

Is Federal Preemption Efficient in Cellular Phone Regulation?

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Increased regulation of wireless telephone service is being proposed by both federal and state policy makers, raising the question of optimal jurisdiction. The case for decentralization (state rules) is strongest when the economic activity being regulated is localized and market spillovers are relatively small. Alternatively, the case for uniformity (federal rules) becomes more persuasive when externalities dictate that efficiency in one state is closely tied to efficient arrangements in others. In this situation, balkanization becomes disruptive and federalism becomes ineffective as firms conform not to diverse standards, but in the best case scenario, to the most stringent ones. As an empirical matter, wireless telephony exhibits strong economies of scale and scope, and national networks have proven

crucial to industry development. Consolidation of fragmented license areas was, along with new entry, instrumental in reducing rates by seventy-nine percent during the 1993-2002 period.¹

I. INTRODUCTION

Some states are considering new regulations for wireless telephone service.² Alternatively, federal legislation has recently been introduced to achieve similar objectives.³ Proposed rules would potentially change marketing practices, alter the information conveyed in newspaper, radio, or TV ads, and stretch the “free trial” periods before “early termination fees” would kick-in (Table 1). The effect on consumers of such measures has been analyzed in previous research.⁴ This paper discusses the policy arguments for determining such service rules on a state-by-state basis versus imposing federal regulatory standards.

Portions of this question have been decided in favor of federal jurisdiction, while other responsibilities have been given to state law. Cellular phone service fundamentally depends on spectrum policies enacted by the federal government. The basic market structure questions—how many firms compete, what technologies they use, how much bandwidth they access, and how they interconnect with other networks—are consequently determined by the Federal Communications Commission (“FCC”). Moreover, the Omnibus Budget Reconciliation Act of 1993 established that “no State or local government shall have any authority to regulate the entry of or the rates charged by any commercial mobile service or any private mobile service.”⁵ This effectively preempted state regulation

1. Average rates fell from \$0.57 per minute in 1993 to \$0.12 per minute in 2002. *See infra* Table 3.

2. Jeffrey Silva, *States Get Tougher on Wireless*, RCR WIRELESS NEWS, Feb. 10, 2003 at 1.

3. *See, e.g.*, S. 1216, 108th Cong. § 1 (2003); *see also* Press Release, Senator Charles E. Schumer, Schumer Unveils First Comprehensive Cell Phone User Bill of Rights (Feb. 25, 2003), *available at* http://schumer.senate.gov/SchumerWebsite/pressroom/press_releases/PR01504.html.

4. *See* Thomas W. Hazlett, *Regulating Wireless Phones in California: An Economic Analysis*, (Apr. 9, 2003), *available at* <http://www.pacificresearch.org/events/2003/wireless/HazlettPaper.pdf>.

5. Omnibus Budget Reconciliation Act of 1993, 47 U.S.C. § 332(c)(3)(A) (2000). The language of this section has been taken by some to include federal preemption of local zoning authority involving wireless base stations, towers, and antennas. *See* OFFICE OF TECH. ASSESSMENT, U.S. CONG., PUB. NO. OTA-ITC-622, WIRELESS TECHNOLOGIES AND

of cellular rates with a one-year phase-in, meaning that there has been no federal or state regulation of wireless telephone charges since August, 1994.

In the 1993 federal preemption statute, however, states were left with jurisdiction over “other terms and conditions of commercial mobile services.”⁶ How much regulatory authority this cedes to the states is legally uncertain.⁷ In equilibrium, it appears clear that there will be some shared responsibilities, with federal jurisdiction for key economic regulations including spectrum-related issues, and state authority over matters that are traditionally decentralized, such as the resolution of contractual disputes in municipal and state courts.

The question addressed in this paper is where, as a matter of public policy, to draw the line regarding the consumer protection regulations currently under consideration. From the perspective of consumer welfare, and assuming a possible role for regulatory standards, would the standards be most efficiently evaluated and applied by the several states or at the federal government level?

Table 1. State and Federal Wireless Phone Regulation Proposals			
<i>Gov't</i>	<i>Source of Regulation</i>	<i>Rules</i>	<i>Date Introduced</i>
Cal.	PUC Rules, Telecommunications Bill of Rights ⁸	Up to fifty-day cancellation period, identification of service area/quality, advertising standards (minimum font, etc.), no abbreviated contracts (“incorporation by reference”)	June 2002

THE NATIONAL INFORMATION INFRASTRUCTURE 209 (1995). In addition, federal law preempted states from levying property taxes on wireless phone licenses, 47 U.S.C. § 332(c)(3)(A).

6. 47 U.S.C. § 332(c)(3)(A).

7. For an excellent discussion of these issues, see Leonard J. Kennedy and Heather A. Purcell, *Section 332 of the Communications Act of 1934: A Federal Regulatory Framework That Is “Hog Tight, Horse High, and Bull Strong,”* 50 FED. COMM. L.J. 547 (1998).

8. Cal. Pub. Utils. Comm’n, Telecommunications Bill of Rights, (2003), available at <http://www.cpuc.ca.gov/static/Industry/Telco/030723borwooddraftdec.doc>. This is a draft of revised and, in some cases, scaled-back proposed regulations. The issues are still under discussion.

Cal.	PUC Rule R 02-12-004 ⁹	Government testing of networks for quality of service	December 2002
Cal.	Senate Bill 128 ¹⁰	Thirty-day trial period for new subscribers	February 2003
Iowa	House File 2322 ¹¹	Limits on contract length, enhanced ability to break contract	February 2002
Md.	Senate Bill 288 ¹²	Service quality standards, regulated disclosure of contract terms, fourteen-day trial period	January 2003
Wis.	Assembly Bill 889 ¹³	Number portability (phone numbers transfer to carrier selected by subscriber), bundled with emergency service rules (dropped at end of session)	March 2002
N.Y.	Senate Bill 3750 ¹⁴	Disclosure of service area	April 2003
U.S.	Senate Bill 1216: Cell Phone Users Bill of Rights ¹⁵	Disclosure of contract terms in uniform format with font size minimum, disclosure of coverage areas, FCC monitoring of network quality, number portability by late 2003	June 2003
U.S.	FCC Docket No. 95-116 ¹⁶	Wireless telephone number portability, after several delays, scheduled for November 24, 2003	July 1996

9. Cal. Pub. Utils. Comm'n, *Order Instituting Rulemaking on the Commission's Own Motion into the Service Quality Standards for All Telecommunications Carriers and Revisions to General Order 133-B*, Rulemaking No. 02-12-004, (Dec. 5, 2002), available at http://www.cpuc.ca.gov/word_pdf/rulings/23232.pdf.

10. Cal. S.B. 128, 2003-2004 Gen. Leg. Sess. (Cal. 2003), available at http://www.leginfo.ca.gov/pub/bill/sen/sb_01010150/sb_128_bill_20030310_amended_sen.pdf.

11. H.F. 2322, 79th Gen. Assem., Reg. Sess. (Iowa 2002), available at http://www.legis.state.ia.us/cgi-bin/Legislation/File_only.pl?FILE=/usr/nshome/docs/GA/79GA/Legislation/HF/02300/HF02322/020213.html.

12. S.B. 288, 2003 Leg., 417th Sess. (Md. 2003), available at <http://mlis.state.md.us/2003rs/bills/sb/sb0288f.rtf>.

13. A.B. 889, 2001-2002 Leg., Reg. Sess. (Wis. 2002), available at <http://www.legis.state.wi.us/2001/data/AB-889.pdf>.

14. S. 3750, 2003-2004 State Assem., Reg. Sess. (N.Y. 2003), available at <http://assembly.state.ny.us/leg/?bn=S03750&sh=t>.

15. S. 1216, 108th Cong. § 1 (2003).

16. Rules and Regulations Implementing The Telephone Consumer Protection Act of 1991, *Report and Order*, 18 F.C.C.R. 14014, paras. 160-172, 29 Comm. Reg.2d (P & F) 830 (2003).

Two broad sets of marketplace evidence help to answer this question, and both suggest that federal jurisdiction is relatively efficient. The first concerns the efficiency of national scope in wireless networks. The economics of wireless telephony suggest that regardless of the jurisdiction selected for rulemaking, diverse local rules will not effectively determine standards. Rather, nationally integrated network operators will choose to conform to those regulations that allow them the best opportunity to offer nationwide service. This undermines incentives for states to create efficient rules. Either such rules will have little practical impact, or they will create large *external* effects, meaning that they impact consumers and suppliers outside the political jurisdiction where policies are crafted. Such effects are typically discounted in the decisions of policymakers, resulting in rules that are relatively inefficient. The second set of data is derived from a natural experiment involving a 1994 federal preemption of cellular rate regulation by the states. State controls demonstrably failed to lower rates for customers. Nonetheless, strenuous arguments were made at the time by several state regulatory commissions that such controls were efficient and should be permitted to continue. This speaks directly to the effectiveness of state regulation of wireless telephone service.

This paper proceeds as follows: Section II sketches a very brief history of the wireless telephone industry. Section III summarizes the general arguments for and against federal preemption in economic regulation. These include examples from other sectors where diverse state rules are efficient and from where uniform federal standards have proven efficient. Section IV investigates the economics of wireless telephone service, producing the key finding that consolidation of an atomistic licensing grid through mergers and operating agreements has produced efficient national networks. This is the service that consumers have demonstrated a keen interest in purchasing. Section V discusses the importance of national wireless network economies in light of the trade-offs generally associated with regulatory federalism. Section VI examines results from a natural experiment wherein state regulation of cellular telephone rates was preempted in 1994. Section VII concludes that the weight of the evidence argues in favor of substantial federal preemption in wireless telephone regulation.

II. A BRIEF HISTORY OF THE WIRELESS TELEPHONE INDUSTRY

A basic description of the wireless telephone industry will aid in the discussion of regulatory options. Cellular phone service began with the

issuance of two competing licenses, mostly by lottery, in each of 306 Metropolitan Service Areas (“MSAs”), between 1984 and 1986, and in 428 Rural Service Areas, between 1988 and 1989.¹⁷ This was the result of a rulemaking process formally initiated by the FCC in 1968.¹⁸ The long delays involved regulatory debate over many issues, including how many companies should be licensed and how much spectrum should be allocated for use. The FCC, on an assumption of natural monopoly, initially decided to license just one operator but became persuaded that some competition was possible and that licensing two rivals in each service area would still allow for economies of scale to be realized by each. It allocated various increments of bandwidth, finally deciding to allot 25 MHz (about the same used for four television channels) to each license, with the frequencies to be in the UHF band reallocated from TV channels 70-83.¹⁹

17. Thomas W. Hazlett & Robert J. Michaels, *The Cost of Rent-Seeking: Evidence from Cellular Telephone License Lotteries*, 59 S. ECON. J. 425, 427 (1993). Experimental licenses were issued in Chicago and Washington, D.C., where commercial cellular services commenced in 1983. Wireless commercial phone service actually dates to 1946, but the high-power systems had very little capacity. Cellular employs much lower power, yielding reuse of frequencies from cell to cell, and hence provides the capacity for much more traffic. L. KETA RUIZ, TOWARD A COMPETITIVE TELECOMMUNICATION INDUSTRY: SELECTED PAPERS FROM THE 1994 TELECOMMUNICATIONS POLICY RESEARCH CONFERENCE 14-15 (Gerald W. Brock ed., 1995).

18. Land Mobile Use of 806-960 MHz Band, *Notice of Inquiry and Notice of Proposed Rulemaking*, 14 F.C.C.2d 311 (1968); see also Part 2—Frequency Allocation and Radio Treaty Matters; General Rules and Regulations, 35 Fed. Reg. 8644 (June 4, 1970); GEORGE CALHOUN, DIGITAL CELLULAR RADIO 45-49 (1988).

19. An Inquiry Relative to the Future Use of the Frequency Band 806-960 MHz, *First Report and Order and Second Notice of Inquiry*, 19 Rad. Reg.2d (P & F) 1663 (1970); see also CALHOUN, *supra* note 18, at 48.

