Universal Service in the United States: A Focus on Mobile Communications

Steve G. Parsons*

James Bixby**

* Steve Parsons is President of Parsons Applied Economics, an economic consulting firm largely dealing with telecommunications regulatory issues. He has a Ph.D. in economics from the University of California at Santa Barbara, and is an adjunct professor at Washington University in St. Louis where he has taught graduate courses in Telecommunications Regulation and Public Policy, and the Economics of Technology.

** James Bixby is a trial attorney with the Federal Energy Regulatory Commission's Office of Administrative Litigation. He has a J.D. from Washington University in St. Louis School of Law, where he served as a primary editor with the *Washington University Journal of Law and Policy*. The views expressed in this Article do not represent the views of the Federal Energy Regulatory Commission or the U.S. government. Both authors thank Robert Frieden for useful comments and Chris Lentowski for research assistance and useful comments.

I. INTRODUCTION

One definition of universal service is the provision of a baseline level of telecommunications services to every resident of a country at a reasonable charge.[1] Such a definition, of course, begs the questions of what constitutes a baseline level and what is included in telecommunications services. In the United States, the concept of universal service slowly developed over time. Recent regulatory decisions and technological changes are driving changes in the concept of, and the regulatory mechanisms designed to achieve, universal service. One of the critical changes in universal-service concepts (and customer demands) is toward greater reliance and value derived from mobile communications and broadband Internet connections.[2]

The current interstate universal-service mechanism designed by the FCC provides approximately $4.3 billion annually to high-cost telecommunications providers alone (i.e., not including funding for low-income consumers, schools, and healthcare facilities).[3] Federal universal service support in total requires an 11.4 percent tax on interstate telecommunications end-user services.[4] One concern expressed by the FCC is that "[c]ompetitive ETC [eligible telecommunications carrier] support, in the six years from 2001 through 2007, has grown from under $17 million to $1.18 billion—an annual growth rate of over 100 percent."[5]

Early in its history, the FCC (created in 1934) was primarily concerned with reducing interstate long-distance charges.[6] A system to help keep the prices of local (especially residential) services low by transferring significant funds from interstate long-distance carriers developed only

---

1. WTO: Telecommunication-Glossary of terms, http://www.wto.org/english/tratop_e/serv_e/telecom_e/tel12_e.htm (last visited Dec. 10, 2009).

2. Broadband Internet connections are important to modern concepts of universal service, but are beyond the scope of this Article. We treat this topic in a different manuscript. *See* Steve G. Parsons & James Bixby, *Broadband and Wireless Technologies: Critical to a New Universal Service Paradigm?* (unpublished manuscript) (on file with the author).

3. High-Cost Universal Service Support, *Order on Remand & Report & Order & Further Notice of Proposed Rulemaking*, 24 F.C.C.R. 6475, para. 33 (2008) (*citing* UNIVERSAL SERVICE ADMINISTRATIVE COMPANY, 2007 ANNUAL REPORT 43 (2007)).

4. *See* Press Release, Federal Communications Commission Releases Study on Telephone Trends (June 21, 2005).

5. High-Cost Universal Service Support, *supra* note 3, at para. 33.

6. *See* Milton L. Mueller, Jr., Universal Service: Competition, Interconnection, and Monopoly in the Making of the American Telephone System 158 (1997).

slowly from 1952 until 1970.[7] This revenue/cost pattern was so well established by the mid-1970s that the seminal formal work in economics on cross-subsidies began in the telecommunications industry.[8]

Given the historical growth of landline[9] telecommunications infrastructure, the concept of interconnecting citizens had the practical implication of seeking to place landline infrastructure to interconnect locations where citizens spent most of their time: homes and businesses. While the essence of virtually all universal-service concepts is that citizens be interconnected to a communications network, ideas regarding the method of connection have changed over time.

The 1934 Communications Act has been altered only once—by the Telecommunications Act of 1996.[10] With respect to universal service, the Telecommunications Act[11] (1) established a process to define supported services via a Federal-State joint board and FCC proceeding;[12] (2) established principles for universal service;[13] (3) noted that "[u]niversal service is an evolving level of telecommunications services";[14] and (4) required that "interstate telecommunications services shall contribute [to universal service] on an equitable and non-discriminatory basis" (although it provided no new mechanism for funding).[15]

Notably, since 1997, the FCC has explicitly permitted federal funding for the achievement of universal service to be portable to other technologies;[16] in particular, this has meant that wireless carriers may be

---

7. *See id*. at 159-60.

8. *See* Steve Parsons, *Cross-Subsidization in Telecommunications*, 13 J. REG. ECON. 157, 161 (1998) (citing Gerald Faulhaber, *Cross-Subsidization: Pricing in Public Enterprises*, 65 AM. ECON. REV. 966 (1975) as the first mathematically formal treatment of cross-subsidy, and noting prior and subsequent work also largely in the telecommunications industry). *See also* BRIDGER M. MITCHELL & INGO VOGELSANG, TELECOMMUNICATIONS PRICING: THEORY AND PRACTICE 118-36 (1991).

9. "Landline" or "wireline" refers to a telephone line that travels over terrestrial circuits, as opposed to "wireless," "mobile," or "cellular," which refers to telecommunications devices and services that use radio waves as a medium for transmission.

10. *See* Telecommunications Act of 1996, Pub. L. No. 104-104, 110 Stat. 56 (1996) (codified in scattered sections of title 47 of the U.S. Code).

11. 47 U.S.C. § 254(h) (2008); *see also id*. at § 254(h)(1)(A)-(B) (providing support for healthcare providers and schools and libraries in rural areas).

12. *Id.* § 254(a)(1).

13. *Id.* § 254(b).

14. *Id.* § 254(c)(1).

15. *Id.* § 254(d).

16. High-Cost Universal Service Support, *Notice of Proposed Rulemaking*, 73 Fed. Reg. 11580 para. 2 (2008) (to be codified at 47 C.F.R. §§ 32, 36, 54) (citing Federal-State Joint Board on Universal Servic1580, *First Report and Order*, 62 Fed. Reg. 32862 para. 46-48, 286-90, 311-13 (1997)). *See also* Alenco Comm., Inc. v. FCC, 201 F.3d 608, 622 (5th Cir. 2000) ("[P]ortability is not only consistent with predictability, but also is dictated by

eligible to receive universal-service funding. However, long-standing federal policy and recent FCC regulatory actions have consistently favored landline over wireless technology in a manner that artificially disadvantages wireless technology and hampers the achievement of both the stated goals of universal service legislation and the more general goal of greater connectivity of people to telecommunications networks.

In Section II, we discuss the history and the logistics of federal support for universal service as well as portions of four important recent regulatory documents that impact the distribution of the Universal Service Fund to wireline versus wireless technology. In Section III, we examine whether market intervention promoting universal service is economically rational. This Section describes network effects and considers whether they are likely sufficient to provide an economic rationale for market intervention. Section IV discusses those historical and public-policy factors that we believe have favored landline over mobile technologies, particularly in areas served by small wireline incumbent local exchange carriers (ILECs). Section V considers the implications of the FCC eliminating the so-called equal-support rule (the rule in which qualified providers in the same area receive the same funding regardless of technology and costs).[17] Section VI summarizes our findings and conclusions.

II. THE HISTORY OF UNIVERSAL SERVICE REGULATION

The notion of universal service was arguably first advanced by Theodore Vail in a 1907 speech, in which he envisioned "one system, one policy, universal service."[18] However, Vail's call for universal service stated a commercial goal (the one system would be owned by AT&T), rather than a desire for new government policy. After Alexander Graham Bell's patent on the telephone device itself lapsed in 1894, AT&T faced a massive proliferation of competition from new local exchange telephone companies.[19] Many of these companies sought to exploit AT&T's focus on providing telephone service to business customers in major cities by

---

principles of competitive neutrality and the statutory command that universal service support be spent 'only for the provision, maintenance, and upgrading of facilities and services for which the [universal service] support is intended.'") (citation omitted).

17. High-Cost Universal Service Support, *Notice of Proposed Rulemaking*, 73 Fed. Reg. 11580 para. 1 (2008).

18. Krishna P. Jayakar & Harmeet Sawhney, *Universal service: beyond established practice to possibility space*, 28 TELECOMM. POL'Y 339, 339 (2004). *See also* STUART MINOR BENJAMIN, DOUGLAS GARY LICHTMAN & HOWARD A. SHELANSKI, TELECOMMUNICATIONS LAW AND POLICY 614-20 (1st ed. 2001); Gerald W. Brock, *Historical Overview*, *in* 1 HANDBOOK OF TELECOMMUNICATIONS ECONOMICS, 44-74, at 50-52 (Martin E. Cave et al. eds., 2002).

19. Jayakar & Sawhney, *supra* note 18, at 342.

providing service to residential customers in smaller cities and rural towns.[20] Vail and AT&T generally refused to permit interconnection between its network and the new, local exchange companies where the new companies' facilities geographically overlapped with those of AT&T;[21] the result was a morass of different, incompatible telephone company networks in which a customer on one provider's network could not necessarily call a customer on another network.[22] As such, Vail's call for universal service can more properly be seen as advocating a single telephone network (AT&T's), rather than an expansion of connectivity to more people.[23]

The federal government's first implicit universal-service policy came in the form of favorable federal legislation and regulatory action as AT&T persued its vision of universal service in the form of monopoly.[24] Insofar as AT&T sought government action promoting its vision of universal service, it was in the form of government permission (or lack of proscription) for AT&T's continued acquisition of rival telephone companies in contravention of antitrust laws.[25] While the federal government was initially indifferent to AT&T's efforts, AT&T's continued campaign of acquisition eventually attracted the attention of the Department of Justice's Antitrust Division.[26] In response, AT&T and the Attorney General agreed on several limitations to AT&T's business activity, formally known as the Kingsbury Commitment.[27] The Kingsbury Commitment was ostensibly a victory for the government, as AT&T agreed to divest itself of Western Union, provide long-distance services to independent exchanges under certain conditions, and refrain from acquisitions of independent telephone companies if the Interstate Commerce Commission (ICC) objected.[28]

---

20. *See* Henk Brands & Evan T. Leo, The Law and Regulation of Telecommunications Carriers 2-3 (1998).

21. However, when AT&T did not serve significant areas served by the other telephone company, AT&T was aggressive in pursuing interconnection arrangements. *See*, *e.g.*, *id.* at 3.

22. *Id.* at 3-4. *See also* Brock, *supra* note 18, at 48-49; Gerald Brock, TELECOMMUNICATION POLICY FOR THE INFORMATION AGE: FROM MONOPOLY TO COMPETITION 65 (1994).

