking, see generally CASS SUNSTEIN, THE COST-BENEFIT STATE: THE FUTURE OF

Indeed, it is for this reason that the FCC is required by law to consider the costs of its regulations where "small [business] entities" are affected.[74]

Because it lacks the wherewithal and resources to conduct its own research and because so many of the judgments that it makes are predictive, the FCC must rely on prospective licensees' assessments of the costs of public interest requirements. Often, regulated entities will forecast their own economic ruin in the event that proposed public interest requirements are adopted.[75] At other times, as in the 700 MHz proceeding, the predictions of doom will be more muted and vague, such as Verizon Wireless' prediction that open access requirements would exact a toll on wireless innovation and service.[76] These cost predictions may reflect honest assessments or they may be rent-seeking attempts to reduce encumbrances on spectrum entitlements.

The auction process can be helpful in flushing out parties' actual valuations of the costs (to them) of public interest requirements. The simultaneous auctions described in Part IV below would simulate a market for spectrum with assorted regulatory requirements. Provided that the FCC has developed a record on the appropriate price to be paid for a public interest goal, these valuations would provide useful input into the particular proceeding in which they are revealed. But even in the absence of such a record leading up to the auction, the data would improve future spectrum policy decisions by telling us, for example, whether and to what extent open platform conditions are likely to shackle wireless operations. This information about the actual cost to the bidders of policy choices would improve subsequent asset sales and public

REGULATORY PROTECTION (2002) [hereinafter THE COST-BENEFIT STATE].

74. The Regulatory Flexibility Act requires federal agencies to assess the economic impact of rules on "small entities." 5 U.S.C. § 603(b)(4) (2006). The analysis should consider alternatives "which accomplish the stated objectives of applicable statutes and which minimize any significant economic impact of the proposed rule on small entities." *Id.* § 603(c). No cost-benefit analysis is required so long as agencies investigate least cost alternatives in regulation. "[A]n agency may provide either a quantifiable or numerical description of the effects of a proposed rule or alternatives to the proposed rule, or more general descriptive statements if quantification is not practicable or reliable." *Id.* § 607. *See also* Alenco Commc'ns., Inc. v. FCC, 201 F.3d 608, 625 (5th Cir. 2000) (noting that the Regulatory Flexibility Act, 5 U.S.C. § 604(a)(5), "specifically requires 'a statement of the factual, policy, and legal reasons for selecting the alternative adopted in the final rule'" but does not require "cost–benefit analysis or economic modeling.").

75. *See, e.g.*, Seth Grossman, *Creating Competitive and Informative Campaigns: A Comprehensive Approach to "Free Air Time" for Political Candidates*, 22 YALE L. & POL'Y REV. 351, 376 n.110 (2004) (citing broadcaster testimony in response to 2001 legislative proposal that would require free advertising time for federal candidates that requirement would "'severely injur[e] a television station's ability to raise revenue'" and a National Association of Broadcasters' claim that free time would "'pose substantial financial burdens to the industry, and could even result in lay-offs of employees'").

76. Reply Comments of Verizon Wireless, WT Dkt. No. 06-150, June 4, 2007, http://gullfoss2.fcc.gov/prod/ecfs/retrieve.cgi?native_or_pdf=pdf&id_document=6519516267.

interest debates.

D. Auction Revenue as Substance

Beyond its value as a source of public compensation and policy information, the most obvious public interest benefit of auction revenue is that it can buy communication services of interest to the public. Under current law, spectrum auction revenue is deposited in the federal Treasury and cannot be allocated to communications projects in the absence of special legislative authority.[77] For example, Congress has authorized the use of auction revenues to fund the provision of digital converter boxes to facilitate the transition from analog to digital broadcast television, and the purchase of public safety communications equipment by police and fire departments.[78]

Many more public interest objectives might be purchased with auction revenues. One purpose of the 700 MHz proceeding was to auction spectrum to a private entity that would subsidize the construction of a nationwide public safety network for interoperable emergency service communication.[79] Unfortunately, the spectrum block that was to be auctioned for this purpose – the D Block – failed to attract a bid over the reserve price and the licenses were not assigned. Prior to the 700 MHz auction, there had been calls for the federal government to use spectrum auction revenue to provide for a public safety network, rather than relying on license design.[80]

Of course, Congress could simply appropriate funds for a public safety network, or for any other communications policy objective, rather than relying on earmarks from auction revenue. Indeed, in the aftermath of the failed D Block auction, the then-Chairman of the FCC himself urged Congress to allocate funds for the network.[81] It turns out, however, that such appropriations have been difficult to come by.[82] Even for the

77. *See*, *e.g.*, 47 U.S.C. § 309(j)(8)(A) (directing 700 MHz auction revenue to be deposited in the federal Treasury).