<i>License Type</i>	<i>Period Assigned</i>	<i>Assignment Methods</i>	<i>No. of Licenses</i>	<i>Bandwidth</i>	<i>Band</i>
Cellular A	1984-89	comparative hearings, lotteries	734	25 MHz	800 MHz
Cellular B	1984-89	comparative hearings, lotteries	734	25 MHz	800 MHz
PCS A	1995	auctions	51	30 MHz	1.9 GHz
PCS B	1995	auctions	51	30 MHz	1.9 GHz
PCS C	1996	auctions	493	30 MHz	1.9 GHz
PCS D	1997	auctions	493	10 MHz	1.9 GHz
PCS E	1997	auctions	493	10 MHz	1.9 GHz
PCS F	1997	auctions	493	10 MHz	1.9 GHz
SMR	1979-2000	comparative hearings, auctions	48,993	14 MHz 5 MHz	800 MHz 900 MHz
Totals	N/A	N/A	52,535	189 MHz	N/A

20. See Wireless Telecomm. Bureau, FCC, Cellular Market Areas: Metropolitan Statistical Areas and Rural Service Areas, at <http://wireless.fcc.gov/auctions/data/maps/rsamsa.pdf> (showing 734 franchise areas) (last visited Dec. 18, 2003); Wireless Telecomm. Bureau, FCC, Licensing, at <http://wireless.fcc.gov/services/cellular/licensing/> (explaining that one "A" and one "B" license were initially authorized in each franchise area, with overlapping licenses for unbuilt sub-areas assigned by competitive bidding) (last modified Oct. 23, 2002); Wireless Telecomm. Bureau, FCC, Auction 4: Broadband PCS A and B Block, Fact Sheet, at <http://wireless.fcc.gov/auctions/04/factsheet.html> (last modified Sept. 8, 2003); Wireless Telecomm. Bureau, FCC, Auction 5: Broadband PCS C Block, Fact Sheet, at <http://wireless.fcc.gov/auctions/05/factsheet.html> (last modified Sept. 8, 2003); Wireless Telecomm. Bureau, FCC, Auction 11: Broadband PCS D, E, & F, Fact Sheet at <http://wireless.fcc.gov/auctions/11/factsheet.html> (last modified Oct. 6, 2003); Wireless Telecomm Bureau, FCC, Broadcast PCS: Bandplan, at <http://wireless.fcc.gov/services/broadbandpcs/data/bandplan.html> (last modified Apr. 11, 2003); Wireless Telecomm. Bureau, FCC, Cellular Services: Bandplans, at <http://wireless.fcc.gov/services/cellular/data/bandplan.html> (last modified June 6, 2002). The SMR License Count, which changes daily, was obtained November 10, 2003 by searching the Universal Licensing System, at <http://wireless2.fcc.gov/UlsApp/UlsSearch/searchAdvanced.jsp> [hereinafter Universal Licensing System].

It should be noted that three of the PCS A and B licenses (102 total) were awarded by pioneer's preference, meaning that auctions were not used. Also, C and F Block PCS licenses were assigned via auctions as noted, but winners of many of the licenses declared bankruptcy. The winner of the largest number of licenses, NextWave, was the subject of bankruptcy litigation until a Supreme Court ruling in early 2003. *FCC v. NextWave Personal Comms.*, 254 F.3d 130 (D.C. Cir. 2001), *aff'd by* 537 U.S. 293 (2003).

The potential of wireless telephone service was vastly underestimated. Through the mid-to-late-1980s, prices for actively traded cellular licenses increased almost monotonically. Beginning trades were just \$12 “per POP” (price of the license divided by total population in the market area covered by the license), but by 1988, prices exceeded \$135.²¹ By 1990, the aggregate nationwide value of the licenses just in the MSAs (covering about eighty percent of U.S. population) was estimated at close to \$80 billion by the U.S. Department of Commerce.²² These large market capitalizations were driven by reinforcing trends within the sector, including strong customer demand for wireless phone service, enhanced network coverage, rapidly falling handset costs, and rapidly increasing handset functionality (including miniaturization and increased battery life).

Prices were much higher than fixed line service, however, and they had exhibited no substantial decline since the initiation of cellular systems.²³ The duopoly market structure imposed on the industry had established reasonable service, but it was expensive and extremely fragmented owing to the FCC’s 734-market licensing grid. This would change as competition and consolidation dramatically restructured the industry.

Entry was primarily achieved in two regulatory proceedings, the most important being for personal communications services (“PCS”). PCS used smaller cells than traditional cellular systems, as well as digital formats that improved capacity and performance.²⁴ Formally initiated in 1990, the Commission allocated 120 MHz to six new licenses in the 1.9 GHz band. Two licenses (PCS-A and PCS-B) were allocated 30 MHz each and issued in each of 51 Major Trading Areas (“MTAs”).²⁵ These licenses were

21. Hazlett & Michaels, *supra* note 17, at 429.

22. NAT’L TELECOMM. & INFO. ADMIN., U.S. DEP’T OF COMMERCE, U.S. SPECTRUM MANAGEMENT POLICY: AGENDA FOR THE FUTURE D-5 (1991).

23. “There has been a rapid growth of cellular subscribers, due to reduction in equipment costs, even though service prices have not fallen very much.” RUIZ, *supra* note 17, at 15.

24. DAVID P. REED, PUTTING IT ALL TOGETHER: THE COST STRUCTURE OF PERSONAL COMMUNICATIONS SERVICES 18-19, 64 (Office of Plans and Policy, FCC, Working Paper No. 28, 1992), available at http://www.fcc.gov/Bureaus/OPP/working_papers/oppwp28.pdf.

25. Redevelopment of the Spectrum to Encourage Innovation in the Use of New Telecomm. Techs., *First Report and Order and Third Notice of Proposed Rulemaking*, 7 F.C.C.R. 6886, 71 Rad. Reg.2d (P & F) 349 (1992); Amendment of the Comm’n’s Rules to Establish New Personal Comm. Servs., *Second Report and Order*, 8 F.C.C.R. 7700, 73 Rad.

auctioned, pursuant to new federal legislation, in 1995.²⁶ Four remaining PCS licenses were assigned in each of 493 Basic Trading Areas (“BTAs”).²⁷ PCS-C was allocated 30 MHz, the rest (PCS-D, PCS-E, and PCS-F) were allocated 10 MHz each. Auctions for these licenses were held in 1996 and 1997.²⁸ With simultaneous auctions, PCS bidders could aggregate permits to create regional or national service territories, as Sprint PCS did, for example, in winning licenses covering close to the entire country.

Reg.2d (P & F) 1477 (1993); Redevelopment of Spectrum to Encourage Innovation in the Use of New Telecomm. Techs., 9 F.C.C.R. 1943, 74 Rad. Reg.2d (P & F) 1042 (1994).

26. See Wireless Telecomm. Bureau, FCC, Auction 4: Broadband PCS A and B Block, at <http://wireless.fcc.gov/auctions/04/> (last modified July 25, 2003); Press Release, FCC, FCC Grants 99 Licenses for Broadband Personal Communications Services in Major Trading Areas (June 23, 1995), available at http://www.fcc.gov/Bureaus/Wireless/News_Releases/1995/nrw15027.txt.

27. See FCC, Wireless Telecomm. Bureau, Auction 22: C, D, E, and F Block Broadband PCS at <http://wireless.fcc.gov/auctions/22/factsheet.html> (last modified on Oct. 20, 2003).

28. Bankruptcy disputes arose with respect to many PCS-C licenses, and more than eighty percent of these licenses (adjusted for population) were as yet undeployed as of July 1, 2003. See Thomas W. Hazlett and Babette E.L. Boliek, *Use of Designated Entity Preferences in Assigning Wireless Licenses*, 51 FED. COMM. L.J. 639, 649 (1999); see also Carmen Nobel, *Sitting Pretty at Last*, EWEEK 26 (June 2, 2003), available at http://www.eweek.com/print_article/0,3668,a=42693,00.asp.

Table 3. Growth in U.S. Wireless Telephone Service, 1984–2002

Survey Period	Minutes of Use (MOU) ²⁹	Subscribers ³⁰	MOU/Subper Month ³¹	Total Service Revenue (\$000s) ³²	Cost per Minute ³³	Penetration Rate ³⁴
1985	N/A	340,231	N/A	482,428	N/A	N/A
1986	N/A	681,825	N/A	823,052	N/A	N/A
1987	N/A	1,230,855	N/A	1,151,519	N/A	N/A
1988	N/A	2,069,441	N/A	1,959,548	N/A	N/A
1989	N/A	3,508,944	N/A	3,340,595	N/A	N/A
1990	N/A	5,283,055	N/A	4,548,820	N/A	N/A
1991	11,154,015,983	7,557,148	123	5,708,522	\$0.51	2.9%
1992	13,567,533,156	11,032,753	102	7,822,726	\$0.58	4.2%
1993	19,160,964,277	16,009,461	100	10,892,175	\$0.57	6.1%
1994	26,950,000,239	24,134,421	93	14,229,922	\$0.53	9.1%
1995	37,767,122,723	33,785,661	93	19,080,239	\$0.51	12.6%
1996	51,970,200,176	44,042,992	98	23,634,971	\$0.45	16.3%
1997	62,923,082,455	55,312,293	95	27,485,633	\$0.44	20.2%
1998	89,010,438,637	69,209,321	107	33,133,175	\$0.37	25.1%
1999	147,725,958,780	86,047,003	143	40,018,489	\$0.27	30.9%
2000	258,854,860,127	109,478,031	197	52,466,020	\$0.20	38.3%
2001	456,964,165,225	128,374,512	297	65,015,885	\$0.14	44.4%
2002	619,000,000,000	140,766,842	366	76,508,187	\$0.12	47.7%

29. CELLULAR TELECOMM. & INTERNET ASS'N, CTIA'S WIRELESS INDUSTRY INDICES SEMI-ANNUAL DATA SURVEY RESULTS: A COMPREHENSIVE REPORT FROM CTIA YEAR-END 2001 RESULTS, AN ANALYSIS OF THE U.S. WIRELESS INDUSTRY 192-93, table 107 (Aug. 2002) [hereinafter CTIA SURVEY].

30. *Id.* at 33, table 11. The 1984 data includes the number of subscribers as of January 1985. The 1985-2002 data was reported in December of each year.

31. The minutes of use per month were calculated using the data from the CTIA Survey, dividing the total minutes of use per year by the total number of subscribers. That figure was then divided by 12.

32. CTIA SURVEY, *supra* note 29, at 70, table 27. The data representing 1984 in this chart is from the January 1985 data. The 2002 figure is the sum of the June 2002 and December 2002 data.

33. The cost per minute was calculated using data from the CTIA Survey, dividing total service revenue by minutes of use.

34. CTIA SURVEY, *supra* note 29, at 36, table 13. The CTIA calculated the penetration rates by dividing the total number of subscribers by the population.

PCS licensees began constructing competing wireless telephone systems just as Fleet Call, now Nextel, was deploying a nationwide wireless network using Specialized Mobile Radio (“SMR”) licenses. The plan actually used licenses for local dispatch services (taxis, pizza delivery, etc.), which by means of a strategic regulatory waiver, were permitted to provide wireless phone competition.³⁵ By accumulating thousands of licenses for such localized services and creating a national network with the right to offer service to the general public, a new coast-to-coast wireless competitor was created.

35. The entrepreneurial vision driving Nextel was provided by a former FCC attorney, Morgan O’Brien. 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, at 426-428 (2001).

Table 4. Major U.S. Wireless Carriers (year-end 2002)³⁶						
	<i>Verizon Wireless</i>	<i>Cingular Wireless</i>	<i>AT&T Wireless</i>	<i>Sprint PCS</i>	<i>Nextel</i>	<i>T-Mobile USA Inc.</i>
<i>Subscribers</i>	32.5 million	21.9 million	20.9 million	14.8 million	10.6 million	9.9 million
<i>Net Additions</i>	3.1 million	360,000	2 million	1.2 million	1.96 million	2.9 million
<i>Technology Used</i>	CDMA, AMPS	TDMA, GSM, AMPS	TDMA, GSM, AMPS	CDMA	iDEN	GSM
<i>Spectrum Bands</i>	850, 1900 MHz	850, 1900 MHz	850, 1900 MHz	1900 MHz	700, 800, 900 MHz	1900 MHz
<i>Revenue</i>	\$19.3 billion	\$14.7 billion	\$15.6 billion	\$12.1 billion	\$8.7 billion	\$4.9 billion (est.)
<i>Net Income</i>	\$3.6 billion (Oper. Income)	\$2.5 billion (Oper. Income)	-\$2.3 billion	-\$592 million	\$1.7 billion	N/A
<i>Average Monthly Churn</i>	2.3%	2.8%	2.6%	3.3%	2.1%	4.3% (Q3)
<i>Revenue per User</i>	\$48.06 (Q3)	\$48.33	\$60.20	\$61.80	\$71.00	\$48.46 (Q3)
<i>Cost per Gross Add</i>	\$375 (Q3)	\$350 (Q3)	\$377	\$353	\$450	\$308 (Q3)
<i>POPs Covered</i>	226.8 million (Q3)	198 million (Q3)	213 million	198 million	195 million	192.3 million (Q3)

36. *By the Numbers: U.S. Carriers—First Tier*, RCR WIRELESS NEWS, March 3, 2003, at 8.