23. *See* BRANDS & LEO, *supra* note 20, at 3. *See also* Milton Mueller, *Myth Made Law: Universal Service and the Telecommunications Act*, Comm. of the ACM, Mar. 1997, at 39, 40-41.

24. Mueller, *supra* note 23, at 40-41.

25. *See id*.

26. *See* Adam D. Thierer, *Unnatural Monopoly: Critical Moments in the Development of the Bell Telephone Monopoly*, 14 CATO J. 267, 272 (1994), *available at* http://www.cato.org/pubs/journal/cjv14n2-6.html.

27. Glen O. Robinson, *Title I—The Federal Communications Act: An Essay on Origins and Regulatory Purpose*, *in* A LEGISLATIVE HISTORY OF THE COMMUNICATIONS ACT OF 1934 3, 7-8 (Max D. Paglin ed., 1989). *See also* BRANDS & LEO, *supra* note 20, at 48-55.

28. Robinson, *supra* note 27, at 8.

However, the agreement actually favored the continued expansion of AT&T and consolidation in some markets; not only did it stave off the federal takeover of AT&T that many expected, but it also permitted AT&T to continue to acquire other telephone companies so long as it sold off an equal number of companies to independent buyers.[29] Independent telephone companies were able to maintain significant market share until 1921, when Congress passed the Willis-Graham Act,[30] which exempted telephone companies from stringent antitrust oversight and gave official sanction to AT&T's goal of universal service via monopoly.[31] As Lloyd noted, "[b]y 1924, the ICC had approved AT&T's acquisition of 223 of the 234 independent telephone companies."[32]

The year 1934 was a watershed year in the industry because of the passage of the Communications Act of 1934 and the creation of the FCC to regulate interstate telephone service. Although AT&T continued to act as a regulated, vertically integrated entity until 1984,[33] the Communications Act created the FCC

> [f]or the purpose 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, Nation-wide, and world-wide wire and radio communication service with adequate facilities at reasonable charges.[34]

This portion of the Communications Act was "a list of all the good things that come about from telecommunications"; the Act itself did not contain any substantive legislation promoting the goal of universal service.[35] Indeed, one author notes that "'[u]niversal service,' in either its modern or classical sense, did not appear in the deliberations [in passing the 1934 Act]. Congressional records contain no mention of telephone penetration levels."[36] The Act did, however, create a more explicit

---

29. BRANDS & LEO, *supra* note 20 at 4. This arrangement fostered "monopoly-swapping" instead of competition, as it allowed AT&T to acquire and maintain geographic monopolies by exchanging ownership of telephone systems with independent companies. Thierer, *supra* note 26, at 272 (citing GERALD BROCK, THE TELECOMMUNICATIONS INDUSTRY: THE DYNAMICS OF MARKET STRUCTURE 156 (1981)).

30. Willis-Graham Act, ch. 20, 42 Stat. 27 (1921) (codified as amended at 47 U.S.C. § 221(a)), *repealed by* Telecommunications Act of 1996, § 601(b)(2) Pub. L. No. 104-104, 110 Stat. 143 (codified at scattered sections of title 47 of the U.S. Code) (1996).

31. *See* Mark Lloyd, *AT&T and Whatever Happened to Antitrust?*, CENTER FOR AM PROGRESS, Apr. 5, 2006, http://www.americanprogress.org/issues/2006/04/b1530843.html (last visited Dec. 10., 2009).

32. *Id*.

33. A Brief History: The Bell System, AT&T, http://www.corp.att.com/history/history 3.html (last visited Dec. 10, 2009).

34. 47 U.S.C. § 151 (2006).

35. MUELLER, *supra* note 6, at 156-58. The legislative history of the Act does not address § 151. *Id.* at 157.

36. *Id.*

regulatory mechanism, and the potential for development of a federal universal service policy.[37]

After the expiration of AT&T's original patent on the telephone device expired in 1893, AT&T's patents on long-distance switching machines (and cross-licensing agreements) made the distinction between local telephone service and long-distance telephone service important.[38] The Supreme Court's decision in *Smith v. Illinois Bell Telephone Co.*[39] established an important legal precedent for federal influence over the method of recovery of a portion of the so-called nontraffic-sensitive costs of local exchange telephone companies.[40] In order to complete a long-distance call, AT&T must utilize the local telephone companies' facilities to originate the call (which would then be carried on AT&T's facilities) as well as terminate the call. The Court held that, even though only approximately one-half of one percent of the calls at the time were interstate long-distance calls,[41] the actual use of the local exchange facilities to originate and terminate long-distance calls meant that interstate long-distance service must contribute to the recovery of the costs of the local exchange.[42]

In 1934, only two percent of all telephone calls were interstate[43] and, thus, within the jurisdiction of the FCC,[44] leaving most control of telephone service with state regulators. Between 1934 and 1996, no federal universal-service legislation was passed.[45] Rather, in the years after the passage of the 1934 Communications Act, a universal-service concept was slowly

---

37. Cybertelecom: Universal Service, http://www.cybertelecom.org/usf/index.htm (last visited Dec. 10, 2009).

38. *See* Gerald W. Brock, *The Regulatory Change in Telecommunications: The Dissolution of AT&T*, *in* REGULATORY REFORM: WHAT ACTUALLY HAPPENED 210, 218 (Leonard W. Weiss & Michael W. Klass eds., 1986); Brock*, supra* note 18, at 48.

39. 282 U.S. 133 (1930).

40. *Id.*

41. *Id.* at 147. This was the value in 1922, when the data provided by AT&T was originally developed for the calculations used in the case. *See id.* at 144-45.

42. *Id.* at 150-51:

> [I]t is quite another matter to ignore altogether the actual uses to which the property is put. It is obvious that, unless an apportionment is made, the intrastate service to which the exchange property is allocated will bear an undue burden—to what extent is a matter of controversy. We think that this subject requires further consideration, to the end that by some practical method the different use of the property may be recognized and the return properly attributable to the intrastate service may be ascertained accordingly.") (internal citations omitted).

Id; see also BRANDS & LEO, *supra* note 20, at 48-55.

43. Pat Norton, *Newcomers and Innovation in the U.S. TelephoneIndustry*, in The Emergence of the Knowledge Economy: A Regional Perspective 215, 224 (Zoltán J. Ács, Henri L. F. de Groot & Peter Nijkamp, eds., 2002).

44. BRANDS & LEO, *supra* note 20, at 6.

45. Cybertelecom: Universal Service, *supra* note 37.

developed and advanced largely through cross-subsidization of local service by AT&T's long-distance service.[46] This concept arose from a complex give-and-take between state regulators, who wished to keep local telephone service inexpensive, and the FCC and AT&T, which wanted to lower the cost of long-distance interstate telephone service.[47] Specifically, state regulators sought to subsidize the cost of providing local telephone service by transferring revenues from AT&T's long-lines division (which was then virtually the only long-distance service provider) back to local exchange companies. This occurred via a complex web of revenues "settlements" processes, where revenues were distributed back to local exchange companies as well as allocations of a portion of the nontraffic-sensitive costs of the local exchange to the interstate jurisdiction.[48] Although this plan met with limited success in the 1940s and 1950s,[49] cost-lowering advances in long-distance telephone technology permitted regulators during the 1960s and 1970s to shift greater costs to long-distance carriers without forcing significant increases in long-distance prices.[50]

---

46. For a survey of the literature on cross-subsidy in telecommunications, *see* Parsons, *supra* note 8, at 158-161. *See also*, *e.g.*, David L. Kaserman & John W. Mayo, *Cross-subsidies in Telecommunications*: *Roadblocks on the Road to More Intelligent Telephone Pricing*, 11 YALE J. ON REG. 119, 131-36 (1994); BENJAMIN, ET AL., *supra* note 18, at 618-20.

47. *See* Jayakar & Sawhney, *supra* note 18, at 343. The conflict between state and federal authorities centered on the method of allocating the costs of running local exchanges, and the telephone-cable and switch systems that connected incoming calls to intended recipients for a given geographic area. *See id*. Both local and long-distance service made use of local exchanges to connect callers to their intended recipients. *See id*. State regulators advocated the use of a "station-to-station" method, which allocated a substantial portion of the cost of the exchanges to long-distance carriers. *Id*. The FCC and AT&T, on the other hand, advocated using a "board-to-board" method, which would pay for local exchanges through fees charged to customers making use of the exchange within its geographic area. *Id*.

48. *See* Smith v. Ill. Bell Tel. Co., 282 U.S. 133 (requiring state regulators to allocate local access charges to telephone companies based on interstate versus intrastate use of the exchange). Later, through complicated dealings and negotiations with the FCC and AT&T, state regulators began to shift more of the costs of intrastate service to interstate service. *See* CHRISTOPHER H. STERLING, PHYLLIS W. BERNT, & MARTIN B. H. WEISS, SHAPING AMERICAN TELECOMMUNICATIONS: A HISTORY OF TECHNOLOGY, POLICY, AND ECONOMICS 101-04 (2006).

49. In 1947, the FCC codified its rules for calculating the allocation of costs between local and interstate jurisdictions in its Separations Manual. FCC, SEPARATIONS MANUAL (1947) (codified at 47 C.F.R. § 36). However, the Separations Manual did not permit charging long-distance carriers in excess of a portion of local exchange costs commensurate with the level of interstate long-distance usage until 1951. *Id*. Even by 1965, only three percent of the costs of local exchanges were being covered by payments from interstate carriers. MUELLER, *supra* note 6, at 160.

50. Jayakar & Sawhney, *supra* note 18, at 343. A number of other factors contributed to the achievement of universal service goals under this regime, specifically by subsidizing the cost of long-distance telephone service in rural, residential areas, which would not have been cost-effective otherwise. AT&T calculated long-distance charges based on geographic

Generally, on a per-call basis, long-distance calls provided an increasingly higher level of recovery of the nontraffic-sensitive costs of the local exchange vis-à-vis local calls.[51] In 1970, the adoption of the so-called Ozark Plan formalized the separation of costs to be allocated to the interstate jurisdiction.[52] In 1983, the allocation of nontraffic–sensitive loop costs was frozen at twenty-five percent, even though interstate long-distance usage was significantly less than twenty-five percent of the call minutes at the time.[53]

When AT&T was virtually the only voice long-distance provider, it was feasible for AT&T long-distance service to implicitly subsidize local exchange service via the complex web of cost allocations and revenue settlements. However, a string of regulatory and court decisions, most importantly, *In the Matter of Allocations of Frequencies in the Bands Above 890 Megahertz* (allowing private microwave facilities for point-to-point dedicated circuits)[54] and the eventual acceptance of MCI's Section 214 service application and its provision of Execunet Service (effectively

---

cost averaging, which assessed charges to customers based on the distance of the call, and not on the density of calls made on that route or on other factors which had much more influence on the actual cost of connecting the call to AT&T. As such, customers on low-density, high-cost lines (primarily those serving rural areas) were subsidized by higher charges to long-distance customers on high-density lines. Additionally, AT&T imposed higher charges on business customers (who were primarily grouped in urban areas), which subsidized the cost of service to residential customers, including those in rural, high-cost areas. The full details of cross-subsidization under AT&T's monopoly are extremely complicated and exceed the scope of this Article. For more information, see CAROL WEINHAUS ET AL., TELECOMMUNICATIONS INDUSTRIES ANALYSIS PROJECT: WHAT IS THE PRICE OF UNIVERSAL SERVICE? IMPACT OF DEAVERAGING NATIONWIDE URBAN/RURAL RATES (1993). *See also* Parsons, *supra* note 8.