78. Digital Television Transition and Public Safety Act of 2005, Title III of the Deficit Reduction Act of 2005, Pub. L. No. 109-171, 120 Stat. 4 (2006) (codified at 47 U.S.C. §§ 309, 337); *see also* LENNARD G. KRUGER & LINDA K. MOORE, CONG. RESEARCH SERV., THE DTV TRANSITION 6 (2005), http://digital.library.unt.edu/govdocs/crs/permalink/meta-crs-7682:1.

79. *700 MHz Order*, *supra* note 3, at 15,386.

80. *See* Jon. M. Peha, *The Digital TV Transition: A Chance to Enhance Public Safety and Improve Spectrum Auctions*, IEEE COMMS. MAGAZINE, June 2006, at 22, 23-4, http://www.ece.cmu.edu/~peha/DTV.pdf (proposing that 700 MHz auction revenue be used to fund a national public safety network).

81. *Auction Hearings, supra* note 37 (statement of Kevin J. Martin, Chairman, FCC).

82. Congress recently appropriated approximately $4.7 billion for broadband communications development in the American Recovery and Reinvestment Act of 2009, Pub. L. No. 111-16, §§ 6001(b)(4), 6001(k)(2)(D) (2009). Public safety networks are eligible to receive grants under the programs created by this law, but there is no mandate that they be

provision of a public safety network – a relatively appealing and uncontroversial goal – the political will has been lacking. This is so notwithstanding the well-publicized public safety communications disasters of September 11 at the World Trade Center and the Katrina hurricane in New Orleans.[83] Auction revenue earmarks provide a more politically palatable way to funnel federal funds to communications projects. Public interest goals that reduce auction revenues, while perhaps ultimately worthwhile, should be assessed with the opportunity costs in mind.

E. Skewing the Auction Results

It can be argued that if regulators take expected revenue into account in structuring a spectrum auction, they will skew the auction towards certain outcomes and away from the auction's natural, market-determined course. This would indeed be problematic if revenue maximization became the be-all-and-end-all of communications policy, but it is much less worrisome if revenue is only one factor in what is necessarily a value-laden process of spectrum allocation. Indeed, revenue consideration in auctions is consistent with, not a deviation from, the public interest balancing that takes place throughout the process of spectrum allocation.

Spectrum policy involves the government in two functions – public interest regulation and the disposition of a public asset. As has been recognized in other contexts, "government property dispositions" are a form of "regulatory policymaking."[84] This is nowhere truer than in the spectrum context. The very existence of an exclusive right to use the spectrum – the existence of an asset that can be auctioned – is a government creation that embodies public interest judgments about industry structure and the public good. Moreover, the value of the spectrum entitlements when they are auctioned, unlike the value of physical assets like timber on federal lands, is entirely dependent on government choices about how the entitlement should be defined.[85]

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principal recipients or receive any funding. *Id.*

83. Philip J. Weiser, *Communicating During Emergencies: Toward Interoperability and Effective Information Management*, 59 FED. COMM. L.J. 547, 547-48 (2007).

84. Krent & Zeppos, *supra* note 55, at 1747.

85. Property rights are always structured by government policies that create and enforce legal entitlements. Because of the nature of spectrum rights, however, government's role is especially intensive. The government does not define the properties of land it might auction, or other physical assets like timber and oil. The assets themselves have characteristics that pre-exist the regulatory structure. Zoning rules, or limitations on the extraction of natural resources, are imposed on extant assets. While regulatory interventions affect the value of the physical assets, the regulations are layered atop assets that have an independent existence and value.