Ironically, just as entry was deconcentrating the industry, hundreds of mergers were stitching together regional and national networks. These reinforced the roaming agreements and joint ventures that had been launched to create mobile services, giving customers the ability to move with their telephones and yet receive cellular service through far-ranging local connections.³⁷

By 2001, when merger activity hit a lull,³⁸ six national networks—AT&T Wireless, Cingular (joint venture of SBC and BellSouth), Nextel, Sprint PCS, T-Mobile (Deutsche Telekom), and Verizon Wireless—emerged dominant, accounting for about eighty-five percent of U.S. subscribers.³⁹ But out of the consolidation arose competition, as no other country supports more competing networks.⁴⁰ This rivalry has resulted in a sharp decline in wireless telephone charges, with the average price per minute of use declining seventy-nine percent between 1993 and 2002. In response, total minutes of use have increased more than *twenty-fold* during this period.⁴¹ Intense competitive pressure has made profits elusive, a situation investment analysts describe as “Profitless Prosperity,”⁴² and efficiency gains are apparent.

37. Table 4, *supra*, lists the networks resulting from these combinations.

38. Ironically, major merger activity in wireless ceased just as the FCC “spectrum cap” was relaxed. The old rule limited operators to licenses allocated no more than 45 MHz in any one market (with only small overlaps exceeding this amount). This prohibited the combination of a cellular license with a PCS-A, PCS-B, or PCS-C license in any given market. The cap was relaxed to 55 MHz in 2001 and abolished in January 2003, although federal antitrust scrutiny remains. See 2000 Biennial Reg. Review Spectrum Aggregation Limits For Commercial Mobile Radio Servs., *Notice of Proposed Rulemaking*, 16 F.C.C.R. 2763, para. 2, 25 Comm. Reg. (P & F) 2031 (2001).

39. See Craig A. Mallitz & Tahmin O. Clarke, Legg Mason, *The Wireless Industry Scorecard*, EQUITY RESEARCH INDUS. ANALYSIS, 4Q 2002, at 70. [hereinafter *Wireless Scorecard*, 4Q 2002].

40. See *infra* Table 5.

41. See *supra* Table 3.

42. Simon Flannery et al., Morgan Stanley, *3Q02 Preview: The Song Remains the Same*, WIRELINE TELECOM SERVS. Oct. 16, 2002, at 27.

Table 5. Number of Competitive National Wireless Networks⁴³

6	5	4	3	2
U. S.	Japan South Korea Netherlands	Canada Denmark Germany U.K.	Australia Austria Belgium Finland France Greece Ireland Italy Mexico Poland Portugal Spain Sweden Switzerland	Czech Republic Hungary Iceland Luxembourg New Zealand Norway Turkey

III. REGULATION AND THE TRADE-OFFS OF STATE VS. FEDERAL JURISDICTION

A. Economic Regulation

Government regulation provides two possible forms of protection for consumers, both related to the concept of market failure.⁴⁴ The first is to constrain monopoly pricing, countering inefficient distortions from competitive outcomes. When successful, regulation can lower prices and increase output. This increases social welfare by producing greater value for a given complement of labor and capital.

The second general aim of economic regulation is to remedy externality problems. These develop when costs or benefits do not accrue

43. Sean P. Butson & Craig A. Mallitz, Legg Mason, *What's Next for Wireless: A Roadmap for Wireless Investors*, EQUITY RESEARCH INDUS. ANALYSIS Jan. 2001, at 30 [hereinafter *What's Next for Wireless*].

44. See Francis M. Bator, *The Anatomy of Market Failure*, 72 Q.J. ECON. 351 (1958) (explaining the classic analysis of market failure).

to the decision makers who cause them and are external to economic calculations. This results in a misallocation of resources, yielding pollution and various public good problems. This latter situation develops when efficient economic activities fail to take place because payoffs cannot be captured by those who would shoulder the costs of provision. Free-rider problems deny consumers useful products. National defense, pollution abatement, and creative works of art are valuable services that would presumably be underproduced without government policies (including subsidies and intellectual property rights) to offset free-rider effects.

Regulation, of course, is neither free nor perfect. Market failure, therefore, does not present an automatic case for policy intervention, which is not a *deus ex machina*. Market failure is necessary in an argument for government regulation, but it is insufficient without a convincing case that regulation will itself produce net consumer benefits.⁴⁵ Even when market failure has been addressed by, for instance, rate regulation of monopoly cable television systems, policy remedies can prove counterproductive.⁴⁶ The case for regulation fundamentally depends on the likelihood of increased consumer welfare.

Market power is not a compelling rationale for wireless telephone regulation. Cellular telephone markets were dominated by duopoly licensees, and market power clearly existed.⁴⁷ But with the emergence of PCS and enhanced specialized mobile radio ("ESMR") competition and the emergence of six strong national networks⁴⁸ which aggressively rival each other, government regulators have declared the market to be highly competitive. In abolishing the "spectrum cap," effective January 2003, federal regulators certified that market rivalry was effectively protecting consumers from excessive prices.⁴⁹

45. Charles Wolf, Jr., *A Theory of Nonmarket Failure: Framework for Implementation Analysis*, 22 J.L. & ECON. 107 (1979).

46. THOMAS W. HAZLETT & MATTHEW L. SPITZER, PUBLIC POLICY TOWARD CABLE TELEVISION: THE ECONOMICS OF RATE CONTROLS 208-12 (1997).

47. Thomas W. Hazlett, Market Power in the Cellular Telephone Duopoly 1-2 (Aug. 1993) (paper submitted to the FCC on Behalf of Time Warner Telecommunications)(on file with the Journal).

48. The six networks are: AT&T Wireless, Verizon Wireless, Cingular, Sprint PCS, Nextel, and T-Mobile. *See supra* note 39 and accompanying text.

49. "Various indicators confirm the presence of meaningful economic competition in markets for CMRS." 2000 Biennial Reg. Review Spectrum Aggregation Limits For Commercial Mobile Radio Servs., *Report and Order*, 16 F.C.C.R. 22668, para.30 (2001).

The case for efficient government regulation in wireless must point to market failure in the supply of consumer information. Consumers make choices based on their preferences and product expectations. The data on which purchasing decisions are based flows from a variety of sources: experience and research by the consumer, marketing campaigns waged by sellers, reputational capital of sellers, publicity and product evaluations provided by news organizations and third parties, and word of mouth.

In some instances, however, reliable information is underprovided because suppliers are not remunerated for supplying it. Alternative market mechanisms for discovering which products best satisfy preferences are available, but they may leave a gap unfilled. The rationale for government regulation is then to encourage the supply of valuable information that consumers would gladly pay the market cost of providing.⁵⁰

One particularly important rationale for government regulation arises under the externality rubric in the context of fly-by-night operations. When firms supply goods without sinking capital, they may be tempted to cheat on performance. This behavior may include misleading advertising, hidden charges, or the delivery of goods or services that are less valuable than anticipated by the customer.⁵¹ In advantageous circumstances for such supply-side opportunism, cheating vendors may be able to escape with profits, as consumers have difficulty in identifying such behavior prepurchase. A legal intervention to improve quality ascertainment, perhaps through means such as direct regulation or binding rules that force firms to commit irreversible investment capital, may improve efficiency.

In wireless telephone service, opportunism is relevant to the regulatory discussion in an interesting way. Wireless network owners commit very substantial resources to establishing infrastructure; these assets will only prove profitable where long-run economic viability is maintained. These sellers are unlikely to fly by night, leaving enormous capital assets behind.⁵² This makes the argument for regulatory intervention

50. See W. KIP VISCUSI, ET AL., *ECONOMICS OF REGULATION AND ANTITRUST* (3d ed. 2000) (discussing the arguments for economic regulation).

51. Benjamin Klein & Keith Leffler, *The Role of Market Forces in Assuring Contractual Performance*, 89 J. POL. ECON. 615 (1981).

52. The possibility that a network service provider could exit the retail market and yet use its nonsalvageable capital to provide wholesale services to resellers means that infrastructure investments may not be totally sunk. Yet, the gap in value between a network that integrates retail services and one that relies exclusively on resellers is likely substantial. This is implied by the observation that no successful U.S. wireless network executes this

weaker than in services where market forces do not similarly punish opportunistic behavior by sellers. Yet, this is where the debate over new rules for wireless is occurring. This paper, however, is not concerned with the substantive merits of the arguments for regulation, but with the issue of optimal jurisdiction.

B. The Federalism Debate

Federalism is a system wherein governmental responsibilities occur at multiple levels, with power not being entirely centralized or decentralized. The United States is perceived as a federalist experiment due to its relatively heavy use of overlapping jurisdictions, from mosquito abatement districts to the U.S. Government. The European Union has centralized some important rulemaking authority to regulate economic activity in sovereign states, making it a federalist experiment of a different character.

Federalism has been described as a balancing act, “the approach to governance that seeks to combine unity and diversity.”⁵³ The compromise prompts heated debates over where to allocate authority for specific policies. Two famous positions were staked out by Supreme Court Justices Louis Brandeis and Oliver Wendell Holmes. Justice Brandeis celebrated the diversity of state jurisdiction, observing that “[i]t is one of the happy incidents of the federal system that a single courageous State may, if its citizens choose, serve as a laboratory; and try novel social and economic experiments without risk to the rest of the country.”⁵⁴

The reverse angle was captured by Justice Holmes, however, who focused on the importance of rationalizing disparate regulations under unified national law:

I do not think the United States would come to an end if we lost our power to declare an Act of Congress void. I do think the Union would

business model. Hence, the capital value at stake in preserving a reputation in the market for retail services is also likely to be substantial.

53. John Kincaid, *Values and Value Tradeoffs in Federalism*, PUBLIUS, Spring 1995, at 29, 30.

54. *New State Ice Co. v. Liebmann*, 285 U.S. 262, 311 (1932) (Brandeis, J., dissenting). This 1932 case concerned an Oklahoma law licensing ice distributors. Brandeis thought it best to let Oklahoma experiment with a rule that restricted competition, but the majority overturned it as economic regulation violating the 14th Amendment’s equal protection clause. Cf. Michael S. Greve, *Laboratories of Democracy: Anatomy of a Metaphor*, AEI FEDERALIST OUTLOOK (2001) (analyzing the trade-offs between constitutionalism and federalism in the context of Brandeis’s dissent in *New State Ice Co.*), available at <http://www.federalismproject.org/outlook/5-2001.html>.

be imperiled if we could not make that declaration as to the laws of the several States. For one in my place sees how often a local policy prevails with those who are not trained to national views and how often action is taken that embodies what the Commerce Clause was meant to end.⁵⁵

Across the globe such arguments rage. The formation of the European Union and the restructuring of post-Communist governments have generated heated debate on the extent of local versus national or international authority.⁵⁶ Decentralization in legal authority is beneficial because it allows diverse rules to spring up, be tested, and adopted according to what appears to work best. Uniformity in rules, on the other hand, offers the efficiencies of standardization.

Economist Barry Weingast writes:

For most of the last 300 years, the richest nation in the world has had a federal structure: the Netherlands from the late 16th through mid-17th century, England from the late 17th or early 18th through the mid-19th century, and the United States from the late 19th century until the late 20th century.⁵⁷

Weingast argues that the well-developed federal systems found in these economies helped limit politicization of market transactions, spurring wealth creation.⁵⁸ Historian Paul Johnson finds that America has far more political jurisdictions than any other country in the world, and he sees this governmental diversity as important in understanding both the political and economic success of the United States.⁵⁹

55. Kennedy & Purcell, *supra* note 7, at 548 (quoting Oliver Wendell Holmes, *Law and the Court*, in COLLECTED LEGAL PAPERS 291, 296 (1920)).

56. John Kincaid observes:

The European Union . . . reflects emerging governance issues in a world in which peoples and places have become closely connected by technology, and in which individuals have been made more mobile by that technology, both physically and electronically. The need for international governance arrangements has become more apparent, even while pressures for local self-government by discrete peoples in distinct places have become more strident. Hence, there is the seeming paradox of global integration and regional fragmentation occurring simultaneously.

Kincaid, *supra* note 53, at 29-30.

57. Barry R. Weingast, *The Economic Role of Political Institutions: Market-Preserving Federalism and Economic Development*, 11 J.L. ECON. & ORG. 1, 3 (1995).

58. *See id.*; *see also* Charles M. Tiebout, *A Pure Theory of Local Expenditures*, 64 J. POL. ECON. 416 (1956).

59. *See* PAUL JOHNSON, *A HISTORY OF THE AMERICAN PEOPLE* 940 (1997).