51. The use of certain cost allocators, such as "subscriber plant factors" (SPF) rather than "subscriber usage factors," (SLU) lead to higher allocations to interstate long-distance calls. The SPF factor assigned approximately 3.3 percent of local company non-traffic sensitive cost to the interstate jurisdiction for every 1% of interstate calling (SLU). See Amendment of Part 67 of the Commission's Rules and Establishment of a Joint Board (Notice of Proposed Rulemaking and Order Establishing a Joint Board), 78 F.C.C.2d 837, 841 (1980) (Section 23.44 of the Separations Manual). *See also* Parsons, *supra* note 8, at 165; and MCI v FCC, 750 F.2d 135, 242 U.S.App.D.C. 287.

52. *See* Mueller, *supra* note 6, at 160.

53. CAROL L. WEINHAUS & ANTHONY G. OETTINGER, BEHIND THE TELEPHONE DEBATES 103 (1998). *See also* Fla. Pub. Serv. Comm'n Request for Interpretation of the Applicability of the Limit on Change in Interstate Allocation, Section 36.154(f) of the Comm'ns Rules, *Report and Order*, 11 F.C.C.R. 10835 para. 2 (1996); 47 C.F.R. § 36.126(d)(3) (2006).

54. Allocation of Frequencies in the Bands Above 890 Mc., *Report and Order*, 27 F.C.C. 359, 403-13 (1959), *reconsideration denied*, 29 F.C.C. 825 (1960). *See, e.g.*, PETER TEMIN & LOUIS GALAMBOS, THE FALL OF THE BELL SYSTEM: A STUDY IN PRICES AND POLITICS 30-31 (1987); BROCK, POLICY FOR THE INFORMATION AGE, *supra* note 22, at 105–11. *See also* GERALD BROCK, THE TELECOMMUNICATIONS INDUSTRY: THE DYNAMICS OF MARKET STRUCTURE 156, 177-207 (1981).

allowing MCI to offer switched voice services),[55] led to the unintentional demise of the AT&T long-distance monopoly.[56] These competitive inroads into AT&T's long-distance monopoly led to contentious proceedings attempting to formalize and replace the implicit cross-subsidies from long distance when a new competitor (rather than AT&T) carried the call.[57] Beginning in 1978, a line-based (rather than minute-based) Exchange Network Facilities for Interstate Access (ENFIA) tariff was established in an attempt to formalize the subsidies to local exchange carriers from new long-distance competitors.[58]

After the divestiture of AT&T, however, the FCC established minute-based switched access charges to replace the implicit subsidies provided by AT&T long distance and the line-based ENFIA tariff charges paid by AT&T's long-distance competitors.[59] These switched-access charges were much higher than the Justice Department and AT&T's long-distance competitors had expected.[60] Interstate switched-access rates for large carriers declined significantly over time, largely replaced by line-based subscriber line charges (SLCs).[61]

---

55. *See* Establishment of Policies and Procedures for Consideration of App'n to Provide Specialized Common Carrier Servs. in the Domestic Public Point-to-Point Microwave Radio Serv. and Proposed Amendments to Parts 21, 43, and 61 of the Comm'ns Rules, *First Report and Order,* 29 F.C.C.2d 870, para. 159 (1971) (accepting MCI's application); MCI Telecomm. Corp. v. FCC, 580 F.2d 590 (D.C. Cir. 1978), *cert. denied*, 439 U.S. 980 (1978) (allowing MCI to effectively offer switched voice services). *See also* BROCK, POLICY FOR THE INFORMATION AGE, *supra* note 22, at 111-46, 173-77; ROBERT W. CRANDALL, AFTER THE BREAKUP: U.S. TELECOMMUNICATIONS IN A MORE COMPETITIVE ERA 20-22 (1991); TEMIN & GALAMBOS, *supra* note 54, at 131-38.

56. *See, e.g.*, BROCK, POLICY FOR THE INFORMATION AGE, *supra* note 22, at 102-121.

57. The loss of regulatory restrictions on entry into long distance in the aftermath of Execunet, created a plethora of new long-distance operators competing with each other and with AT&T. *See* Jayakar & Sawhney, *supra* note 18, at 344. The increase in competition made switched access rates (the rates charged by local companies to originate and terminate long-distance calls on the local network) a highly contentious issue between local and long distance carriers. *See id.*

58. *See, e.g.*, BROCK, POLICY FOR THE INFORMATION AGE, *supra* note 22, at 139-45.

59. See *id.*

60. AT&T's long-distance competitors had expected switched-access charges that would be significantly below the ENFIA tariff rates, whereas in fact, switched access charges were significantly greater than ENFIA. *See id*.
ance competitors had expected switched-access charges that would be significantly below the ENFIA tariff rates, whereas in fact, switched access charges were significantly greater than ENFIA. *See id*.

61. *See, e.g.*, Report, FCC, *Trends in Telephone Service*, 1-4 tbl. 1.2 (2005), *available at* http://www.fcc.gov/Bureaus/Common_Carrier/Reports/FCC-State_Link/IAD/trend605.pdf . This requires some institutional knowledge to interpret. Footnote 1 of the table states "This table shows average rates (weighted by minutes of use) for all local exchange carriers (LECs) that file access tariffs subject to price-cap regulation and all LECs in the National Exchange Carrier Association (NECA) pool." There are two effects here: (1) price

The concept of universal service was finally codified by the Telecommunications Act of 1996.[62] The Act's universal service section stated six specific goals: (1) the provision of communications service "at just, reasonable, and affordable rates";[63] (2) access to advanced telecommunications and information services in all regions of the country; (3) access in rural and high-cost areas of the country; (4) equitable and nondiscriminatory contributions from all providers of telecommunications services toward the provision of universal service; (5) specific, predictable, and sufficient federal and state mechanisms to preserve and advance universal service; and (6) access to advanced telecommunications services for schools, healthcare providers, and libraries.[64] Development of specific regulatory provisions is delegated to a Federal-State Joint Board composed of FCC and state public utility commission personnel.[65] The distributions of funds collected is administered by the Universal Service Administrative Corporation, and funds are distributed via four programs: (1) "High Cost" funding to provide telephone service at reasonable cost to areas of the country where the provision of service is significantly more expensive, (2) "Low Income" funding to provide basic local telephone service to low-income customers, (3) "Rural Health Care" funding to provide video-conferencing technology and high-speed Internet access for rural hospital patients to use in obtaining access to distant medical specialists, and (4) "E-Rate" funding to provide Internet access and telecommunications services for schools and libraries.[66]

Previous cross-subsidization was to be made explicit as a universal-service subsidy in the requirement that "[e]very telecommunications carrier that provides interstate telecommunications services shall contribute, on an equitable and non-discriminatory basis, to the specific, predictable, and sufficient mechanisms established by the Commission to preserve and advance universal service."[67] And "[a]ny such support should be explicit and sufficient to achieve the purposes of this section."[68] This stood "in sharp contrast to the tradition of implicit telecommunication cross-subsidies in the US, and much of the rest of the world. . . . However, the

---

cap companies are virtually all larger companies; and (2) the very phenomenon of weighting by minutes causes large-company values to dominate.

62. Pub. L. No. 104-104, 110 Stat. 56 (1996) (codified at scattered sections of title 47 of the U.S. Code).

63. 47 U.S.C. § 254(b) (2006).

64. *Id.* § 254(b)(1)-(6).

65. *Id.* § 254(a)(1).

66. *See* Universal Service Administrative Compan: Universal Service Fund, http://www.usac.org/default.aspx (last visited Dec. 10, 2009).

67. *Id.* § 254(d).

68. *Id.* § 254(e).

FCC has made slow and limited progress in meeting the Telecommunications Act's objective of making universal service support explicit."[69] The persistence of implicit cross-subsidies and historical bias in favor of landline communications influences the role mobile communications plays in universal service.

III. RECENT FEDERAL ACTIONS IMPORTANT TO MOBILE AND THE USF

Within the last two years, there has been a growing focus on universal-service policy and support mechanisms in the United States. This comes at a time when mobile technologies are critically important to consumers and to the connectivity of the nation. Four recent regulatory actions are important to federal universal service, particularly as they relate to mobile communications.

A. The Joint Board Recommendation

On November 20, 2007, the FCC released the recommended decision of the Federal-State Joint Board on Universal Service.[70] One of the most important dimensions of the recommendation was "that the nation's communications goals include achieving universal availability of mobility services (defined as wireless voice), universal availability of broadband Internet services, and voice services at affordable and comparable rates for all rural and non-rural areas."[71]

The Joint Board also recommended that (1) three separate funds be established (for landline voice, mobile voice, and broadband Internet access);[72] (2) funding be capped at current levels;[73] (3) the process should avoid funding competition or building duplicate networks;[74] (4) the "identical support" for wireless carriers at levels for landline carriers be eliminated;[75] and (5) reverse auctions may offer advantages over current universal service funding distribution mechanisms.[76]

---

69. Steve G. Parsons, Laffont & Tirole's Competition in Telecommunications: A View From the US, 9 INT'L J. ECON. BUS. 419, 432-33 (2002).

70. High-Cost Universal Service Support, *Recommended Decision*, 23 F.C.C.R. 1539, para. 1 (2007).

71. *Id.* at para. 4.

72. *See id*. at paras. 1, 4.

73. *Id*. at para. 2.

74. *Id*. at para. 3.

75. *See id*. at para. 5.

76. *Id*. at para. 6.