The first step in any spectrum policy decision is the allocation of spectrum for a particular purpose.[86] Spectrum is divided into blocks, which are then further divided into channels of varying bandwidths. Spectrum allocation is the process of defining the bands that may be used for particular services. These allocations are often referred to as spectrum zoning.[87] Because many kinds of spectrum uses are incompatible with each other, the FCC must privilege some uses over others for each spectrum band: satellite in one, broadcasting in another, mobile wireless in a third, "mixed use" in a fourth.[88] Since the commercially usable spectrum in the United States has already been allocated for some purpose, this process is really a process of *re*-allocation, typically leading to contests among rival claimants for the spectrum.[89]

The FCC seeks to resolve these contests in the public interest. How the FCC frames competing public interest objectives will determine eligibility for spectrum entitlements. If the FCC concludes, for example, that the public interest in competition is paramount, it will allocate spectrum for services that it thinks will provide a competitive balance to incumbents.[90] If the agency is taken with the public interest in diverse speech, it might allocate spectrum for additional broadcast stations.[91] As potential uses of the frequencies change, the very entities that were given entitlements for one reason (e.g., to increase broadcast speech) become an obstacle to distributing entitlements for another reason (e.g., to increase broadband competition by freeing spectrum for new entrants).[92] It is the government, based on public interest considerations, that makes

86. 47 U.S.C. § 303(b)-(c) (authorizing the FCC to "[p]rescribe the nature of the service to be rendered by each class of licensed stations" and to "[a]ssign bands of frequencies to the various classes of stations"); *see also* TELECOMMUNICATIONS LAW AND POLICY, *supra* note 46, at 62.

87. *See, e.g.,* DIGITAL CROSSROADS, *supra* note 5, at 267; Goodman, *supra* note 66, at 282.

88. U.S. GEN. ACCT. OFF., BETTER COORDINATION AND ENHANCED ACCOUNTABILITY NEEDED TO IMPROVE SPECTRUM MANAGEMENT 3 (2002), http://www.gao.gov/new.items/d02906.pdf.

89. *Id.*

90. *See* Michael K. Powell, Chairman, FCC, Broadband Migration III: New Directions in Wireless Policy, Remarks at the University of Colorado Silicon Flatirons Symposium on Digital Broadband Migration (Oct. 30, 2002), http://www.fcc.gov/Speeches/Powell/2002/spmkp212.html (noting that the FCC's current conception of "the public interest must reflect the realities of the marketplace").

91. For example, the FCC may decide to allocate more spectrum for low power FM radio stations dedicated to commercial-free educational programming. *See generally* Creation of a Low Power Radio Service, *Third Report and Order*, 22 FCC Rcd. 21,912 (2007) (establishing rules and policies designed to foster growth in LPFM, especially within local groups such as schools, churches, and other community-based organizations).

92. *See, e.g.,* Unlicensed Operation in the TV Broadcast Bands, *Second Report and Order*, 46 Comm. Reg. (P&F) 940 (2008), http://hraunfoss.fcc.gov/edocs_public/attachmatch/FCC-08-260A1.pdf (dealing with the obstacles television broadcasting poses to use of broadcast spectrum for unlicensed wireless broadband services).

the market for spectrum assigned by auction.

Allocation decisions not only *reflect* public interest determinations, but will *influence* public interest considerations "downstream" in the administrative process. How the FCC allocates spectrum will determine, for example, whether spectrum users can share the frequencies in a non-rivalrous fashion or whether they need exclusive licenses to operate. This allocation choice will determine whether or not spectrum rights are auctioned at all, or are given away. This is because, under the law, only mutually exclusive (or rivalrous) spectrum usage rights may be auctioned.[93]

The second step in the rulemaking process is the establishment of "service rules" for spectrum use. The limitations and obligations contained in these rules are incorporated into the spectrum licenses. Service rules may impose construction deadlines and service requirements to keep licensees from warehousing the spectrum. They may require licensees to interconnect with competitors or to provide emergency services, and impose other kinds of public interest service obligations.[94] Each of these mandates entails public interest tradeoffs, such as rural service at the expense of urban service or interconnection at the expense of network investment.

The service rule that has the most impact on a spectrum auction – the one that most directly defines the "metes and bounds" of the license – is the definition of the license size. In any given spectrum proceeding, the FCC chooses to create a few nationwide licenses, dozens of regional licenses, or thousands of smaller licenses. The decision about license characteristics reflects public interest choices and industry predictions. Smaller licenses (in terms of geography and bandwidth) tend to favor smaller players and/or new entrants as well as local services over national ones.[95] Larger licenses can be expected to have the opposite effect.