On the other hand, eliminating state-level trade barriers via federal preemption can create a productive “common market,” erasing impediments to efficiency. Constitutional scholar Archibald Cox cites *Gibbons v. Ogden*⁶⁰ as one of the most important Supreme Court decisions in U.S. history.⁶¹ By striking down a New York law monopolizing steamship routes within the state, the Court protected interstate commerce. The Court’s decision preempted state regulations that would “hamper the development of one great continentwide, free-trade market,” a fundamental condition for America’s economic success.⁶² “Commerce among the states,” Chief Justice John Marshall declared, “cannot stop at the external boundary line of each State. but may be introduced into the interior.”⁶³ Weingast’s “market-preserving federalism” carefully includes the caveat that local jurisdictions need to be constrained by a “common market . . . preventing the lower governments from using their regulatory authority to erect trade barriers. . . .”⁶⁴

C. State vs. Federal Jurisdiction

The question of optimal jurisdiction commonly arises in the United States when overlapping regulatory interests are present, as in antitrust law,⁶⁵ cable television regulation,⁶⁶ food labeling,⁶⁷ as well as in wireless

60. *Gibbons v. Ogden*, 22 U.S. (9 Wheat.) 1 (1824).

61. ARCHIBALD COX, *THE COURT AND THE CONSTITUTION* 84-89 (1987).

62. *Id.* at 85.

63. *Id.* at 88 (quoting *Gibbons*, 22 U.S. at 194).

64. Weingast, *supra* note 57, at 4 (emphasis omitted). Similarly, in outlining the theoretical case for federalism, economist James Buchanan notes:

[In] a genuinely competitive federalism . . . the central or federal government would be constitutionally restricted in its domain. . . . Within its assigned sphere, however, the central government would be strong, sufficiently so to allow it to enforce economic freedom or openness over the whole of the territory. The separate states would be prevented, by federal authority, from placing barriers on the free flow of resources and goods across their borders.

James M. Buchanan, *Federalism As an Ideal Political Order and an Objective for Constitutional Reform*, PUBLIUS, Spring 1995, at 19, 21.

65. See ROBERT H. HAHN & ANNE LAYNE-FARRAR, *FEDERALISM IN ANTITRUST* (AEI-Brookings Joint Center for Regulatory Studies, Working Paper No. 02-9, 2002).

66. See Thomas W. Hazlett, *Cable Television Rate Deregulation*, 3 INT’L J. ECON. BUS. 145 (1996).

67. See Michele M. Bradley, *The States’ Role in Regulating Food Labeling and Advertising: The Effect of the Nutrition Labeling and Education Act of 1990*, 49 FOOD & DRUG L.J. 649 (1994).

telephony. State regulation is typically better able to regulate when local markets are relatively idiosyncratic, when the benefits of diverse rules are large relative to the costs of non-uniformity, when the rules adopted in one state are largely contained within that jurisdiction, and when state utility commissions (or local franchising agents) are as technically competent as federal regulators.⁶⁸ For example, local utilities have traditionally been regulated as monopoly franchises by state commissions.

The advantage of differentiation lies in the informational efficiencies local regulators enjoy relative to the advantages of scale economies they sacrifice (or disrupt). Diverse state rules allow for trial and error, allowing different approaches to be tested over time. Yet, conflicting rules and regulations can clog the wheels of commerce, introducing inefficiencies that lower consumer welfare.

The economic analysis of federalism is summarized in a 1997 article in the *Journal of Economic Perspectives*:

Tiebout (1956) presented the first systematic argument as to how a decentralized federal structure could be used to achieve economic efficiency in the provision of public services. . . . In the Tiebout economy, most public services are assumed to be congestible and efficiently provided by small communities. Thus, lower-tier governments are given significant policy responsibilities. Households are assumed to be freely mobile; they shop among local jurisdictions for that community which offers their preferred package of services, taxes, and regulations. . . . It is this variety and the pressure it imposes on the unfavored communities and states which Justice Brandeis most likely had in mind when advocating local and state governments as “laboratories” for the design of public policies. However, when there are significant intercommunity interdependencies (like pure public goods or spillovers), Tiebout’s competition among small governments may result in economically inefficient public policies. Potential examples of such inefficiencies include . . . regulation.⁶⁹

68. For a further discussion of whether state or local regulators are more prone to capture by competing interests, see HAHN & LAYNE-FARRAR, *supra* note 65.

69. Robert P. Inman & Daniel L. Rubinfeld, *Rethinking Federalism*, 11 J. ECON. PERSP. 45, 46 (1997) (citations and footnotes omitted) [Hereinafter Inman & Rubinfeld, *Rethinking Federalism*]. In another paper, Inman and Rubinfeld elaborate on economic research related to public finance:

[T]he current empirical evidence suggests competitive local governments can provide an efficient level of congestible (local) public goods. . . . What is not assured is the efficient allocation of public goods with significant spillovers. . . . A policy to control interjurisdictional spillovers would require the agreement of the

When economic realities dictate that production of goods is efficiently done across jurisdictions (i.e., economies of scale stretch beyond state borders), decentralized regulations lack effective feedback. State regulators have little direct information regarding costs imposed on consumers in other states, and they have little reason to acquire this information. Even assuming that state regulators are well-informed as to costs and benefits within their political jurisdiction, an important externality issue is introduced courtesy of economies of scale (including network effects). As two economists have recently written about state level antitrust policy, “state officials do not face appropriate incentives to represent U.S. consumer interests in an antitrust case that could have national . . . ramifications.”⁷⁰ On the same topic, Judge Richard Posner argues that the effect of state antitrust authorities joining cases with nationwide implications is to “lengthen out the original lawsuit, complicate settlement, magnify and protract the uncertainty engendered by the litigation, and increase litigation costs.”⁷¹

Law professor Michael McConnell writes that “[E]xternalities present the principal countervailing consideration in favor of centralized government.”⁷² This creates a mismatch between the costs and benefits considered in decision making by smaller units of government. Importantly, it occurs not just when property rights are ill-defined (the Coasian sense of “externality”⁷³), but when economies of scale extend across states. Then the highly complementary nature of supplying consumers in multiple political jurisdictions produces costs and benefits which may largely go unnoticed by regulatory authorities.

competitive city-states. For such agreements we must look to more encompassing political institutions.

Robert P. Inman & Daniel L. Rubinfeld, *The Political Economy of Federalism*, in PERSPECTIVES ON PUBLIC CHOICE 73, 85-86 (Dennis C. Mueller ed., 1997).

70. HAHN & LAYNE-FARRAR, *supra* note 65, at 5. *Contra* Paul Teske, The Role of State Institutions in Mediating Interest Group Influence Over Regulatory Policy (Mar. 14, 2003) (paper submitted for discussion at the Third Annual State Politics Conference), available at <http://www.fsu.edu/~statepol/conferences/2003/Papers/Teske.doc>.

71. Richard A. Posner, *Antitrust in the New Economy*, 68 ANTITRUST L.J. 925, 940 (2001).

72. Michael W. McConnell, *Federalism: Evaluating the Founders' Design*, 54 U. CHI. L. REV. 1484, 1495 (1987).

73. See generally R. H. Coase, *The Problem of Social Cost*, J.L. & ECON. Oct. 1960, at 1, 1-40 (attributing inefficiencies associated with external costs or benefits to a lack of definition, or enforcement, of property rights).

The key economic issue concerns the costs and benefits of rule diversity. While consumers may have heterogeneous interests that return some informational advantage to state jurisdictions, the lack of coordination with other states can create costs for local consumers that outweigh these advantages. Costs rise when economies of scale are important, as is clearly the case with nationally distributed products. The following analysis discusses preemption issues regarding regulation of nutritional labeling:

In determining when [federal] preemption might be necessary, Professor Susan Bartlett Foote noted that “[i]n essence, regulations adopted by individual states are inappropriate when they impose costs on manufacturers by interfering with economies of scale that would otherwise be available in the production of nationally distributed goods.” Foote cites state labeling and packaging requirements as examples of state laws that might in some circumstances sufficiently impede the flow of interstate commerce to justify federal preemption.⁷⁴

D. Efficient Federal Preemption

Selection of the optimal jurisdiction largely reduces to a search for the smallest unit of government (lowest tier) that substantially avoids “beggar thy neighbor” outcomes from decentralized policy making. These results occur when non-uniformity is relatively costly and when the advantages of diverse rules are relatively unimportant. Under such circumstances, several problems can develop with decentralization, most of which are associated with free riding.

74. David F. Welsh, *Environmental Marketing and Federal Preemption of State Law: Eliminating the “Gray” Behind the “Green,”* 81 CAL. L. REV. 991, 1004 (1993)(footnotes omitted). Welsh provides an interesting overview of the question of regulatory preemption generally:

There is no clear-cut policy pronouncement concerning when or why Congress preempts. However, a predominant function of preemption is to invalidate state laws that frustrate the development of necessary, uniform federal laws. Additionally, preemption often acts as a means of stopping states from interfering with the free flow of goods across state lines. In both of these cases, preemption is used to stop states from fractionalizing the country in pursuit of independent, local commercial concerns. As the Supreme Court clearly stated, “a central concern of the Framers . . . [was] that in order to succeed, the new Union would have to avoid the tendencies toward economic Balkanization that had plagued relations . . . among the States under the Articles of Confederation.”

Id. at 1014 (citing *Hughes v. Oklahoma*, 441 U.S. 322, 325-26 (1979)) (other footnotes omitted).

In public finance, one example involves funding of such public goods as national defense. Because voters tend to prefer low taxes, elected state or local officials do too. If taxpayers in jurisdictions contributing little in taxes cannot be excluded from the defensive services provided by the nation's armed forces, decentralized provision would be predicted to lead to underprovision. This means that citizens would get less investment in national defense than they would be willing to pay, if an effective payment collection mechanism were in place. In the absence of such, local and state officials predictably have incentives to limit taxes in their jurisdiction by free riding on the burdens shouldered elsewhere, a paradigmatic example of a governmental function most efficiently supplied through the central authority.

Ronald McKinnon and Thomas Nechyba develop this idea into a general theory of jurisdiction choice:

Economic theory suggests that the appropriate level of government to provide a given public good critically depends on the degree of spatial nonrivalry of that good. Imagine, for example, the (admittedly absurd) proposition that school districts should provide their own nuclear deterrents against external threats. This would require substantial duplication of investment in nuclear arsenals when the same objective could be met at a significantly lower (per person) cost by the central government (since the same nuclear arsenal can protect both Los Angeles and New York). The national nonrivalry embodied in national public goods thus gives rise to large cost advantages to central governments whose constituents are numerous because the total expense of providing the good is independent of the size of the population. . . . At the same time, there is no such cost advantage to having the central government provide such goods as local neighborhood parks because the nonrivalry of these goods only extends over a small geographic area.⁷⁵

McKinnon and Nechyba lay out a grid for analyzing governmental functions, partially summarized in Table 6. The general argument for centralization in policymaking is economic efficiency. It is important to note that the "spatial nonrivalry" aspect of national defense extends to other domains. While not perfectly "nonrivalrous," network industries that depend on national economies of scale exhibit similar economic

75. Ronald McKinnon & Thomas Nechyba, *Competition in Federal Systems: The Role of Political and Financial Constraints*, in *THE NEW FEDERALISM: CAN THE STATES BE TRUSTED?* 6-7 (John Ferejohn and Barry R. Weingast eds. 1997).

characteristics.⁷⁶ Ferejohn and Weingast summarize this point:

Economists conclude that deciding on the best jurisdiction to provide a particular service depends on the characteristics of that service. If a given amount of the service can be provided more cheaply when it is produced for many rather than few citizens (national defense), if the benefits of the service extend over a large geographic area (certain types of pollution control), or if decentralization would lead to “bad” competition among the states or inequitable outcomes across states, these services should be provided by the national government.⁷⁷

Table 6. Externalities producing “Centralizing Forces” in the Selection of Optimal Jurisdiction⁷⁸		
<i>Externalities</i>		
Nonrivalry of national public goods	Cost advantages from centralization	Nuclear deterrents Investments in specialized expertise and training
Nonexcludability of public goods	Lower tiers generate positive spillovers, provide too little	Environmental protection Macrostabilization
Mobility-induced externalities	Lower tiers distort policies to export weaknesses and import strengths	“Race to the bottom” Zoning for high-smokestack industries

76. As an empirical matter, federal preemption is often applied to network industries:

All authority to engage in economic regulation of airline, bus, and trucking companies has been removed from states. . . . States, however, are authorized to conduct inspections utilizing national standards relative to grain quality and weighing, hazardous and solid waste materials, railroad safety, and certain types of ionizing radiation.