B. The January 29, 2008, FCC Notice of Proposed Rulemaking (NPRM)

On January 29, 2008, the FCC released its Notice of Proposed Rulemaking, providing tentative conclusions and seeking comment on issues, such as whether the identical-support rule should be eliminated, the methods by which the costs of competitive eligible telecommunications carriers (CETCs) might be calculated, and whether the funding to CETCs should be capped.[77] The FCC did later vote to temporarily cap the Universal Service Fund (USF) for CETCs.[78]

The NPRM itself was noticeably silent on whether three separate funds should be established, the process should avoid funding competition or duplicate facilities, or reverse auctions should be employed.[79]

C. The FCC Order for an Interim Cap for CETCs

In May 2007, the Federal-State Joint Board on Universal Service recommended an interim cap on USF payments to CETCs.[80] In keeping with this recommendation, the FCC ordered that "total annual competitive ETC support for each state will be capped at the level of support that competitive ETCs in that state were eligible to receive during March 2008 on an annualized basis."[81] The FCC provided two exemptions to the cap for CETCs "to the extent it files cost data demonstrating that its costs meet the support threshold in the same manner as the incumbent local exchange carrier (LEC)," and "competitive ETCs serving tribal lands or Alaska Native regions."[82]

---

77. High-Cost Universal Service Support, *Notice of Proposed Rulemaking*, *supra* note 16, at para. 1.

78. High-Cost Universal Service Support, *Order*, 23 F.C.C.R. 8834, para. 5 (2008). *See, e.g.*, John Dunbar & Dibya Sarkar, *Federal Regulators Cap Cell Phone Company Payments*, BOSTON GLOBE, May 1, 2008, *available at* http://www.boston.com/business/taxes/articles/2008/05/01/federal_regulators_cap_cell_phone_company_payments/.

79. The statement of Chairman Martin reflects his continued belief in the long-term viability of reverse auctions. High-Cost Universal Service Support, *Notice of Proposed Rulemaking*, 23 F.C.C.R. 1531, 1579 (2008). Peculiarly, the statement of Commissioner Copps includes the following: "I must dissent from the NPRM's tentative conclusion that the Commission should develop an auction mechanism to determine high-cost support." *Id.* at 1581. And the statement by Commissioner Adelstein includes the following: "To that end, I am also concerned about the impact of reverse auctions and whether such mechanisms can provide adequate incentives for build out in Rural America." *Id.* at 1583. These statements must be based on their reading of a draft of the NPRM rather than the final NPRM itself.

80. *See* High-Cost Universal Service Support, *Recommended Decision*, 22 F.C.C.R. 8998, para. 5 (2007).

81. High-Cost Universal Service Support, *Order*, *supra* note 78, at para. 1.

82. *Id.*

D. The November 5, 2008, FCC Order on Remand, Report and Order, and Further Notice of Proposed Rulemaking (FNPRM)

On November 5, 2008, the FCC released an order on remand, a report and order, and a further notice of proposed rulemaking.[83] Although the order largely deals with ISP-bound traffic, the FCC noted the following: "[w]e thank the Joint Board and its staff for their hard work in studying these difficult issues and in developing their recommendations. We choose not to implement these recommendations at this time, however."[84] The FCC did seek comments on three proposals,[85] most notably the Chairman's Proposal[86] which would, with respect to universal service, (1) establish a commitment to offer broadband services as a precondition to receiving high-cost, universal-service funding;[87] (2) establish reverse auctions to determine funding amounts for areas unserved by broadband;[88] (3) establish a pilot program for broadband service for Lifeline and Link Up (low-income customers);[89] and (4) collect funds via a telephone numbers-based method.[90]

IV. IS MARKET INTERVENTION FOR UNIVERSAL SERVICE ECONOMICALLY RATIONAL?

At this point, we step back from the history and specific mechanisms designed to achieve universal service to consider the underlying economic rationale for intervening in markets. Given the magnitude of the interstate USF and the 11.4 percent tax on interstate telecommunications end-user services, there should be a strong economic rationale for intervention in the telecommunications market to achieve the universal-service outcome.

A. The Test for Market Intervention

The value of relying on competitive markets (or, effectively, competitive markets as a practical matter) is well known in economics.[91] Governments should only interfere in the workings of markets when (1) the freely functioning market has failed to produce the results that would be superior for society (i.e., that market results would be welfare inferior to

---

83. High-Cost Universal Service Support, *Order on Remand and Report and Order and Further Notice of Proposed Rulemaking*, 24 F.C.C.R. 6475 (2008).

84. *Id*. at para. 37.

85. *Id.* at para. 40.

86. *Id.* at app. A.

87. *Id.* at app. A at para. 20.

88. *Id.* at app. A at para. 33.

89. *Id.* at app. A at para. 64.

90. *Id.* at app. A at para. 92.

91. *See, e.g.*, Edwin Mansfield, Microeconomics: Theory and Applications (1996, 9th ed).

intervention) and (2) the benefits of market intervention are greater than the costs of intervention (i.e., the evaluation of the potential superiority of intervention reflect both the direct costs of regulation/intervention and the indirect costs of any market distortions resulting from regulation/intervention).[92] This test is germane for both antitrust remedies as well as the more encompassing regulation of a market.

B. Network Effects, a Rationale for Market Intervention?

For telecommunications and for universal service in telecommunications in particular, what market characteristics may provide a rationale for government intervention? It is well known in telecommunications economics and the economics of networks, that the demand for telecommunications services is different from the demand for traditional products and services, like groceries, automobiles, or dry cleaning.[93] A telecommunications customer's demand will depend, in part, on factors that are external to the customer's decision to purchase.[94] Generally, there are two types of telecommunications positive externalities (also called, or closely related to, direct network effects or bandwagon effects).[95] These externalities are (1) network externalities where the value of network subscription increases with the number of subscribers on a network or a set of interconnected networks and (2) call or use

---

92. *See, e.g.*, CHARLES WOLF, JR., MARKETS OR GOVERNMENTS: CHOOSING BETWEEN IMPERFECT ALTERNATIVES (2nd ed. 1988); R. H. Coase, *The Problem of Social Costs*, 3 J.L. & ECON. 1, 34 (1960) ("The Pigovian analysis shows us that it is possible to conceive of better worlds than the one in which we live. But the problem is to devise practical arrangements which will correct defects in one part of the system without causing more serious harm in other parts.").

93. *See* HAL R. VARIAN, JOSEPH FARRELL & CARL SHAPIRO, THE ECONOMICS OF INFORMATION TECHNOLOGY: AN INTRODUCTION (2004); *see also* Stanley J. Liebowitz & Stephen E. Margolis, *Network Effects, in* 1 Handbook of Telecommunications Economics, 75 (Martin E. Cave et al. eds., 2002).

94. "In economics, an externality is an impact on any party not directly involved in an economic decision. An externality occurs when an economic activity causes external costs or external benefits to third party stakeholders who cannot directly affect an economic transaction." ORGANIZATION OF ECONOMIC COOPERATION & DEVELOPMENT, ENVIRONMENTAL RISKS AND INSURANCE 22 (2003). POLLUTION is an example of a negative externality; the polluter causes costs for others, and without government intervention, these costs are not considered by the polluter (i.e., not included in the polluters decision process). Dr. Paul Johnson, A Glossary of Political Economic Terms – Externality, http://www.auburn.edu/~johnspm/gloss/externality (last visited Dec, 10, 2009). In telecommunications, positive externalities (often referred to as network effects) are important.

95. *See generally* Liebowitz & Margolis *supra* note 93; Jeffrey H. Rohlfs, *Bandwagon Effects in Telecommunications, in* 2 HANDBOOK OF TELECOMMUNICATIONS ECONOMICS 81 (Sumit K. Majumdar et al. eds., 2005); JEFFREY H. ROHLFS, BANDWAGON EFFECTS IN HIGH-TECHNOLOGY INDUSTRIES (2001); VARIAN, FARRELL & SHAPIRO, *supra* note 93. *See also* BRANDS & LEO, *supra* note 20, at 19.

externalities, which recognize that, for most calls, one party obtains value from the call but generally does not pay for the call.[96] It is also useful to recognize that the value of subscription is derived from the value customers expect to obtain from the calls they will make.[97]

A direct network effect (or network externality) occurs when one customer's subscription to the network leads to value obtained from other subscribers on the network.[98] Examples of direct network effects include voice telephony, fax machines, and e-mail accounts. Indeed, direct network effects create a strong incentive for network providers to be interconnected (since network effects span individual providers) and a potential rationale for government intervention to ensure interconnection on reasonable terms between network providers. The existence of a direct network effect will likely cause a critical mass of customers, beyond which the market will be sufficient and self-sustainable.[99]

---

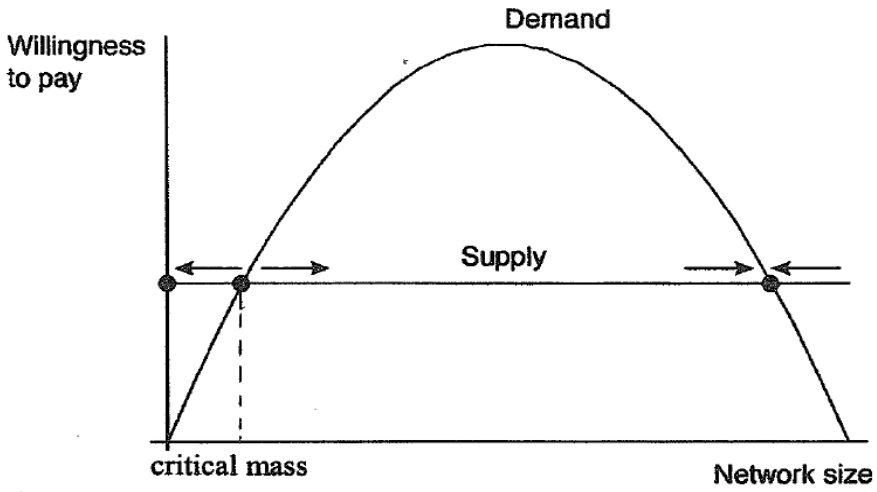
96. *See, e.g.*, Jeffrey Rohlfs, *A Theory of Interdependent Demand for a Communications Service*, 5 Bell J. Econ. & Mgmt. Sci. 16 (1974); Ingo Vogelsang & Bridger M. Mitchell, Telecommunications Competition: The Last Ten Miles 51 (1997); Harald Gruber, The Economics of Mobile Telecommunications 191 (2005); Lester D. Taylor, Telecommunications Demand in Theory and Practice 9 (1994) ("This is the first of two demand externalities associated with the telephone, and is usually referred to as the *call* (or *use*) externality."); John T. Wenders, The Economics of Telecommunications: Theory and Policy 29 (Ballinger 1987) ("Finally, back to telephones. There are two possible sources of externalities here—call externalities or network externalities. Call externalities may result from the fact that both parties [of the call] may benefit from the placement of a phone call even though the cost usually falls entirely on the caller. One of the ways in which call externalities are revealed is by the value placed on telephone access [subscribership] for the purpose of receiving incoming calls.").