Given the pervasiveness of the regulatory power in the construction of spectrum licenses, it should be understood that there is nothing inevitable or "neutral" about a particular auction result.[96] All spectrum

93. *See* KWEREL & FELKER, *supra* note 48, at 2.

94. *See* TELECOMMUNICATIONS LAW AND POLICY, *supra* note 46, at 63.

95. *See* Porter & Smith, *supra* note 47, at 67 (describing the first major auction for PCS licenses in 1994 in which there were more than 2000 licenses auctioned off in some of the PCS bands).

96. This is even before one considers the ways in which spectrum design might bias the outcome in favor of certain bidders. *See, e.g.*, GREGORY ROSE, SPECTRUM AUCTION BREAKDOWN: HOW INCUMBENTS MANIPULATE FCC AUCTION RULES TO BLOCK BROADBAND COMPETITION 18-19 (New Am. Found., Wireless Future Program, 2007), http://www.newamerica.net/files/WorkingPaper18_FCCAuctionRules_Rose_FINAL.pdf; *see also* SIMON WILKIE, CTR. FOR COMM. L. & POL'Y, U. OF SO. CAL., SPECTRUM AUCTIONS ARE NOT A PANACEA: THEORY AND EVIDENCE OF ANTI-COMPETITIVE AND RENT-SEEKING BEHAVIOR IN FCC RULEMAKINGS AND AUCTION DESIGN 7-10 (2007),

auctions reflect a chain of decisions that, from beginning to end, incorporate regulatory values and priorities. At no point is this process value-free or driven purely by efficiency concerns. At every stage, the government makes decisions that will favor certain bidders over others and certain spectrum applications over others in what it claims is a vindication of the public interest.

III. THE AUCTION HEURISTIC

I have argued that it makes sense to use the auction process to produce information about the cost of public interest objectives, and that such information can ultimately be used in the policymaking process to assess tradeoffs among communications policy goals. This seems to be what the FCC wanted to accomplish in the 700 MHz auction. Unfortunately, the re-auction technique it created to trade off policy goals could not have accomplished the agency's stated goal. This Section shows why and concludes with some thoughts on how auctions might be structured to provide more useful inputs into the policymaking process.

A. The Problem With the 700 MHz Re-Auction Concept

Section I above described the FCC's assumption that the open platform conditions on C Block licenses would reduce the high bids for those licenses.[97] The FCC asserted that if bidders failed to meet the reserve price of $4.6 billion for the licenses, it would be because the conditions imposed "a greater negative impact on network operations" than the agency had predicted.[98] In that event, the FCC would have to change its "assessment of the net public interest benefit of imposing these requirements (*i.e.*, the benefit of fostering the development of innovative devices and applications vs. the potential negative effects on network operations)…."[99] The FCC would then immediately re-auction the C Block licenses without the open platform conditions, presumably to achieve a better balance between the benefits of innovation and the negative effects on network operations.

This procedure suffers from two fundamental errors (1) Auction results say very little about the benefits of a public interest condition and therefore cannot reveal the net benefits of the associated policy choice; and (2) auction results *can* say something about the costs of a public interest condition, but only if there are simultaneous auctions that

http://www.m2znetworks.com/xres/uploads/documents/Wilkie%202%20Auctions%20No%20Panacea%20Wilkie.pdf.

97. *See supra* Section I.

98. *700 MHz Order*, *supra* note 3, at 15,403.

99. *Id.*

control for a single variable and are able to measure the magnitude of devalued bids, as the FCC's reserve price trigger could not.

1. Measuring Benefits

For an auction to reveal the "net public interest benefit" of the open platform conditions, as the FCC asserted it could,[100] the auction process would have to quantify both the benefits and costs of imposing the open platform conditions.

One basic problem with this approach is that there is simply no way to calculate the actual or even putative value of open platform conditions.[101] By its nature, the fostering of innovative devices and applications produces widespread benefits that accrue to numerous players.[102] Many of these benefits are positive externalities to the auction transaction. Beneficiaries include the developers of applications and the manufacturers of devices that would have nondiscriminatory access to the C Block networks. In addition, proponents predict that the consumer liberty to attach devices to, and freely use applications on, the network will produce a consumer surplus.[103] These benefits, which we can call "X," are unquantifiable, at least *ex ante*. Google, or some other bidder, might well capture some of the value of X indirectly through greater broadband penetration or device usage, but not all of it.