Joseph F. Zimmerman, *Preemption in the U.S. Federal System*, PUBLIUS, Fall 1993, at 1, 6.

77. John. A. Ferejohn & Barry R. Weingast, *Introduction to THE NEW FEDERALISM: CAN THE STATES BE TRUSTED?*, at vii, xii (1997).

78. McKinnon & Nechyba, *supra* note 75, table 1, p. 14.

In markets where economies of scale or scope are important, it is possible for decentralized policy makers to effectively free-ride on investments undertaken by consumers in other jurisdictions. This occurs when a system is built to serve a large regional or national market, and state or local policymakers impose expensive regulations over a subset of that system. These regulations impose a tax, which may or may not be efficient for local consumers. Given that costs and/or benefits spill over to other jurisdictions, effects of local regulatory decisions will likely escape the attention of policymakers. The pressing issue in considering optimal jurisdiction is that with decentralized authority there will be important implications for consumers in other jurisdictions, and that these costs and benefits are not likely to be accounted for by policymakers. Analogous to a "race to the bottom," state regulators search for rules that will bestow benefits locally while shifting costs to network investments that enable local benefits to be subsidized by users elsewhere.

Suppose a rule is imposed by Idaho regulators mandating that wireless carriers send each Idaho subscriber a monthly statement comparing the customer's billing with what identical service would cost on five other carriers. This "full disclosure" act, let us assume, costs \$10 per subscriber per month. Assume that the benefit to customers, however, is just \$0.50 per month (meaning that each subscriber would agree to pay just \$6.00 per year to receive such a statement). The rule is highly inefficient, imposing costs twenty times the level of benefits. But state regulators may still impose the rule, even under the assumption that Idaho regulators are perfectly loyal to the interests of Idaho residents.

If wireless telephone service is efficiently provided by national networks (as opposed to local systems), and if providing those networks entails the use of standardized national calling plans, then customizing a separate pricing structure for Idaho customers may prove more trouble than it is worth for wireless carriers. Carriers would then provide the monthly statements to Idaho subscribers without a differential charge, and competition would drive these costs to customers in other states. The charges would be imperceptible to users in Idaho or elsewhere. But the incentives thereby created would lead to regulatory free riding across all states, and costs would accumulate.

Three outcomes would result: First, inefficiency would result from rules that imposed costs in excess of the benefits delivered. Second, the decline in network profitability (associated with the inefficiency of the regulations imposed in Idaho) would lower investment in network

infrastructure nationally. The magnitude could be modest, but the direction of change is unambiguous: with higher costs, the value of acquiring subscribers is lower.⁷⁹ Third, state regulators elsewhere would be tempted to do what Idaho regulators have done, pursuing ways to impose nationwide costs that only benefit in-state subscribers. This results in “beggar thy neighbor” policies which reduce the quality of services for consumers nationwide.

Even with a best-case scenario, inefficiencies arise when the costs imposed on wireless users by regulators in one state spill over to subscribers elsewhere. This would be the case where national network operators chose to comply with the most restrictive rules, a common result when diverse rules are imposed and where services offered in one jurisdiction are highly complementary with services provided elsewhere. This latter condition obtains with economies of scale in production, or with networks which become more valuable to customers as coverage area expands. In food labeling, for instance, states applied diverse regulations prior to federal harmonization under the Nutritional Labeling and Education Act of 1990 (“NLEA”).⁸⁰ One study notes, “Because food manufacturers selling to a nationwide market cannot afford to tailor advertising and labeling for particular states, they usually conform with the most restrictive applicable law.”⁸¹

The problem is not that ripple effects occur, but that state regulators have no reason to take into account what ripples across state borders. States can overconsume regulation by dumping costs on others, or they can underconsume because benefits are too widely distributed. As a general rule, the lowest level of government that can accurately determine costs and benefits is the jurisdiction logically selected to make regulatory decisions: “[E]conomic federalism prefers the most decentralized structure of government capable of internalizing all economic externalities. . . .”⁸²

79. The increase in costs is not offset by higher demand, and hence higher prices, for two reasons. First, national pricing is efficient, and the great majority of customers do not receive any benefit from the costs imposed in Idaho. Second, Idaho customers are not willing to pay as much as the regulations cost, such that increased demand would not entirely offset the higher costs even if optimally configured networks served Idaho alone.

80. Nutritional Labeling and Education Act of 1990, Pub. L. No. 101-535, 104 Stat. 2353 (codified as amended in scattered sections of 21 U.S.C.).

81. Bradley, *supra* note 67, at 653-54.

82. Inman & Rubinfeld, *Rethinking Federalism*, *supra* note 69, at 45 (emphasis omitted).

Economic externalities imply that state decision making is ineffective. That is because firms adjust to diverse regulations by conforming to those rules that allow for the best aggregate operations. When integrated national networks are key both to suppliers, who seek scale economies, and to consumers, who desire nationwide coverage, the competition between the states results not in diverse standards but “winner take all”—the “winner” being the state with the most restrictive regulations. In situations where state regulations contradict each other, even this effort to smooth out differences in state laws will be stymied, and the costs of balkanization further increased.

E. Examples of Competition and Preemption

1. Corporation Charters

States compete in the provision of corporate charters. These charters establish default rules for corporate procedures, governing the relationship between firm shareholders, bondholders, and managers. The rules laid down in state charters can be changed according to the preferences of companies, but the procedures whereby such reforms are enacted take place under the corporate law in effect. In addition, legal enforcement of corporate bylaws is provided in state courts under the precedents established in that state. Hence, the standard charter set forth in law is likely to have the clearest set of precedents to guide corporate decisionmakers.

Perhaps the best known aspect of the state charter competition is that Delaware is the acknowledged leader. “[A]pproximately half of the largest corporations are incorporated in Delaware, and the overwhelming majority of firms changing their state of incorporation move to Delaware.”⁸³ The state funds more than twenty percent of its state budget via fees assessed on each share of stock in firms incorporated there.⁸⁴ It has achieved this success by offering both a standard framework and a legal system (and voluminous corporate case law), offering incentives for firms to locate their legal residence in Delaware. This is a virtual geographic choice, of course,

83. Roberta Romano, *State Competition for Corporate Charters*, in *THE NEW FEDERALISM: CAN THE STATES BE TRUSTED?* 131 (John Ferejohn & Barry R. Weingast eds., 1997).

84. *Id.* at 132. These data go through 1995.

as incorporation is a legal transaction divorced from where a firm operates physical facilities.

Scholars have taken both sides of the federalism debate with respect to corporate charters. But Roberta Romano concludes: “The best available evidence indicates that, for the most part, the race is for the top and not the bottom in the production of corporate laws.”⁸⁵ The outcome of a competition between the states has been “innovative corporate codes that quickly respond to changing market conditions and firm demands.”⁸⁶ Both efficient and inefficient laws have been passed, but states have often been forced to mimic the efficient statutes, and to abandon the inefficient. Moreover, the lack of choice present in centralized systems does not provide advantages. “[T]he EU harmonization project for corporate laws found that European nations have a panoply of restrictive provisions long eliminated from U.S. codes as unwieldy and unprofitable.”⁸⁷

A key economic aspect of the market for corporate codes is the extreme mobility of resources. Firm operations have no physical connection to firm incorporation. This allows markets to react to state laws without evident externalities.

2. Food Labeling

In the late 1980s, twenty state legislatures considered widely varying bills regulating nutrition labeling. This prompted federal preemption in the NLEA.⁸⁸ Food manufacturers lobbied for the measure, fearing costly mandates prompted by fifty different standards.⁸⁹ The Food and Drug Administration, the George H. W. Bush Presidential Administration, and the states originally opposed preemption. Crafting broad rules that garnered general agreement, however, reduced opposition, and the advantages of uniformity tipped the scales in favor of national standards.⁹⁰

85. *Id.* at 149.

86. *Id.*

87. *Id.* (citation omitted).

88. Nutrition Labeling and Education Act of 1990, Pub. L. No. 101-535, 104 Stat. 2353 (codified as amendment in scattered sections of 21 U.S.C.).

89. See generally David Greenberg & Mary Graham, *Improving Communication About New Food Technologies*, ISSUES IN SCI. & TECH., Summer 2000, at 42, 42-48.

90. Bradley, *supra* note 67, at 658. (“Opposition to preemption was based in large part on the fear that if states were preempted from enforcing their own labeling laws, consumers would be left with a weak federal law and lax federal enforcement. The NLEA’s structure of tough standards combined with state enforcement authority quelled these fears and led to

Economies of national distribution scale again drove the decision. Consumers are directly and indirectly benefited by having standards applied consistently across states. Direct benefits flow from reducing information costs, as consumers familiarize themselves with the same labels no matter where they might purchase products or where the products might be manufactured. Indirectly, as manufacturers realize production efficiencies, lower prices result. This is true in competitive markets and even in monopolistic markets where incremental costs are reduced.⁹¹

The costs associated with state regulation include a reduction in the rate of market innovation. In dynamic markets where new products, service packages, or marketing structures are rapidly evolving, this may be a very high price. Fifty distinct regulatory regimes yield incentives for nationally integrated suppliers to avoid regional variations in their products by providing a least common denominator output. Product differentiation may be costly not only due to sacrificed scale economies, but also because it incurs state regulatory monitoring costs. Hence, the irony is that experimentation by state regulators may reduce experimentation by firms. In food labeling, “[S]ome companies commented that negotiations with States having unique requirements impeded the development of new foods.”⁹²

Federal preemption for conflicting rules occurred in the NLEA. This left states with a regulatory role, particularly in enforcement. Both government and industry have found that the uniformity created by federal preemption was beneficial. The U.S. Department of Agriculture notes that consumer awareness of the ingredients in food, the purpose of food labeling regulations, advanced after the enactment of federal rules:

The Health and Diet Surveys that are conducted every five years are the most effective means of measuring the effectiveness of educational interventions in promoting the use of food labels. In FY 90, the Health and Diet Survey (pre-NLEA) found that 30% of adults used the food labels to make a decision on the purchase or use of food products. Data

FDA, White House, food industry, and state AGs’ general support of the NLEA’s preemption provisions.”)

91. *Id.* at 653-54 (“Inconsistent labeling laws can slow food manufacturing and distribution, raise prices, and confuse consumers confronted with different information and warnings. Because food manufacturers selling to a nationwide market cannot afford to tailor advertising and labeling for particular states, they usually conform with the most restrictive applicable law.”).

92. FOOD & NUTRITION BD., INST. OF MED., FOOD LABELING: TOWARD NATIONAL UNIFORMITY 155 (Donna V. Porter & Robert O. Earl eds., 1992).

from the 1995 survey disclosed that 48% of people age 18 and older reported changing their decision to buy or use a food product because they read the food label.⁹³

Food industry sources, while critical of many aspects of federal regulatory policy, continue to endorse the efficiency of federal preemption. In fact, a key goal of producers is to extend regulatory uniformity in other state laws regulating food. An executive with the Grocery Manufacturers' Association ("GMA") recently testified as follows:

The NLEA advanced toward the important goal of national uniformity in food regulation. NLEA provided national uniformity for most aspects of food labeling. It failed, however, to include national uniformity for food warnings or for food safety. GMA believes that, in order to have a comprehensive and integrated national system of food protection, enactment of national uniformity legislation is essential.

Our nation-wide economy cannot support fifty differing state laws and regulations governing the food supply. Interstate commerce throughout the wide reaches of our country requires a consistent, uniform, and predictable system of laws and regulations that permit transport of food under a single set of regulatory standards. GMA has actively sought both administrative and statutory adoption of national uniformity in food labeling for the past several years, and will continue to seek this objective until it is ultimately achieved.⁹⁴

3. Trucking

While a court ruling preempted state regulation of interstate trucking in the 1920s, state regulation was still permitted over intrastate services.⁹⁵ States filled this niche.⁹⁶ By the early 1990s, however, eight states had deregulated intrastate trucking, while "[o]ther states [had] various

93. FOOD SAFETY RESEARCH INFO. OFFICE, U.S. DEP'T OF AGRIC., *FDA FY 2001 PERFORMANCE PLAN*, available at <http://www.nal.usda.gov/fsrio/ppd/fda05.htm> (last modified Feb. 15, 2001).

94. Press Release, Grocery Manufacturers of America, FDA Policy Keeps Important Health Information From Public, at <http://www.gmabrands.com/news/docs/testimony.cfm?DocID=747> (May 3, 2001) (testimony of Lisa Katic, Senior Food & Health Policy Advisor).