97. *See, e.g.*, Lyn Squire, *Some Aspects of Optimal Pricing for Telecommunications*, 4 BELL J. ECON. & MGMT. SCI. 515 (1973); WENDERS, *supra* note 96, at 29, 46-53; TAYLOR, *supra* note 96, at 28-31, 83.

98. An indirect network effect is one in which two or more products in a "system" are strong complements. Consider the example of DVD players and DVDs; customers do not directly obtain value from others owning a DVD player, but rather benefit indirectly from the greater choice of DVDs that exist with a large number of customers owning DVD players. *See, e.g.*, ROHLFS, *supra* note 95; VARIAN, FARRELL & SHAPIRO *supra* note 93. The text by Varian, et al, provides a very intuitive, nontechnical treatment of the topic of direct and indirect network effects.

99. *See*, *e.g.*, VARIAN, FARRELL & SHAPIRO, *supra* note 93 at 34-35, fig. 3. The graph, *infra*, is a slight modification to the one at page 35. *Id.* at 35.

Demand and Supply for a Network Good



However, if the market fails to reach critical mass, significant potential welfare gains (potential consumer surplus plus potential producer rents) will not be obtained. This risk of failure is a strong potential rationale for government intervention. But those who understand direct network effects and the U.S. voice telecommunications market know that critical mass has long been surpassed.[100] Therefore, the potential failure to reach critical mass is not a viable rationale for universal service policies for voice communications in the United States.

Direct network effects can still provide a weaker rationale for a universal-service policy because the marginal network subscriber may receive value of subscription below the price/cost of subscription, but the benefit to others on the network of adding the marginal subscriber creates a total societal value that is greater than the price/cost of subscription. To the extent that the marginal cost of adding subscribers is below the marginal subscription price, this rationale becomes stronger for government intervention.[101]

---

100. Indeed, Jeffrey Rohlfs has argued that AT&T originally employed a very poor market strategy that was largely counter to the concept of direct network effects and critical mass. ROHLFS, *supra* note 95, at 76-79. However, despite its ineptitude in this regard, AT&T still managed to achieve critical mass.

101. The relevant comparison would be the marginal cost of adding a subscriber vis-à-vis the $\sum$ value of subscription to adding the last subscriber (across all subscribers n). Note that a monopolist provider would likely attempt to internalize this effect, but competing providers would only attempt to internalize the effect to the extent that the value is received by other subscribers on their own (but not other) networks.

Direct network effects are also important to large network providers as they attempt to internalize their own customers' externalities in pricing.[102] This could come in the form of low or negative margins on subscription prices and handsets (for mobile providers) and higher margins for vertical features and usage. This could also take the form of price discrimination to attract low-demand-elasticity subscribers. To the extent that a provider attracts a community of interest (a group that tends to call each other), the incentive for the provider to internalize the network externality is stronger.

As total network penetration reaches very high levels, the network externality (the value to existing subscribers) of adding an additional subscriber tends to be relatively low. Telephone penetration in the United States peaked in 2003, at approximately ninety-six percent.[103] Given that a relatively small proportion of households have no telephone service, there may be greater value in encouraging additional mobile subscription to allow individuals to connect for a higher proportion of time and across a greater geographic space. However, even mobile subscription in the United States is relatively high, at eighty-seven percent.[104]

Unfortunately, there is not a well-developed literature measuring the network externality. A landline study from the early 1980s found that the external benefit from adding a marginal subscriber was only about $4 per month.[105] Moreover, the current literature suggests that the cost of adding a marginal customer to the network by simply keeping subscription prices low to all customers is exceptionally high. One study found that the cost is more than $20,000 to add a marginal customer with generically low prices for all subscribers.[106] In contrast, means-based mechanisms (like the Lifeline and Link Up programs at the federal level) are much more effective.[107] In economic parlance, these programs utilize price

---

102. The externality is external to the individual customer decision-making process regarding subscription, not necessarily external to the network provider's decision making.

103. FCC, Telephone Penetration by Income by State: Data Through March 2007, tbl. 4 (March 2008).

104. CTIA—The Wireless Association, Wireless Quick Facts, http://www.ctia.org/content/index.cfm/AID/10323 (last visited Dec. 10, 2009).

105. Given the vintage of this study, a current study would reflect an inflation adjustment, causing the value to be higher, but would also reflect a lower value due to higher penetration rates. JOHN T. WENDERS, THE ECONOMICS OF TELECOMMUNICATIONS: THEORY AND POLICY 65 (Ballinger 1987), (citing Lewis Perl, "Residential Demand for Telephone Service") (on file with the author).

106. Christopher Garbacz & Herbert G. Thompson, Jr., *Estimating Telephone Demand with State Decennial Census Data from 1970-1990: Update with 2000 Data*, 24 J. REG. ECON. 373, 377 (2003) ("The subsidy per year per added household would be about $20,570 (1999 dollars) [with an untargeted 10% reduction in monthly price].")

107. "Means-based" generally refers to support mechanisms restricted to—or targeted to—lower-income individuals.

discrimination to attract the customer segment that is likely to be much more price sensitive and would otherwise be less likely to have subscribed without assistance.[108]

C. Nonmeans-Based Mechanisms for Voice Communications Fail the Test

Telecommunications/network economics, under the right circumstances, provides a theoretical rationale for market intervention to promote universal service—to induce additional subscribers to join the network. However, given the maturity of the U.S. telecommunications network (and the fact that the network has long ago surpassed the required critical mass) and the small proportion of customers without service, the potential justification is weak. This is especially true in light of the empirical literature suggesting that the cost of adding subscribers via nonmeans-based, universal-service mechanisms is far higher than the benefits of adding those subscribers.[109] Therefore, nonmeans-based, universal-service mechanisms for voice communication in the United States fail the test for justifying market intervention (i.e., the evidence suggests that the costs are far higher than the benefits).

As for potential subsidies for broadband subscription, our research is not sufficient to provide a conclusion, but we raise five points to consider. First, the Internet and independent broadband technologies have also obviously passed critical mass. Second, by all measures, broadband subscription is currently much lower than telephone subscription, meaning that there likely is greater potential for higher marginal value by adding subscribers vis-à-vis voice telephony.[110] Third, the most obvious direct network effect is e-mail use, but most e-mail sent has relatively low bandwidth requirements. Fourth, since the demand for any network subscription is derived from the value of usage, higher bandwidth usage certainly could contribute to higher values of subscription and perhaps to some other form of a network effect, such as subscriptions in order to share large files. Fifth, there may be an economic-development rationale for subsidies given the lower rates of penetration of broadband (vis-à-vis voice

---

108. *See, e.g.*, Garbacz & Thompson, *supra* note 106; FCC, TELEPHONE PENETRATION BY INCOME BY STATE, *supra* note 103, at 5 ("On average, for low-income households in those states where full or high assistance is provided, telephone penetration increased by 3.2%, between March 1997 and March 2007.").

109. *See also,* Fcc, Bringing Broadband to Rural America: Report on Rural Broadband Strategy Fn. 285 (2009); and Robert Crandall and Leonard Waverman, Who Pays for Universal Service: When Telephone Subsidies Become Transparent (2000). "Based on these results, one might make a mild case for subsidizing one-time connection charges, but the case for widespread suppression of all continuing monthly residential rates through internal cross subsidies is surely much weaker." *Id.* at 90.

110. *Compare* FCC, TRENDS IN TELEPHONE SERVICE, Tbl. 2.5 *with* Tbl. 7-3 (2008).

telephony), especially in rural areas—that is, the existence of broadband may attract higher-valued businesses (including those relying more on small office/home office (SOHO) arrangements).[111] This may be important for local jurisdictions competing for residents and businesses.[112] For example, a June 2007 study found that, "for every one percentage point increase in broadband penetration in a state, employment is projected to increase by 0.2 to 0.3 percent per year."[113] As of December 2006, the International Telecommunications Union lists the United States as ranking only twenty-fourth in broadband penetration in the world.[114] There are also likely savings in fuel, opportunity cost of travel time, and pollution reductions from expanded broadband connectivity.

D. A Rationale for Rural Subsidization?

Network effects provide the primary potential economic rationale for subsidization of network subscription. Nonmeans-based subsidization of voice communications, however, apparently fails the benefit/cost test for government intervention. Is there an alternate rationale to provide subsidies to rural voice telecommunications or broadband services?

If there is a significant difference in the demand elasticity for the group of potential rural subscribers, this could provide some basis for an economic rationale for rural subsidies.[115] Targeted means-based voice telecommunications subsidies are relatively more effective than nonmeans-

---

111. *See, e.g.*, Center to Bridge the Digital Divide: Rural Bridges Projects, Washington State University, http://cbdd.wsu.edu/projects/rural/ruralbridges/projects.html#eda (last visited Dec. 10, 2009); NoaNet Infrastructure, http://www.noanet.net/infrastructure/ (last visited Dec. 10, 2009).

112. Much of the potential gains to one community are likely losses to another community. As jurisdictions compete for such residents, these transfers should be irrelevant to national policy.

113. Robert Crandall, William Lehr & Robert Litan, *The Effects of Broadband Deployment on Output and Employment: A Cross-sectional Analysis of U.S. Data*, THE BROOKINGS INSTITUTE (July 2007), *available at* http://www3.brookings.edu/views/papers/crandall/200706litan.pdf.

114. Economies by Broadband Penetration, 2007 International Telecommunications Union, http://www.itu.int/ITU-D/ict/statistics/at_glance/top20_broad_2006.html (last visited Dec. 10, 2009).

115. We use the term "elasticity of demand" to refer to the price responsiveness of the group. For any individual consumer, network subscription can be considered a binary choice: they either subscribe to the network or they do not. One can model the choice by any member of the group as a probability of subscription (dependent on, for example, demographic characteristics such as income). However, as a group, one may still discuss demand elasticity. For a group, the higher the own-price elasticity of demand for network subscription, the more likely any form of a subsidy that has the effect of reducing the price paid by consumers of that group will lead to the addition of a network subscriber—to induce someone within that group to subscribe to voice telecommunications service who would otherwise not have subscribed.

based subsidies because they represent a form of price discrimination, focusing on a relatively price-sensitive group (low-income consumers). It is indeed logical to expect that, as a group, low-income consumers are more price sensitive for virtually any good or service, including subscription to a communications network. However, we are not aware of research that suggests that rural America has significantly higher own-price elasticity of demand for voice or broadband subscription.