Commentators have recognized the limitations of any cost-benefit analysis when it comes to quantifying the benefits of regulation.[104] Indeed, some of the most influential proponents of cost-benefit analysis concede that the analysis cannot identify the benefit-maximizing rule. Rather, it is a tool for generating information about some of the likely consequences of a proposal.[105] In other words, it is a heuristic for

100. *Id.*

101. *See generally* Susan Crawford, *The Internet and the Project of Communications Law*, 55 UCLA L. REV. 359, 391 (2007) (discussing the inability of net neutrality proponents to quantify the benefits of openness).

102. *See* Wu, *supra* note 14, at 2 (advocating, *inter alia*, open platform and open application requirements within the wireless industry to stimulate the development of new hardware and software).

103. *See, e.g.,* PETER CRAMTON ET AL., SUMMARY: REVENUES IN THE 700 MHZ SPECTRUM AUCTION 11 (2007), http://www.cramton.umd.edu/papers2005-2009/cramton-skrzypacz-wilson-e-block-plan-increases-revenues.pdf ("Essentially, competition [in the device and application markets] transfers existing profits from firms to consumers, and yields overall efficiency gains from expanded demand due to lower prices.").

104. *See, e.g.*, Matthew Adler & Eric Posner, *Rethinking Cost-Benefit Analysis*, 109 YALE L.J. 165, 245-46 (1999) (cost-benefit analysis in rulemakings usefully incorporates a wide range of values into administrative decisions, although it cannot capture social welfare effects of regulation); Robert Frank & Cass Sunstein, *Cost-Benefit Analysis and Relative Position*, 68 U. CHI. L. REV. 323, 374 (2001) (endorsing cost-benefit analysis, but criticizing techniques that underestimate the benefits from regulation).

105. *See, e.g.*, Nou, *supra* note 73, at 604 n.13 (quoting THE COST-BENEFIT STATE,

evaluating contested regulatory options along one dimension.

2. Measuring Costs

In theory, an auction could reveal the costs of open platform conditions to the prospective licensees. In the 700 MHz proceeding, the FCC plausibly defined the costs as the "potential negative effects [of the conditions] on network operations…."[106] Assuming rational bidding, these costs will equal the premium a network operator would pay for unconditioned spectrum over what it would pay for the conditioned spectrum. If Verizon Wireless, for example, would pay $4.6 billion for the conditioned spectrum, but $5.6 billion for the unconditioned spectrum, then the cost of the conditions to the network operator is $1 billion. What needs to be measured then, and what the FCC said it was measuring, is "the magnitude of the devalued bids."[107]

The FCC asserted that it would know this number was too great to support its presumption that the open platform conditions produce net public interest benefits if bidders failed to meet the reserve price it set for the C Block licenses in the initial auction. [108] The problem with this logic is that the reserve price mechanism says nothing about the magnitude of auction revenue under different regulatory conditions. The reserve price mechanism is Boolean. If the reserve price is not met, at which point the FCC automatically drops the open platform conditions and re-auctions the spectrum, the agency actually knows nothing about the difference in value between the conditioned and unconditioned licenses. It is only after the conditions have been removed and the spectrum re-auctioned that there is any useful information on the magnitude of the devalued bids. By this time, however, the information is irrelevant to the policy choice about whether or not to impose the conditions. In other words, this information cannot be brought to bear on the fundamental question of whether the open platform conditions are worth their costs.

Let us suppose, for example, that the high bid in the initial auction is $4.5 billion, just $100 million shy of the $4.6 billion reserve price. When re-auctioned, the licenses fetch $4.7 billion. The magnitude of the devalued bids is thus rather small – only $200 million. Was it worth dropping the open platform conditions for a mere $200 million? This is a discussion that *should* be conducted before the conditions are lifted, of course, but can only be conducted as a hypothetical after the decision has

supra note 73) ("[Cost benefit analysis] can be seen . . . not as an endorsement of the economic approach to valuation, but as a real-world instrument, designed to ensure that the consequences of regulation are placed before relevant officials and the public as a whole.").

106. *700 MHz Order*, *supra* note 3, at 15,403.

107. *Id.*

108. See previous discussion of Measuring Benefits *supra*.

been made. Now, suppose that the high bid in the initial auction is $4.6 billion. Because the reserve price *has* been met, there will be no re-auction. If there had been a re-auction, suppose that the high bid would have been $5.6 billion. In this example, the magnitude of the devalued bid is $1 billion, but because the reserve price was met, we will never know that the open platform conditions (which we were willing to give up for a mere $200 million if the reserve price was not met) actually cost $1 billion.