95. See Thomas Gale Moore, *Unfinished Business in Motor Carrier Deregulation*, REGULATION, Summer 1991, at 49, 49.

96. See John C. Taylor, *Regulation of Trucking by the States*, REGULATION, 1994 No. 2, at 37, 38.

restrictions, some quite onerous.”⁹⁷ Thomas Gale Moore estimated that state controls were costing between \$5 billion and \$12 billion annually.⁹⁸

State level regulation had long proven a menace to the economic welfare of shippers. In particular, state rules unfairly benefited railroads. By lobbying for rules such as weight limits on trucking shipments (often imposed as safety measures) that differed from state to state, they could disrupt the emergence of rival networks. Economist George Stigler thought it provocative that “Texas and Louisiana placed a 7000-pound payload limit on trucks serving (and hence competing with) two or more railroad stations, and a 14,000-pound limit on trucks serving only one station (hence, not competing with it).”⁹⁹

But the primary liability of state regulation was the inherent inconsistency of disparate rules dotting regional or national truck routes. In a recent brief to the Supreme Court, the American Trucking Association explained that, “Inevitably, the resulting patchwork of state regulations . . . interfered with the standardization of vehicles and wreaked havoc on the burgeoning motor carrier industry.”¹⁰⁰ The brief goes on to cite the analysis of Ohio State University history professor William R. Childs:

If a trucker began a trip in Chicago, heading east, he could load a truck and trailer with a total of 39,000 pounds, 20,000 on the truck and 19,000 in the trailer. When he approached the Indiana border, he had to remove 16,000 pounds from the truck and 12,800 pounds from the trailer to meet the Hoosier State’s limit of 10,200 pounds. Once in Ohio he could add a total of 7,000 pounds; Pennsylvania allowed an additional 14,000 pounds (to total 31,200). . . .

In addition to the weight restrictions, states imposed different limits on the height, length, and width of commercial vehicles. . . .

Local, state, and interstate truckers suffered from increased operating costs, while [truck] manufacturers faced diverse production requirements. . . .¹⁰¹

97. Moore, *supra* note 95, at 55.

98. *See id.* at 57.

99. George Stigler, *The Theory of Economic Regulation*, 2 BELL J. ECON. & MGMT. SCI. 3, 8 (1971).

100. Brief of Amici Curiae American Trucking Ass’n, Inc. at 7, *City of Columbus v. Ours Garage and Wrecker Serv.*, 536 U.S. 424 (2002) (No. 01-419).

101. WILLIAM R. CHILDS, TRUCKING AND THE PUBLIC INTEREST: THE EMERGENCE OF FEDERAL REGULATION 1914-1940, 52-54 (1985), *quoted in* American Trucking Association Brief at 7, (No. 01-419).

The history of trucking regulation involves a long march to federal preemption. For decades, federal courts overruled state trucking regulations, on the grounds that “it is well settled that a state has no power to fetter the right to carry on interstate commerce within its borders by the imposition of conditions or regulations which are unnecessary and pass beyond the bounds of what is reasonable.”¹⁰² State commissions, however, continued to impose rules by interpreting federal decisions narrowly, setting up a running controversy over appropriate regulatory jurisdiction. Some of this was resolved by the Motor Carrier Act of 1935,¹⁰³ which shifted intrastate rate-setting authority to the Interstate Commerce Commission. Yet, states continued to attempt to impose their own rules, and not all were immediately struck down by federal courts.¹⁰⁴ “[T]his continuing parochialism . . . wreaked [havoc] on interstate commerce,”¹⁰⁵ and fueled demand for harmonization even after federal trucking deregulation was enacted in 1980.¹⁰⁶

Further federal preemption was achieved in 1994 as part of a bill to generally deregulate transportation carriers, and was specifically aimed at improving intermodal competition.¹⁰⁷ Effective January 1, 1995, economic regulation of intrastate trucking was preempted by federal law. This left states able to regulate very limited aspects of trucking, including safety. But when, for example, municipalities attempted to license tow truck operators, their regulatory efforts were struck down by the Supreme Court in 2002.¹⁰⁸ The federal preemption is conservatively estimated to result in efficiency gains of \$4 billion annually.¹⁰⁹

The rationale for federal preemption in trucking has direct application to the wireless telephone preemption question. Trucking is a network

102. Mich. Pub. Utils. Comm’n v. Duke, 266 U.S. 570, 577 (1925).

103. Motor Carrier Act of 1935, ch. 498, 49 Stat. 543 (1935) (renamed part II of the Interstate Commerce Act) (codified as amended in 49 U.S.C. § 301-302).

104. For examples of state laws struck down by federal courts, see *Kassel v. Consol. Freightways Corp.*, 450 U.S. 662 (1981); *Raymond Motor Transp., Inc., v. Rice*, 434 U.S. 429 (1978); *Bibb v. Navajo Freight Lines, Inc.*, 359 U.S. 520 (1959).

105. Amicus Curiae Brief at 13, *City of Columbus*, 536 U.S. 424 (No. 01-419).

106. Motor Carrier Act of 1980, Pub. L. No. 96-296, 94 Stat. 793 (codified as amended in scattered sections of 49 U.S.C.).

107. The Federal Aviation Administration Authorization Act of 1994, 49 U.S.C. § 40101 (2000), preempted states from regulating the rates or services of motor carriers.

108. *City of Columbus*, 536 U.S. 424.

109. PAUL TESKE ET AL., DEREGULATING FREIGHT TRANSPORTATION: DELIVERING THE GOODS 74 (1995) [hereinafter TESKE ET AL.].

industry, and rules imposed by individual states may have national consequences:

According to the Conference Committee report, Section 601 of the FAA Authorization Act was intended to preempt a “patchwork” of intrastate motor carrier regulations in 41 states that placed intolerable burdens on interstate commerce by causing “significant inefficiencies, increased costs, reduction of competition, inhibition of innovation and technology and curtailing the expansion of markets.”¹¹⁰

Many trucking interests supported harmonization of rules which would be achieved via federal preemption:

Consider, for example, the situation of a nationwide motor carrier that conducts operations in communities throughout the country. Even if state and local regulations never came into direct conflict with one another . . . for such a carrier to keep current on all of the individual municipal ordinances applicable to its trucking operations would be a Herculean task.¹¹¹

Political momentum for federal preemption was advanced by separate campaigns waged by competitors in the overnight delivery business, Federal Express and UPS. Federal Express, with a fleet of over 450 airplanes and more than 30,000 trucks, became concerned when states such as California began regulating important aspects of its business in the 1980s:

The firm was extremely frustrated with California trucking regulations, including ones that prohibited it from offering such advantageous services to its customers as longer credit, providing telephone rather than written claims, and a money-back guarantee. . . . Founder Fred Smith argued: “There has been no such thing as purely intrastate commerce since maybe when Daniel Boone was in Tennessee.”¹¹²

Federal Express, defined as an air carrier, was able to win a federal legal challenge to California state regulation,¹¹³ after which many other states chose to deregulate. UPS, defined as a surface carrier, now saw itself at a competitive disadvantage and lobbied hard for federal preemption of state regulation. Trucking firms generally joined the mutual effort of the

110. Brief of Amici Curiae American Trucking Ass’n, Inc. at 19, *City of Columbus*, 536 U.S. 424 (No. 01-419).

111. *Id.* at 22.

112. TESKE ET AL., *supra* note 109, at 139 (footnote omitted).

113. *Fed. Express Corp. v. Cal. Pub. Utils. Comm’n.*, 716 F. Supp 1299 (N.D. Cal. 1989), *rev’d and remanded by* 936 F.2d 1075 (9th Cir. 1991) (holding that regulation of Federal Express Corp.’s trucking operations, which were an integral part of the company’s operations as an air carrier, was preempted by the Airline Deregulation Act).

overnight delivery firms to secure this reform, as they “began to see the competitive disadvantages that they might face as a consequence of a mismatch between regulatory regimes.”¹¹⁴ Some of the disruptive, balkanized rules that transport suppliers faced are directly analogous to those proposed by state regulators in wireless.

4. Broadband

In emerging broadband markets, two principal competitors have emerged for residential customers: cable modems and digital subscriber lines (“DSL”). Both services are governed by rules set at the federal level, preempting local and state regulation. The issue of jurisdiction has perhaps arisen most pointedly in the conflict over “open access” rules for cable TV systems offering high-speed Internet access. Local franchising authorities have, in some instances, sought to impose requirements that cable operators make their systems available to independent Internet Service Providers (“ISPs”), who could then offer retail services to users via cable system connections. This local policy has been both preempted and rejected by the FCC in a series of rulings. The rationale for preemption has been consistent: clear national rules will spur investment and thus make new services available to consumers.

For instance, the FCC acted in 1999 to block local regulations imposed by such cities as Portland, Oregon, despite the fact that a federal district court upheld the city’s action, which was “celebrated . . . as protection of local authority against federal preemption.”¹¹⁵ William Kennard, chair of the Commission at that time, declared his motivation: “My No. 1 concern, numero uno, is we’ve got to get Americans faster Internet access in their homes.”¹¹⁶ While cable systems were franchised by municipal governments, localized broadband rules would undermine development of new broadband technologies everywhere. This led Kennard to propose federal preemption:

“It is in the national market interest that we have a national broadband policy,” Kennard told the audience. That policy is to let the industry

114. TESKE ET AL., *supra* note 109, at 141.

115. Paul Teske & Andrey Kuljiev, *Federalism, Preemption, and Implementation of the 1996 Telecommunications Act*, 30 PUBLIUS, Winter/Spring 2000, at 53, 60 [hereinafter Teske & Kuljiev].

116. Peter Elstrom et al., *Whose Cables Are They?*, BUSINESSWEEK ONLINE (July 5, 1999) at http://www.businessweek.com/@E5SKe4QQWqxFtRIA/1999/99_27/b3636053.htm.

grow as the market dictates, he said, but the decision in Portland would have a decidedly opposite effect. "The fact is there is a role for national policy . . . we have to have a national standard in this area," Kennard said. . . . Taking a lead from the medical field, Kennard coined the policy as the "Hippocratic high-tech oath—do no harm."¹¹⁷

The Commission then filed an amicus brief in *AT&T/TCI v. City of Portland*, a 1999 case in which local "open access" obligations were challenged by the cable franchisee.¹¹⁸ The FCC argued for federal preemption of such regulatory disputes.¹¹⁹ In a report to the Commission by the Cable Services Bureau in October 1999, the FCC expanded its findings on the basis of evidentiary hearings, concluding that "[r]apid nationwide broadband deployment depends on a national [broadband] policy."¹²⁰ This was explained as follows:

There seemed to be wide agreement among our panelists that consumers would be poorly served by a fractured broadband landscape wherein each locality devises its own set of cable Internet access regulations. All of the financial analysts expressed concern over the prospect of hundreds of LFAs [local franchising authorities] regulating broadband access. . . . The concern is that cable companies would move away from or substantially slow cable modem deployment and focus on telephony, thereby thwarting the public policy objective of rapid deployment of advanced technologies to all Americans.¹²¹

In its decision, issued in June 2000,¹²² the Ninth Circuit found that cable modem service was a service under the statutory jurisdiction of the FCC. The issue was resolved by a Commission ruling in March 2002. The FCC reiterated its earlier policy: "In a *Declaratory Ruling* adopted today, the FCC concluded that cable modem service is properly classified as an interstate information service and is therefore subject to FCC

117. Jim Davis & Corey Grice, *FCC's Kennard Slams Open Access Ruling*, CNET NEWS.COM (June 15, 1999), at <http://news.com.com/2100-1033-227121.html>.

118. Brief of Amici Curiae FCC, *AT&T v. Portland*, 216 F.3d 871 (9th Cir. 2000) (No. 99-35609), available at <http://www.techlawjournal.com/courts/portland/19990816fcc.htm>.

119. Teske & Kuljiev, *supra* note 115, at 61 ("The FCC maintains that to guarantee fast nationwide deployment of broadband services, a single national policy is required (and, in this case one of 'hands-off-the-Net'), and that regulation at any level may affect adversely the speed at which firms introduce the new technologies.").

120. Deborah A. Lathen, *A Staff Report to William E. Kennard, Chairman Federal Communications Commission on Industry Monitoring Sessions Convened by Cable Services Bureau*, BROADBAND TODAY, Oct. 1999, at 39, available at <http://ftp.fcc.gov/Bureaus/Cable/Reports/broadbandtoday.pdf>.