Even so, the prices of some goods and services do vary across urban/rural categories. Housing and land prices, for example, are obviously much higher in urban areas.[116] Means-based subsidies for housing do exist, but we are not aware of any nonmeans-based subsidies. Like housing subsidies, subsidies to rural telecommunications and broadband services are likely to be more effective if they are means-based, if one believes that additional subsidies are warranted beyond those existing for voice telephony.

E. It Is Critical to Avoid Distorting the Competitive Process

For any government intervention in a market, it is important to avoid unintended distortions in the competitive process, especially when, as here, the rationale for market intervention is weak. It is absolutely critical for the FCC and state commissions to avoid any measures that distort the competitive process as it generates revenues for, and provides subsidies to, telecommunications and broadband services.

The Rural Task Force noted nine years ago that "Section 254(b) and 214(e) of the 1996 Act provide the statutory framework for a system that encourages competition while preserving and advancing universal service."[117] The FCC recognized this statutory mandate in 1997, when it stated that "[u]niversal service support mechanisms and rules should . . . neither unfairly advantage nor disadvantage one provider over another, and neither unfairly favor nor disfavor one technology or another."[118] We applaud the FCC for previously establishing competitive neutrality as a principle of universal service,[119] such that universal service neither disadvantages one technology or service provider over another. Our concern is that this principle has not been consistently applied.

---

116. *See* National Association of Realtors, Metropolitan Median Prices—3rd Quarter 2009, *available at* http://www.realtor.org/research/research/metroprice.

117. Rural Task Force, *Competition and Universal Service* 8 (The Rural Task Force of the Federal-State Joint Board on Universal Service, White Paper No. 5, 2000, *available at*, http://www.wutc.wa.gov/rtf/old/RTFPub_Backup20051020.nsf/43e458610b70dda8882567d00074c6cd/6597dd7d0c39c96f88256977006190f7/$FILE/Wp5.pdf.

118. Federal-State Joint Board on Universal Service, *Report and Order*, 12 F.C.C.R. 8776, para. 47 (1997).

119. *Id.* at paras. 46-48.

The U.S. Court of Appeals for the Fifth Circuit held in *Alenco Communications, Inc. v. FCC* that the universal-service "program must treat all market participants equally—for example, subsidies must be portable—so that the market, and not local or federal government regulators, determines who shall compete for and deliver services to customers."[120] The Fifth Circuit noted that nondiscriminatory access to high-cost support, by incumbent and competitor alike "is made necessary not only by the economic realities of competitive markets but also by statute"[121] and that "[t]he FCC must see to it that *both* universal service and local competition are realized; one cannot be sacrificed in favor of the other."[122]

V. U.S. HISTORY AND PAST POLICIES HAVE FAVORED LANDLINE OVER MOBILE TECHNOLOGY

Because of the relatively weak economic rationales for nonmeans-based support for voice communications universal service, it is critically important that universal-service mechanisms not distort the competitive process. One form of such market distortion can occur by favoring one type of technology over another. We find that universal-service policy in the United States has favored landline over mobile technologies; this is in keeping with several characteristics of U.S. history and regulatory policy that have favored landline technology over mobile technology.

A. Previously, Mobile Providers Could Not Obtain High-Cost Funding

Prior to the Telecommunications Act of 1996, only incumbent landline local exchange carriers could receive high-cost, universal-service funding. While this asymmetry was, at least in theory,[123] eliminated by the FCC's implementation of the Act, the historical bias clearly has effects today. It is likely that there are some rural areas for which a wireless technology would have been the least-cost technology. As such, rational public policy would have been to have a wireless provider be the incumbent provider in that jurisdiction. Landline providers obviously now have the advantage of having received high-cost funding for some period of time already.

---

120. Alenco Comm's, Inc. v. FCC, 201 F.3d 608, 616 (5th Cir. 2000).

121. *Id.*

122. *Id.* at 615.

123. We do not treat here the issue of the difficulty wireless providers may have in obtaining CETC status in some jurisdictions.

B. Wireless Providers Do Not Receive Landline Switched-Access Charges

Originating and terminating switched-access charges are still, on average, greater than the marginal cost of originating and terminating calls. Indeed, the so-called common carrier line charge is by its name and nature designed to recover a portion of the nontraffic–sensitive loop costs. While federal switched access charges have declined over time for large carriers, state-based rates are often still comparatively high, particularly for smaller rural landline providers. For example, the table below shows the rates in our former state of residence, Missouri.[124] Note that, even counting the large carriers like AT&T, thirty-six of the forty-three telephone companies have average switched-access rates (across interLATA and intraLATA rates) per conversation minute of $0.1388 or higher.[125]

124. Telecomm. Dep't, Missouri Pub. Serv. Comm'n, Switched Access Rate Comparison of Incumbent Local Exchange Carriers (2009), *available at* http://www.psc.mo.gov/telecommunications/industry-information/access.pdf.

125. *Id.*

Switched Access Rate Comparison of Incumbent Local Exchange Carriers (ILECs)

Current Status
Sorted by Company Name

SWITCHED ACCESS RATE COMPARISON of INCUMBENT LOCAL EXCHANGE CARRIERS (ILECs)
All figures in USA Dollars

InterLATA Charges Rank	IntraLATA Charges Rank	Average Access Rank	Telephone Company	Carrier Common Line (CCL) INTERLATA Originate	INTERLATA Terminate	INTRALATA Orig.(P)	INTRALATA Orig.(d)	INTRALATA Term.(P)	INTRALATA Term.(d)	Local Switching (LS2)	Line Termn. (LT)	Transport Termn. (TT)	FGC&D LoclTrnsprt (FGT)	TOTALS Inter-LATA	TOTALS Intra-LATA	Average Access Charges
30	36	34	Alma Telephone	0.0302	0.0518	0.0145	0.0024	0.0249	0.0041	0.0118	0.0149		0.0137	0.1628	0.1202	0.1415
41	41	41	AT&T Missouri	0.0097	0.0176	0.0097		0.0176		0.0082			0.0075	0.0587	0.0587	0.0587
17	11	13	BPS Telephone	0.0262	0.0626	0.0262		0.0626		0.0282		0.0049	0.0133	0.1916	0.1916	0.1916
20	13	15	CenturyTel [Spectra]	0.0291	0.0603	0.0291		0.0603		0.0274		0.0048	0.0129	0.1891	0.1891	0.1891
26	21	26	CenturyTel of Missouri	0.0204	0.0486	0.0204		0.0486		0.0273		0.0048	0.0129	0.1685	0.1685	0.1685
42	42	42	CenturyTel of Northwest Arkansas	0.0100	0.0140	0.0100	0.0045	0.0140	0.0063	0.0090			0.0046	0.0513	0.0513	0.0513
16	25	22	Chariton Valley Telephone	0.0440	0.0754	0.0322	0.0180	0.0552	0.0309	0.0118	0.0149		0.0104	0.1936	0.1616	0.1776
9	30	17	Choctaw Telephone	0.0597	0.1022	0.0317	0.0074	0.0543	0.0127	0.0118	0.0149		0.0035	0.2223	0.1464	0.1844
14	10	12	Citizens Telephone	0.0445	0.0757	0.0445		0.0757		0.0268			0.0115	0.1967	0.1967	0.1967
29	34	33	Craw-Kan Telephone	0.0347	0.0595	0.0216	0.0017	0.0371	0.0029	0.0118	0.0149		0.0081	0.1638	0.1283	0.1460
11	1	6	Ellington Telephone	0.0380	0.0652	0.0610	0.0369	0.1045	0.0632	0.0118	0.0149		0.0273	0.2112	0.2735	0.2424
27	23	27	Embarq Missouri	0.0329	0.0496	0.0329		0.0496		0.0236			0.0180	0.1657	0.1657	0.1657
25	17	23	FairPoint Communications	0.0299	0.0446	0.0299		0.0446		0.0282		0.0049	0.0133	0.1771	0.1771	0.1771
19	19	20	Farber Telephone	0.0335	0.0574	0.0263	0.0202	0.0451	0.0346	0.0118	0.0149		0.0226	0.1895	0.1700	0.1798
10	4	8	Fidelity Telephone	0.0450	0.0450	0.0450		0.0450		0.0194			0.0457	0.2203	0.2203	0.2203
39	39	39	Goodman Telephone	0.0100	0.0164	0.0100		0.0164		0.0153			0.0165	0.0901	0.0901	0.0901
32	20	28	Granby Telephone	0.0317	0.0543	0.0350	0.0229	0.0600	0.0392	0.0118	0.0149		0.0106	0.1606	0.1696	0.1651
3	6	5	Grand River Mutual Telephone	0.0682	0.1170	0.0418	0.0064	0.0717	0.0110	0.0118	0.0149		0.0221	0.2828	0.2111	0.2469
35	33	36	Green Hills Telephone	0.0147	0.0507	0.0147		0.0507		0.0118	0.0149		0.0100	0.1388	0.1388	0.1388
12	7	10	Holway Telephone	0.0425	0.0820	0.0425		0.0820		0.0118	0.0149		0.0153	0.2085	0.2085	0.2085
31	26	31	IAMO Telephone	0.0254	0.0553	0.0254		0.0553		0.0118	0.0149		0.0137	0.1614	0.1614	0.1614
24	16	21	Iowa Telecom	0.0251	0.0600	0.0251		0.0600		0.0282	0.0049		0.0133	0.1779	0.1779	0.1779
23	31	30	Kingdom Telephone	0.0384	0.0659	0.0247	0.0038	0.0422	0.0065	0.0118	0.0149		0.0115	0.1807	0.1433	0.1620
13	8	11	KLM Telephone	0.0446	0.0745	0.0446		0.0745		0.0118	0.0149		0.0155	0.2035	0.2035	0.2035
40	40	40	Lathrop Telephone	0.0112	0.0112	0.0112		0.0112		0.0176			0.0133	0.0842	0.0842	0.0842
28	24	29	Le-Ru Telephone	0.0267	0.0457	0.0267		0.0457		0.0271			0.0191	0.1648	0.1648	0.1648
15	18	19	Mark Twain Rural Telephone	0.0492	0.0842	0.0329	0.0144	0.0564	0.0246	0.0118	0.0149		0.0139	0.1949	0.1705	0.1827
33	28	32	McDonald County Telephone	0.0267	0.0459	0.0267		0.0459		0.0270			0.0143	0.1551	0.1551	0.1551
5	5	4	Mid-Missouri Telephone	0.0708	0.0958	0.0407		0.0697		0.0118	0.0149		0.0281	0.2762	0.2200	0.2481
1	14	1	Miller Telephone	0.0986	0.1690	0.0400	0.0017	0.0686	0.0029	0.0118	0.0149		0.0124	0.3458	0.1868	0.2663
2	22	7	MoKan Dial	0.0842	0.1443	0.0332	0.0007	0.0569	0.0012	0.0118	0.0149		0.0112	0.3043	0.1659	0.2351
34	9	25	New Florence Telephone	0.0208	0.0357	0.0393	0.0250	0.0675	0.0429	0.0118	0.0149		0.0192	0.1483	0.1986	0.1735
21	37	35	New London [TDS] Telephone	0.0394	0.0675	0.0100		0.0100		0.0118	0.0149		0.0115	0.1833	0.0964	0.1399
7	3	3	Northeast Missouri Rural Telephone	0.0574	0.1034	0.0574		0.1034		0.0118	0.0149		0.0189	0.2520	0.2520	0.2520
18	27	24	Orchard Farm [TDS] Telephone	0.0468	0.0802	0.0361	0.0269	0.0619	0.0461	0.0118	0.0149		0.0046	0.1896	0.1606	0.1751
22	15	18	Oregon Farmers Mutual Telephone	0.0391	0.0692	0.0391		0.0692		0.0118	0.0149		0.0107	0.1830	0.1830	0.1830
43	43	43	Ozark Telephone	0.0100	0.0100	0.0100		0.0100		0.0071		0.0014	0.0038	0.0473	0.0473	0.0473
6	2	2	Peace Valley Telephone	0.0530	0.1052	0.0530		0.1052		0.0118	0.0149		0.0241	0.2598	0.2598	0.2598
38	38	38	Rock Port Telephone	0.0100	0.0147	0.0100		0.0147		0.0199			0.0139	0.0923	0.0923	0.0923
37	35	37	Seneca Telephone	0.0192	0.0385	0.0192		0.0385		0.0179			0.0165	0.1265	0.1265	0.1265
36	12	14	Steelville Telephone	0.0197	0.0698	0.0197		0.0698		0.0369			0.0140	0.1913	0.1913	0.1913
4	32	9	Stoutland [TDS] Telephone	0.0500	0.1538	0.0239		0.0407		0.0118	0.0149		0.0126	0.2824	0.1432	0.2128
8	29	16	Windstream Missouri	0.0489	0.0880	0.0237		0.0427		0.0267			0.0167	0.2236	0.1530	0.1883
Total = 43	Incumbent Local Exchange Carriers					P = Premium Rate		d = Discounted Rate				Raw Averages =		0.1830	0.1622	0.1726
	Access-Line-Weighted Averages =			0.01565	0.02897	0.01475		0.02739						0.0949	0.0915	0.0932