Another problem with the FCC's re-auction procedure is that it assumed, but did not implement, a controlled experiment. If the only thing that changes between the auction with conditions and the auction without conditions is the presence of conditions, then we can learn what the conditions cost. This was not the case in the 700 MHz proceeding. The FCC announced that in addition to dropping the conditions from the licenses in a re-auction, it would also disaggregate the licenses into smaller blocks of spectrum covering smaller geographic areas.[109] Given that the re-auction would involve an entirely different package of assets, it cannot be said that the difference in price says anything in particular about the open platform conditions.

B. Towards a Valid Auction Heuristic

The only way to accurately price a particular public interest obligation, like the open platform conditions, is to hold simultaneous auctions of conditioned and unconditioned licenses. A simultaneous auction of two assets, different in only one respect, should tell us the magnitude of the devalued bids for conditioned spectrum. There is much that such an auction would not tell us. It could not answer the normative policy decision about whether the costs of the public interest requirement are worth bearing. It could not determine whether a proposed public interest requirement produced net benefits, at least not where there are positive externalities.

The question an auction heuristic could help answer is whether the costs of a public interest requirement, as measured by foregone auction revenues, is acceptable given all of the competing considerations. Where the public interest obligation involves public health and safety, such as an obligation to provide E911 services, the answer might well be that no price is too high and there is nothing that auction results can teach us. There will undoubtedly be greater ambivalence about other public interest obligations, particularly those that seek to structure economic markets.

To make the auction heuristic useful, the rulemaking that precedes

109. *700 MHz Order*, *supra* note 3, at 15,402-03.

the auction would have to produce two prices. The first would be an ordinary reserve price. The second would be the maximum price the public is willing to pay for a particular policy goal. If it is $1 billion for open platform conditions, then the winner of the auction for the conditioned licenses would win the licenses so long as its bid was no more than $1 billion less than the highest bid for the unconditioned licenses in a simultaneous auction.

There are undoubtedly practical challenges in the construction of such simultaneous auctions. All auction design is complex and susceptible to gaming by bidders. Whether or not game theorists could surmount these auction design challenges, I cannot say. What does seem clear is that a sequential auction of the kind envisioned in the 700 MHz proceeding would have told us very little about the actual costs of the open platform conditions. A comparison between the C Block license prices and those of unencumbered licenses in other 700 MHz bands is similarly uninformative because of the variables of frequency, license size, and other license conditions.

CONCLUSION

Thoughtful critics of the FCC are calling for a new approach to telecommunications policymaking that is more transparent and fact-based.[110]

Fact-based decisionmaking can be difficult when parties to spectrum proceedings throw around conflicting, often detailed, claims that any given policy choice will confer dramatic benefits or equally dramatic losses on the public, and the FCC lacks the means to independently evaluate the claims. In some cases, the claimed benefits and losses will be captured by private assessments of the value of spectrum licenses that have been encumbered by public interest conditions or otherwise crafted to advance specific public policies. In these cases, fact-based decisionmaking would be aided by using the auction process to flush out the parties' actual (rather than claimed) assessments of the benefits and burdens of the FCC's tentative policy choices.

Ultimately, the choice to forgo auction revenue to achieve specific public interests must be a normative one based on telecommunications policy objectives. For sound reasons, the FCC is not permitted under law to maximize auction revenue at all costs, lest fiscal policy usurp telecommunications policy responsibilities. And yet, particularly in times

110. *See, e.g.*, Philip J. Weiser, *FCC Reform and the Future of Telecommunications Policy* (forthcoming 2009) (manuscript at 13, http://fcc-reform.org/paper/fcc-reform-and-future-telecommunications-policy).

of federal budget deficits, there is pressure on the FCC, codified in law, to obtain fair value for wireless licensee use of the spectrum. What fair value is and what kinds of benefits the public is receiving for spectrum use are questions that are, to some extent, empirical inquiries. They can be advanced by well-designed auction procedures. Use of an auction heuristic along the lines that the FCC developed in the 700 MHz proceeding, but corrected to function properly, would provide important feedback for future spectrum policy decisions. It would also allow the FCC to defend policy choices that reduce auction revenue or, indeed, to abandon them.