121. *Id.*

122. *City of Portland*, 216 F.3d 871.

jurisdiction.”¹²³ The FCC went on to rule that it would be in the public interest to continue to preempt local or state regulatory authority in favor of a national deregulatory policy that would encourage broadband development:

In the interest of national uniformity, the FCC should exercise its forbearance authority in light of the U.S. Court of Appeals for the Ninth Circuit’s decision in the *Portland* case, which classified cable modem service as both an “information service” and “telecommunications service.”¹²⁴

The same issue of federal preemption dominated the 2002 FCC ruling on whether to classify cable modems as “cable services,” “information services,” or “telecommunications services.” If cable modems were to be defined as “cable services,” this would expose operators to regulations and taxes imposed by states and/or local franchising authorities; if deemed “telecommunications services,” operators would potentially face federal regulation; if designated “information services,” federal deregulation would preempt state or local rules.¹²⁵ The FCC chose the latter classification, preempting localities and simultaneously deregulating cable modem service. It did this explicitly to create regulatory uniformity designed to encourage the creation of nationwide data networks:

In this part of the Notice of Proposed Rulemaking, we address potential areas of regulatory uncertainty at the State and local levels that could also discourage such investment and innovation. We would be concerned if a patchwork of State and local regulations beyond matters of purely local concern resulted in inconsistent requirements affecting cable modem service, the technical design of the cable modem service facilities, or business arrangements that discouraged cable modem service deployment across political boundaries. We also would be concerned if State and local regulations limited the Commission’s ability to achieve its national broadband policy goals to “promote the deployment of advanced telecommunications capability to all Americans in a reasonable and timely manner,” “to promote the continued development of the Internet and other interactive computer services and other interactive media” and “to preserve the vibrant and

123. Press Release, FCC, FCC Classifies Cable Modem Service as “Information Service” (Mar. 14, 2002) available at http://ftp.fcc.gov/Bureaus/Cable/News_Releases/2002/nrcb0201.html.

124. *Id.*

125. See Barbara S. Espin & Gary S. Lutzker, Poles, Holes and Cable Open Access: Where the Global Information Superhighway Meets the Local Right-of-Way, 10 COMMLAW CONSPECTUS (2001) 23, at 25-28.

competitive free market that presently exists for the Internet and other interactive computer services, unfettered by Federal or State regulation.”¹²⁶

F. Summary: Characteristic Elements Associated with Preemption

National preemption of state regulation has occurred in many markets where national economies of scale and scope are crucial to efficiency. This often comes about in response to problems with a lack of uniformity in markets where costs are particularly high, or when a patchwork regulation reduces product experimentation, restricts investment, and raises costs. As demonstrated below, wireless telephony would appear to share many of the characteristics seen in markets with federal preemption. These factors are summarized here in Table 7.

Table 7. Key Factors in Evaluating Regulatory Decentralization		
<i>Factor</i>	<i>Argument for Decentralization</i>	<i>Characteristics of Wireless Phone Market</i>
Degree of diversity in local markets	Idiosyncratic markets yield state regulators better information	National networks key to competitive rivalry
Regulatory coordination	Diversity is an advantage (trial and error, competitive selection) when low value to harmonization	Uniformity of rules assists formation of national networks; Federal spectrum allocation policies essential to market performance
Spillover effects	Costs and benefits of local rules internalized	National networks make state markets highly complementary, costs of non-uniform rules spillover
State level regulatory competence	Economies of scale (and specialization) not associated with improved regulation	State regulatory policies ineffective; Federal preemption of rate regulation successful

126. Inquiry Concerning High-Speed Access to the Internet Over Cable and Other Facilities, Declaratory Ruling and Notice of Proposed Rulemaking, 17 F.C.C.R. 4798, para. 97 (2002).

IV. THE EFFICIENCY OF NATIONAL WIRELESS NETWORKS

A. Consolidation and Lower Prices

Perhaps the best-documented observation about wireless telephone markets is that national networks are efficient. Annual studies of the CMRS market by the FCC make this point repeatedly: fragmentation of wireless phone service is extremely costly, and the emergence of broad-based systems drives costs down for both operators and consumers.

The U.S. market has gravitated to national networks because of economic efficiency, not due to regulatory constraints or path dependency. Indeed, regulators allotted thousands of local licenses, resisting any bias to impose national scope on service providers. Economic rationalization via mergers, joint ventures, and marketing agreements has driven aggregation of disparate franchise areas into nationwide systems. In contrast to the United States' selection of 734 cellular franchise areas, 51 PCS-A and PCS-B franchise areas, and 493 PCS-C, -D, -E, and -F franchise areas, no other Organization for Economic Co-Operation and Development ("OECD") country had more than the eleven franchise areas used by Canada. The great majority of countries are issued national licenses for mobile wireless on the presumption that wide area networks are efficient.

Table 8. FCC License Aggregation in Wireless Telephony (2003)¹²⁷

	<i>Number of Licenses</i>			
	Cellular	PCS	SMR	TOTAL
AT&T	56	282	0	338
Cingular	132	89	104	325
Nextel	0	0	41,833	41,833
Sprint PCS	0	163	0	163
T-Mobile	0	269	13	282
Verizon	165	117	0	282
Nextwave	0	95	0	95
Others	1,434	1,660	5,185	8,279
TOTAL	1,787	2,675	47,104	51,597

127. See Universal Licensing System, *supra* note 20. Information was collected on July 31, 2003, by running searches in each license category.

From a radically fragmented starting point, national networks now dominate the marketplace. By the year 2000, six national networks had emerged after nearly two decades of semicontinuous merger activity. These six network operators provide the overwhelming majority of service for the overwhelming majority of subscribers, accounting for 85.4% of service revenues in the fourth quarter of 2002.¹²⁸ The networks are pieced together from 3,642 separate licenses issued by regulators, and this omits the 47,104 Specialized Mobile Radio licenses which Nextel (formerly Fleet Call) pieced together to construct a national wireless network.¹²⁹

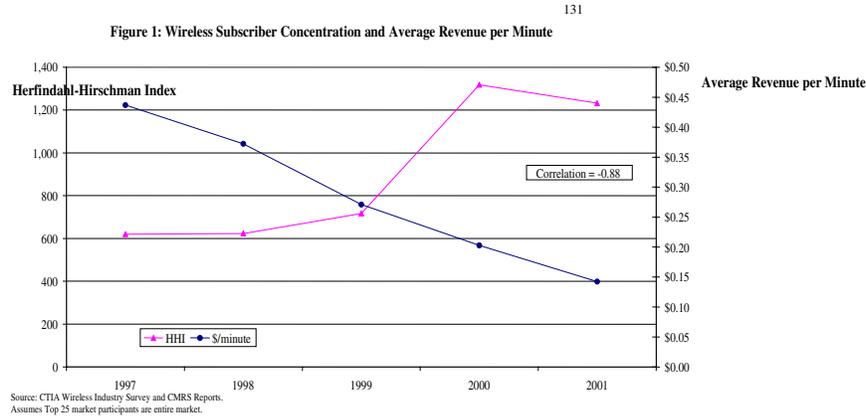
Regulators did not believe that this consolidation would, or should, occur. In 1995, in fact, the FCC theorized that national wireless service could be efficiently provided by local suppliers. Coordination between independent carriers could be arranged through roaming agreements and other contractual devices:

Broader geographic markets have been asserted on several grounds. First, some carriers are offering "regional" service options, which give customers flat-rate calling areas as large as a whole state. At the present time, however, such plans (and customers using them) are the exception, not the rule. Second, most mobile radio services are provided by large regional or national corporations, and there is case law holding that the relevant geographic market is nationwide when a service, even a local one, is provided uniformly across the nation by centrally managed companies. Third, the industry and some analysts speak increasingly of customers demanding "seamless service." However, this may show simply that some customers want a recognized national brand name on a product that remains essentially local. In sum, while there is evidence that regional and national markets may be emerging, it appears that the vast majority of mobile radio services are provided in local and metropolitan geographic markets under current conditions.¹³⁰

128. See *Wireless Scorecard, 4Q 2002*, *supra* note 39, at 71.

129. Nextel has produced a national wireless network by acquiring 41,833 (88.8%) of SMR licenses. See *Universal Licensing System*, *supra* note 20.

130. Implementation of Section 6002(B) of the Omnibus Budget Reconciliation Act of 1993, *First Report*, 10 F.C.C.R. 8844, para 64, 78 Rad. Reg. 2d (P & F) 1322 (1995) [hereinafter *First Annual CMRS Report*].



But investors saw this differently. Between 1992 and 2002, substantial consolidation of the wireless telephone sector took place, even as new PCS and SMR entrants were introduced. As seen in Table 9, the largest U.S. network in 1992 covered just a quarter of potential subscribers; a decade later, each of the top six networks covered nearly 75% or more.

131. CELLULAR TELECOMM. & INTERNET ASS'N, *Semi-Annual Wireless Industry Survey*, (2003), at <http://www.wow-com.com/industry/stats/surveys>; Implementation of Section 6002(b) of the Omnibus Budget Reconciliation Act of 1993, *Third Report*, FCC 98-91, app. B, table 4, 12 Comm. Reg. (P & F) 623 (June 11, 1998), available at <http://www.fcc.gov/Bureaus/Wireless/Reports/fcc98091.pdf> [hereinafter *CMRS Third Annual Report*]; Implementation of Section 6002(b) of the Omnibus Budget Reconciliation Act of 1993, *Fourth Report*, 14 F.C.C.R. 10145, app. B, table 15, 16 Comm. Reg. (P & F) 289 (1999) [hereinafter *CMRS Fourth Annual Report*]; Implementation of Section 6002(b) of the Omnibus Budget Reconciliation Act of 1993, *Fifth Report*, 15 F.C.C.R. 17660, app. B, table 3, 21 Comm. Reg. (P & F) 1320 (2000) [hereinafter *CMRS Fifth Annual Report*]; Implementation of Section 6002(b) of the Omnibus Budget Reconciliation Act of 1993, *Sixth Report*, 16 F.C.C.R. 13350, app. C, table 3, 34 Comm. Reg. (P & F) 170 (2001) [hereinafter *CMRS Sixth Annual Report*]; Implementation of Section 6002(b) of the Omnibus Budget Reconciliation Act of 1993, *Seventh Report*, 17 F.C.C.R. 12985, app. C, table 4, (2002) [hereinafter *CMRS Seventh Annual Report*].

Table 9. Coverage and National Scope of Largest Wireless Carriers¹³²		
<i>Carrier</i>	<i>POPs (million)</i>	<i>Percent of U.S. Population</i>
1992		
McCaw	65.0	25.5
GTE	53.6	21.0
BellSouth	44.6	17.5
Southwestern Bell	36.2	14.2
PacTel	36.5	14.3
NYNEX	26.0	10.2
2002		
Verizon Wireless	248.0	85.1
T-Mobile	242.2	83.1
Cingular Wireless	231.0	79.3
AT&T Wireless	259.0	88.9
Nextel	230.0	79.0
Sprint PCS	211.0	72.5

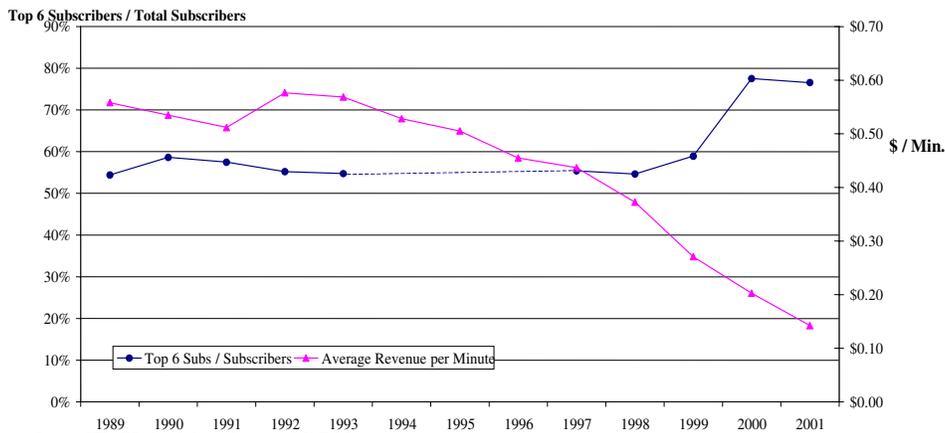
This marketplace evidence was changed by the FCC's opinion regarding the scale efficiencies. The emergence of nationally integrated networks and calling plans demonstrated that consumers were demanding services most economically provided on a broader scale. As larger networks formed, prices plummeted and demand skyrocketed. Between 1995 and 2002, the average price per minute fell from \$0.51 to \$0.12; minutes of wireless use rose sixteen-fold.¹³³ Industry consolidation was marked during this period. As Figure 2 illustrates, the top six wireless operators served about 55% of U.S. subscribers in the mid-1990s and

132. See CELLULAR TELEPHONE INDUSTRY ASS'N, THE STATE OF THE CELLULAR INDUSTRY, (1993); *Wireless Scorecard, 4Q 2002*, *supra* note 39, at 82; Population Estimates Program, U.S. Census Bureau, Monthly Estimates of the United States Population: April 1, 1980 to July 1, 1999, (Jan. 2, 2001), available at <http://eire.census.gov/popest/archives/national/nation1/intfile1-1.txt>; Population Div., U.S. Census Bureau, National Population Estimates: April 1, 2000 to July 1, 2002, (Dec. 31, 2002), available at <http://eire.census.gov/popest/data/national/tables/NA-EST2002-01.php>.