Revision 63: 08-05-08 Updated AT&T Missouri, weightings.

Prepared by A P Kuss   Printed 08/14/08 10:07 AM

This represents an important source of revenue for rural ILECs, that is virtually unavailable to wireless providers.

C. Wireless Carriers Make Significant Contributions to Spectrum Auctions

Unlike wireline carriers, wireless carriers make significant contributions to spectrum auctions such that the payments made via competitive bidding reflect competition *between* wireless providers. Given the sheer amount of payments collected from mobile-communications providers from spectrum auctions, it is clear that there is a large premium paid beyond the value in the next highest use (for uses other than mobile-communications providers).[126]

As a result, any public policy that asymmetrically disadvantages wireless providers vis-à-vis wireline carriers has the spillover effect of reducing payments for spectrum and thereby reducing funding to the federal government.

D. Wireless Services Are Taxed More Heavily Than Wireline Services

Wireless services are also slightly disadvantaged by higher tax burdens than those faced by wireline carriers.[127] Not only is this another source of competitive disadvantage for wireless providers, but it results in marginally lower tax revenues from wireless carriers compared to what would have occurred with symmetric treatment.

E. The U.S. Mobile-Party-Pays Regulatory Regime Disadvantages U.S. Mobile Providers

For the vast majority of telecommunications calls around the world, the principle of calling-party-pays is applied. [128] That is, the network of the

---

126. The auction in March 2008 alone netted over $19 billion. Molly Peterson, *U.S. Airwaves Bids Total $19.6 Billion; Auction Ends*, (Mar. 18, 2008) http://www.bloomberg.com/apps/news?pid=20601103&sid=aQ8aGoF3c4LY (last visited Dec. 10, 2009). This was only one of a large number of spectrum auctions in which mobile operators made the great majority of bids. *See* FCC Spectrum Action Data, Pennsylvania State University, http://capcp.psu.edu/FCC/ (last visited Dec. 10, 2009).

127. *See, e.g.*, Scott Mackey, *Excessive, Discriminatory Taxes on Wireless Hurt Consumers, Business, and U.S. Economy*, Info. Tech. & Telecomm. News (Apr. 2008), *available at* http://www.heartland.org/policybot/results/23012/Excessive_Discriminatory_Taxes_on_Wireless_Hurt_Consumers_Business_and_US_Economy.html.

128. S.C. Littlechild, *Mobile Termination Charges: Calling Party Pays vs. Receiving Party Pays*, 30 TELECOM. POLICY 242, 244 (2006). *See also*, "Wholesale Termination Regime, Termination Charge Levels and Mobile Industry Performance" (A study undertaken for the British regulator OFCOM) at 9, *available at* http://www.ofcom.org.uk/consult/condocs/mobilecallterm/.

calling party bills the customer that originates the call (whether as part of a bundled offering or separately as an unbundled tariff charge), and that network then becomes responsible for paying any fees to the network on which the call is terminated.[129]

The two major exceptions to this worldwide rule are (1) toll-free, long-distance calling and (2) calls terminated on mobile telephones in the United States, Canada, Singapore, and Hong Kong.[130] In these countries, the call-payment system goes by the misnomer "receiving-party-pays" (RPP); in fact, it is not the receiving party that pays, but rather the *mobile* party. In the rest of the world, when a landline customer originates a call to a mobile customer, the originating landline customer pays for the call. Perhaps more importantly, the charges paid to mobile-network providers are typically much higher than those paid to landline networks. The European Commissioner for Competition Policy stated that European mobile call termination rates are ten times higher than those for fixed-line providers.[131] This is due to the higher proportion of traffic-sensitive (versus nontraffic-sensitive) costs for mobile as compared to landline technologies.[132]

The mobile-party-pays system thus creates a competitive disadvantage for U.S. mobile providers; indeed, RPP has likely contributed to many foreign countries having higher rates of mobile penetration than exist in the United States.[133] Moreover, RPP is not technology neutral and favors landline over wireless technology since landline customers obtain value from originating calls to wireless customers. This distortion is compounded by landline network switched-access revenues (for long-distance calls), which are virtually unavailable to mobile providers.

F. Wireless Service Must Compete with Low Landline Subscription Prices

Because of the factors listed above, wireless services must compete with low landline monthly service rates, especially in rural areas. The

---

129. Littlechild, *supra* note 128, at 245.

130. *Id.* at 246.

131. Neelie Kroes, European Commissioner for Competition Policy, European Union, Cutting the Price of Phone Calls – New Termination Rules (May 7, 2009) *available at* http://europa.eu/rapid/pressReleasesAction.do?reference=SPEECH/09/218&format=HTML&aged=0&language=EN&guiLanguage=en.

132. Landline technologies have generally displayed a higher proportion of nontraffic-sensitive costs.

133. *See Global Penetration Rates*, RCR NEWS (Aug. 22, 2005), *available at* http://www.rcrnews.com/assets/pdf/CR1236727.pdf (showing the top twenty nations by wireless penetration rate, of which the United States is not one); Posting of Tomi Ahonen to Wireless Future, http://wirelessfuture.tribe.net/thread/2e3658c6-db4f-405e-806f-6dc12bb2e9f8 (Mar. 20, 2006, 9:43 EST).

FCC's twelfth CMRS Report discusses such barriers to entry in the provision of wireless services,[134] which are, arguably, the most severe when competing against rural ILEC telephony.

This story of landline regulatory regimes disadvantaging wireless providers is not completely unique to the United States; however, in Canada (one of the only two other countries adopting RPP), one commentator contends that "[o]ne of the causes of Canadians' slowness to adopt cellular telephony is our regulatory policy: in particular, *long-standing cross-subsidies maintain artificially low wireline prices, reducing cellular's relative competitiveness and incentives to invest* in better quality, expanded cellular coverage."[135]

One may be tempted to point to the relatively rapid growth of mobile communications in the United States or the decline in landline penetration in recent years to suggest that mobile communications is not competitively disadvantaged. However, rates of wireless growth in other countries are generally greater than (and often much greater than) those in the United States.[136] One econometric study found that, given its income levels, U.S. mobile penetration is significantly below what one would expect compared to other countries.[137]

---

134. *See* Implementation of Section 6002(B) of the Omnibus Budget Reconciliation Act of 1993: Annual Report and Analysis of Competitive Market Conditions With Respect to Commercial Mobile Services, *Twelfth Report*, 23 F.C.C.R. 2241, paras. 70-102 (2008).

135. Neil Quigley & Margaret Sanderson, *Going Mobile—Slowly: How Wireline Telephone Regulation Slows Cellular Network Development* at the Study in Brief (Dec. 2005) (emphasis added), *available at* http://www.cdhowe.org/pdf/commentary_222.pdf.

136. *See, e.g.*, Connect CIS 2009: Statistics and Figures, International Telecommunications Union (2009), *available at* http://www.itu.int/ITU-D/connect/cis/figures.html. *See also* About Mobility, http://weblog.cenriqueortiz.com /mobility/2008/12/29/worldwide-and-us-mobile-subscriber-penetration-dec-2008/ (Dec. 29, 2008, 11:38 CST).

137. Barbara Veronese & Martin Pesendorfer, Wholesale Termination Regime, Termination Charge Levels and Mobile Industry Performance: A Study Undertaken for Ofcom 12, 20, 24 (Apr. 20, 2009), *available at* http://www.ofcom.org.uk/consult/condocs/mobilecallterm/annex7.pdf. *See id.* at 12 (noting that the noncalling party pays "B&K" data is all from the United States); *id.* at 20 ("Our central finding is that take-up of mobile services is positively associated with both the level of MTRs and the CPNP dummy."); *id.* at 24 (showing that the calling-party-pays CPNP binary variable is statistically significant with large coefficients at the one-percent level in all four model specifications). Because the United States provides the only noncalling-party-pays regime data, this statistical evaluation reflects U.S. regulatory policy in total with respect to mobile communications, not just calling-party-pays.

G. The FCC's May 2008 Order to Cap Payments to Competitive but Not Incumbent ETCs Is Neither Symmetric Nor Competitively Neutral

The FCC's order fails the test of competitive neutrality for at least two reasons. First, while the order does allow for an exemption "to the interim cap to the extent it files cost data demonstrating that its costs meet the support threshold in the same manner as the incumbent local exchange carrier (LEC),"[138] there does not seem to be a mechanism that allows a higher cost CETC to obtain higher funding—that is, the CETC's funding will be less than the incumbent ETCs funding when its costs are lower, but it will not be higher when its costs are higher.

Second, the cap appears to be asymmetrically binary. If the cost of the competitive ETC is less than the incumbent ETC, then the funding drops to a statewide adjusted reduction value. "For example, if, in State A, the capped amount is $90 million, and the total uncapped support is $130 million, the reduction factor would be 69.2 percent ($90/$130). In State A, each competitive ETC's uncapped support would be multiplied by 69.2 percent to reduce support to the capped amount."[139] However, if a specific CETC in State A has costs of 95 percent of the incumbent ETC, it appears that CETC would only receive 69.2 percent of the funding received by the incumbent ETC.

H. The FCC's November 5, 2008, NPRM Appendices Are Neither Symmetric Nor Competitively Neutral

The Chairman's proposal in Appendix A and the modified proposal in Appendix C make receipt of universal-service funding contingent on a commitment to provide broadband.[140] However, the timing of the loss of funding is asymmetric: "[c]ompetitive ETCs that do not make this commitment will not be eligible to receive high-cost support; incumbent LECs that do not make this commitment will *gradually* lose their high-cost support."[141] All three appendices (A, B, and C) have another less obvious form of asymmetry: they would administer reverse auctions at the geographic level of the wireline incumbent's service territory.[142] While

---

138. High-Cost Universal Service Support, *Order*, *supra* note 78, para. 1.

139. *Id*. at para. 28.

140. High-Cost Universal Service Support, *Order on Remand and Report and Order and Further Notice of Proposed Rulemaking*, *supra* note 83, at app. A paras. 4, 19-31.

141. *Id.* at app. A para. 4 (emphasis added); *but see id.* at app. C para. 4.

142. *Id.* at app. A para. 35; *id.* at app. B para. 22; *id.* at app. C para. 35. This provides a competitive advantage to the incumbent wireline provider since the geographic area for which the bidding would occur precisely corresponds to their existing facilities. We do recognize that such a geography may be the easiest to administer, but some recognition should be made in the process of the technological (and company-specific) bias created.

there is great potential to improve economic efficiency via the use of reverse auctions for universal-service funding, particularly of the more sweeping type provided for in Appendix B,[143] the devil would be in the details.[144]

I. Implications for USF Policy

The FCC and state commissions should consider the existing competitive distortions that already disadvantage wireless providers vis-à-vis wireline providers in the United States. Any changes to the universal-service program that further disadvantage wireless providers, given the existing distortions, would be especially egregious.

VI. ELIMINATING THE IDENTICAL SUPPORT RULE?

Prior to the NPRM, the FCC had explicitly allowed CETCs to receive universal-service funding after being certified by state public service commissions as eligible.[145] CETCs could employ landline technologies (as the incumbent ETCs do) or wireless technologies to connect customers.[146] Incumbent ETCs have long-standing requirements to file accounting cost information that is used to determine the amount of universal-service funding required. However, CETCs often have neither the same accounting cost information available, nor do their service territories match those of the incumbent landline ETC. In order to deal with these issues, the FCC initially established the so-called identical-support rule, which provided CETCs with universal-service funding identical in amount and in geographic scope to that received by the incumbent.[147]

The FCC's universal-service rules implicitly allowed support for more than one "line" per household (via support to a wireless and a landline provider); this was one of the factors that led to a growing fund

---

143. Appendix B appears to eliminate the old high-cost, universal-service funding mechanism and replace it entirely with a reverse auction mechanism. *Id*. at app. B para. 20 (stating that "we conclude, instead, that support for competitive ETCs should be awarded in the same manner as incumbent LEC ETC support, via reverse auction"). In contrast, Appendices A and C state the following: "[f]or these Unserved Study Areas, we will conduct a reverse auction for the right to receive high-cost support." *Id*. at app. A para. 32; *see also id.* app. C para. 32.

144. For instance, a winner-takes-all reverse auction has shortcomings since the winner will not serve all (in contrast to competitive bids by suppliers, as the standard analogy). An auction winner could end up serving only a small number of potential customers in an area while others providing the same service would receive no universal-service subsidy payment.

145. Federal-State Joint Board on Universal Service, *First Report and Order*, *supra* note 16, at paras. 133-49.

146. *Id.* at para. 145.

147. *Id*. at paras. 286-90.

size over time.[148] In response to that growth, the Joint Board proposed that the identical-support rule be eliminated.[149] In doing so, the FCC has employed reasoning inconsistent with sound economics and logic.

A. A Higher Proportion of Displaced Landlines Would Not Have Reduced Universal Service Payments Under the Current System

The FCC suggests that much of its motivation to change the universal-service support system is because "[t]hese wireless competitive ETCs do not capture lines from the incumbent LEC to become a customer's sole service provider, except in a small portion of households."[150]

The current system provides subsidy payments to the rural landline incumbents, not on the basis of the number of landlines retained, but rather on the basis of the total embedded costs of rural ILECs. If this were not the case, payments to rural ILECs would have declined over time as their line counts fell; instead, payments have remained relatively flat in recent years. Indeed, the full displacement of rural ILEC landlines by growth in rural wireless line counts would have led to two types of events. First, there may have been small reductions in rural landline maintenance and operations expenses vis-à-vis what would have happened with actual rural landline counts. Second, line losses may have been great enough that loss of revenues from services, including cross-elastic and so-called vertical features would have eroded or eliminated rural landline profits. This would have led to pressures for greater funding for universal service, increases in service prices, and reduced regulation of rural landline service providers.

It is, therefore, inconsistent to imply that the need for reform is based on the absence of rural landline displacement yet simultaneously claim that growth in rural wireless has triggered the need for reform.

B. Unequal Subsidy Payments Are Antithetical to the Competitive Process

To understand the consequences of eliminating the identical-support rule, the FCC must consider how pricing occurs in unregulated markets. In workably competitive markets, similar offerings tend to have similar prices; otherwise, consumers will tend to choose the offering with the lower price. As technology changes and as cost structures change, market prices are likely to change over time as well. At any point in time, the price in the market will tend to reflect the full costs (both marginal/volume

148. *See* High-Cost Universal Service Support, *Notice of Proposed Rulemaking*, *supra* note 16, at para. 2.

149. *Id.* at para. 5.

150. *Id.* at para. 9.

sensitive costs and volume insensitive costs) of the least efficient provider that is still in the market. Of course, there are likely firms that are marginally excluded (those that have either left the market or did not yet enter) with slightly higher costs than the least efficient provider. To the extent that there are other, more efficient, providers in the market, they receive the same price but earn rents or quasi-rents from their more efficient operations. Over time, less efficient technologies tend to be displaced as existing firms adopt the more efficient technology or as new entrants utilize the more efficient technology.

When universal service is subsidized, the subsidy payment should similarly represent that which would have occurred in a competitive market. However, what does not occur in competitive markets (and thus, should not be represented by subsidy payments) is that significantly different levels of compensation are paid to firms that offer similar services simply because the firms have different costs.[151] However, elimination of the equal-support rule would have just such an effect—providing additional compensation to some firms, but not to others.

C. Unequal Subsidy Payments Are Inconsistent with the FCC's Rationale in Reflecting the Costs of the Most Efficient Provider

For universal-service subsidies, unbundled network elements, and reciprocal compensation, the FCC dictated the use of cost calculations reflective of the least-cost, most efficient providers for so-called nonrural ILECs.[152] Two different levels of USF support to carriers within the same service area is clearly in conflict with the concept of least-cost, most efficient providers, as some carriers would be receiving support beyond the cost of the more efficient carrier.[153]

D. A Symmetrically Applied Individual Cap Would Be Rational and Competitively Neutral

A symmetrically applied cap would provide sound signals to the market participants. A mechanism—where costs are calculated for each of the carriers in a service area and the support value is determined by the lowest cost of the carriers—is competitively neutral, and would, in the long run, send appropriate signals to market participants. In reaching such a

---

151. Indeed, this would imply unsustainably irrational consumer behavior.

152. Implementation of the Local Competition Provisions in the Telecommunications Act of 1996, *First Report and Order*, 11 F.C.C.R. 15499, para. 685 (1996).

153. Hold aside the fact that the method of calculation may be based on embedded costs and therefore not reflective of forward-looking costs.

goal, however, the FCC may wish to consider a transition path toward the lower cost.[154]

E. The FCC Must Decide on the Application of a Symmetric Cap Prior to Obtaining Cost Data

While a symmetric cap, applied to both wireline and wireless carriers, could be competitively neutral, the choice must be made in the absence of cost information based on the FCC's judgment regarding sound public policy and not on the likely consequences for one technology over another.

VII. CONCLUSION

Over time, concepts of universal service have changed. The history of wireline telecommunications originally led to notions of subscribership and universal service based on measures of connecting locations, virtually precluding wireless providers. This contributed to a bias against wireless providers and a distortion in the technology choices by providers. Today, customers' concepts of connection to the network have shifted from "connection to locations" to "connection to customers themselves." Customers now demand access across time *and* space.

In order to successfully achieve the goals of universal service, federal telecommunications regulation must aim to promote this new type of connectivity and it must do so in a competitively neutral manner. Given the already high levels of wireline and wireless penetration, the economic rationale for any intervention in the telecommunications market is weak; this means that competitive neutrality should be the dominant regulatory principle.

Sound universal-service policy, like sound public policy in general, must be competitively neutral both with respect to technology and firms. Moreover, without competitive neutrality, consumer choice and sovereignty is subverted. Otherwise, the path forward will reflect the political/regulatory perception of universal service, not the underlying supply-side characteristics of the relevant technologies or the changing demand-side expectations of connectivity. The ultimate public-policy mistake is to abandon the fundamental principle of competitive neutrality and pervert market results in order to achieve a politically expeditious result.

The recent appointment of three new FCC commissioners provides a unique opportunity for more economically rational federal policy and funding mechanisms for universal service.

---

154. As we noted above, dynamic competitive markets will tend to result in similar prices for similar services, but those prices may be above the lowest cost providers' prices for some period of time as the new innovator reaps quasi-rents.