133. See *supra* Table 3.

nearly 80% in 2000. Concentration did not rise in local markets (where, in any event, the FCC's "spectrum cap" constrained mergers). Instead, fragmented wireless operators were forming national networks.¹³⁴

Figure 2: Wireless Subscriber Concentration and Average Revenue per Minute



Source: CTIA Wireless Industry Survey and CMRS Reports.

1989-1993 Top 6 Subscriber data from Kidder Peabody & Co., *Wireless World: The Mobile Telephone Industry* (Spring 1994), p. 16.

The sharp drop in wireless telephone rates in the mid-1990s appears to be a deviation from the preexisting trend. State regulatory authorities told the FCC in 1994 that cellular rates had been fairly stable since the initiation of service in the mid-1980s.¹³⁵ Also in 1994, economist William

134. See CTIA SURVEY, *supra* note 29; Implementation of Section 6002(b) of the Omnibus Budget Reconciliation Act of 1993, *Second Report*, 12 F.C.C.R. 11266, table 2, 7 Comm. Reg. (P & F) 1 (1997) [hereinafter *CMRS Second Annual Report*]; *CMRS Third Annual Report*, *supra* note 131; *CMRS Fourth Annual Report*, *supra* note 131; *CMRS Fifth Annual Report*, *supra* note 131; *CMRS Sixth Annual Report*, *supra* note 131; *CMRS Seventh Annual Report*, *supra* note 131; Steven R. Yanis, Kidder, Peabody & Co., *The Mobile Telephone Industry*, *Wireless World* 16, table 8 (Apr. 7, 1994).

135. The CPUC FCC Filing (1994) notes that the Commission allowed duopoly cellular carriers "to set retail rates for any service plan based on what the market would bear and not on cost." Implementation of Sections 3(n) and 332 of the Communications Act, *Petition of the People of the State of California and the Public Utilities Commission of the State of California to Retain State Regulatory Authority over Intrastate Cellular Service Rates*, PR 94-108, at 12 (Aug. 8, 1994) [hereinafter *California CPUC Filing*]. To enhance competitive pressures, however, the CPUC mandated wholesale access to networks at rates which were projected to be profitable for resellers. After setting up a system in 1990 to monitor the

Shew observed that the “average price of cellular service, in nominal terms, has exhibited a mild downward trend.”¹³⁶ Rates plummeted only after PCS entry and the consolidation of national networks. In Figure 1, national wireless industry concentration (as measured by the Herfindahl-Hirschman Index)¹³⁷ and wireless phone rates (calculated as the average price per minute of use) are shown for the 1997-2001 period.¹³⁸ During these five years the correlation between the HHI and market prices is -0.88. As consolidation increases, prices decline.

The importance of national scope in service provision is clear. Seven years after the FCC hypothesized that local wireless operations might be competitive with national networks, market evidence clearly indicated the reverse: subscribers wanted the lower prices and ease of use, including roaming, made possible by consolidation and uniform national services. Key to this conclusion was the popularity of AT&T’s “Digital One Rate” plan, a service offering that obliterates regional differences. When first brought to market in May 1998, AT&T’s move was considered a risky gamble, but competitors rushed to offer similar plans of their own. The success of AT&T’s uniform nationwide offer with customers was neither lost on market rivals nor on the FCC:

The Commission has concluded previously that operators with larger footprints can achieve certain economies of scale and increased efficiencies compared to operators with smaller footprints. Such

results of the regulatory plan, the Commission determined in 1993 that “Three years later virtually none of the Commission’s expectations [of reducing cellular rates] have been met by industry performance.” *Id.* at 17 (citation omitted). New rate controls were then crafted, but the following year the CPUC found that “none of the new or existing plans experienced any permanently lowered wholesale or retail rates” under them. *Id.* at 18.

136. William B. Shew, Regulation, Competition, and Prices in the U.S. Cellular Telephone Industry, ENSAE-CREST Conference on the Economics of Radio-Based Communications 4 (June 23-24, 1994) (on file with the Journal).

137. The Herfindahl-Hirschman Index (HHI) is the sum of the firm market shares squared = $\sum_1^n m s_i$, where “n” is number of firms in the market and “ms” is the marketshare of individual firms. This calculation differs from the standard analysis of industrial concentration. This metric shows total industry aggregation, not the number of competitive service providers faced by individual customers, which is the margin of concern in the typical competition policy (or antitrust) inquiry. Here we aim to see just the reverse, the relationship between consolidation of geographically dispersed networks and price declines due to intensifying competitive pressures.

138. This table is inclusive; information was chosen because market share data was available.

benefits, along with advances such as digital technology, have permitted companies to introduce and expand innovative pricing plans such as digital-one-rate (“DOR”) type plans, reducing prices to consumers.

Since the end of 1999, carriers have been building nationwide footprints through various forms of transactions. One of the driving forces behind many of these transactions has been the desire of large regional carriers to enhance their ability to compete with existing nationwide operators that offer attractive nationwide pricing plans. More recently, national operators have sought to fill in gaps in their coverage areas.¹³⁹

This regulatory finding is only one of many indicating the importance of unified national networks.¹⁴⁰ These developments are fundamental in evaluating the optimal regulatory jurisdiction in wireless telephony. Because “seamless” operations are crucial to the competitiveness of wireless operators, these firms naturally strive to homogenize their offerings and to exploit economies of scale in advertising and marketing. In this marketplace, non-uniform offerings are inefficient, and wireless carriers will naturally gravitate to standard packages in order to deliver the efficiencies demanded by their customers.

To comply with diverse state rules, firms have three options. They can choose to sacrifice economies of scale, producing custom services state by state. Alternatively, they can choose to provide a national plan, tailoring it to comply with the most stringent state requirements. This may be impossible if state rules actually conflict; balkanized service plans would be required. This raises compliance costs and, ironically, eliminates the effectiveness of most states’ regulations. That is because the most stringent rules will be set by regulators in another state, except in the special case when most people live in states where regulators reach precisely the same set of “toughest” rules. (Of course, if this special case is obtained, federal preemption would then be appropriate on the grounds of administrative efficiency.)

Finally, firms can adopt a hybrid approach where they maintain a national standard for most markets but customize local service where state regulation is onerous. This sacrifices some, if not all, scale economies

139. *CMRS Seventh Annual Report*, *supra* note 131, at 12997-98.

140. Appendix 1 is a representative sample of such comments in the FCC’s Annual CMRS Reports, 1995-2002. Appendix 2 lists similar observations made by investment analysts, buttressing such findings.

while providing a safety valve to mitigate very expensive regulations that may be assessed in some jurisdictions. Some rules can prompt suppliers to tailor state level offerings by simply exiting some markets altogether.¹⁴¹ While that is unlikely in wireless telephony due to demands for ubiquitous coverage, firms can partially exit high-cost markets, investing less in cell sites, base stations, marketing, and other inputs. Table 10 provides a summary of these responses.

Table 10. Regulatory Compliance Strategies by Firms with Diverse State Rules	
<i>Compliance Strategy</i>	<i>Economic Implications</i>
Customize service state by state	Minimizes cost of compliance in each state, but eliminates important economies of scale
Tailor national service standard to tightest state regulations	Raises costs of regulatory compliance and eliminates effective state regulatory function; state with the tightest rules “free rides” by imposing its standards on other states
Select which states to offer a national plan and which to offer custom (or no) service	Eliminates some, but not all, economies of scale

141. With patchwork state rules governing environmental claims, firms have often chosen not to provide useful “green” products:

As the costs associated with green marketing rise, honest manufacturers may simply cease providing environmental information. One manufacturer testified before the FTC that “[t]he Balkanization of environmental regulation effectively bars national manufacturers from making truthful, beneficial claims about the environmental attributes of their products and packaging. These laws deny consumers truthful, educational and valuable environmental information.” According to a trade association representative, “[i]f, as seems likely, conflicting local and state regulations silence national marketers with respect to environmental claims, the ability of consumers to make [environmentally beneficial] choices . . . will be seriously impeded.”

Welsh, *supra* note 74, at 81 (footnotes omitted).

Observed characteristics of the mobile telephone services market suggest that economies of scale and scope are important to consumers and that the licensing scheme instituted by the FCC imposed costs on the market by issuing licenses that unnecessarily fragmented networks. Moving to issue PCS licenses, the FCC specifically noted that cellular markets had been atomized with licenses issued by lotteries in 734 franchise areas.¹⁴² It sought to promote aggregation both by licensing larger service territories in PCS and by awarding licenses via simultaneous auctions in which bidders could easily aggregate wireless service areas.

As entry has occurred, industry consolidation has also intensified, with the result being that prices have plummeted. Consumers have demonstrated their approval by purchasing more minutes of use, and wireless carriers have competed to offer rival “buckets” of nationwide minutes with uniform pricing. These developments have not been driven by regulators or imposed by firms, but have been the outcome of a competitive discovery process in which underlying efficiencies have proven themselves via the market test.

Under such conditions, the implications for federal regulatory presumption are straightforward. To cede jurisdiction to state commissions risks undoing national network offerings that have taken years to construct and that deliver demonstrable benefit to users. Firms could relocalize service offerings, with the industry returning to its roots as a costly patchwork of small-area networks. Roaming was initially difficult and expensive, national marketing campaigns impractical, and competitive forces weak. Both users and carriers have benefited from the economies of scale and scope that came with national pricing of national networks, a development that is very far along and closely observed by FCC regulators. To force firms to readjust to locally diverse regulatory constraints would be to undo the proconsumer investments made over the past two decades, thus creating efficient national networks and “Digital One Rate” plans, undermining competitive forces and threatening consumer interests.

142. “[T]he transaction costs associated with license resales after [cellular license] lotteries have been quite significant. For example, for the year 1991, these costs have been estimated at \$190 million.” FCC Rpt. to Congress on Spectrum Auctions, *Report*, WT Dkt. No. 97-150 (Oct. 9, 1997) (footnote omitted), available at <http://wireless.fcc.gov/auctions/data/papersAndStudies/fc970353.pdf>.

B. Consolidation and Improvements in Network Quality

Gaining national geographic scope has allowed competing wireless networks to better pursue technological upgrades and to roll out a richer mix of services. The result is that the quality of wireless service has improved markedly with the emergence of wider area networks. Uniform systems, governed by uniform rules, have contributed substantially to this crucial dimension of consumer satisfaction.

The integration of local systems into nationwide networks allowed for economies of scale in developing advanced applications and in deploying new technologies. Efficiencies were realized in research, in marketing, and in purchasing of equipment for both operators (e.g., base stations) and individual customers (e.g., handsets). In piecing together disparate network elements, the coordination afforded the larger network often resulted in cost savings and improved functionality.

In analyzing the merger between Bell Atlantic and GTE, which was one of several major mergers creating a national wireless network, the FCC predicted just this result, stating that “combining these wireless businesses will likely produce . . . system-wide efficiencies through the common network engineering, management, purchasing, and administrative functions, leading to earlier and broader deployment of advanced wireless services.”¹⁴³

While data are difficult to obtain, some evidence suggests that consolidation has been associated with marked increases in the quality of mobile phone usage. Mobile EcoSystem 2003, an industry advisory and consulting firm, publishes the results of tests administered by Telephia, an engineering firm, on the proportion of calls blocked or dropped by wireless telephone subscribers. Although only data from the last two years (2001 and 2002) have been posted, they indicate that sharp improvements are being made in wireless telephone reliability (Table 11). The consolidation of independent local operators by seamless national networks is consistent with such increases in quality.

143. Application of GTE Corp. and Bell Atl. Corp., *Memorandum Opinion and Order*, 15 F.C.C.R. 14032, para. 377, 20 Comm. Reg. (P & F) 989 (2000).

Table 11. The Frequency of Dropped or Blocked Wireless Telephone Calls¹⁴⁴			
<i>Dropped Calls</i>		<i>Blocked Calls</i>	
2001	1.66%	2001	3.59%
2002	0.87%	2002	2.09%
Annual Improvement	47.6%	Annual Improvement	41.8%

V. FRAGMENTATION AND UNIFORMITY IN THE REGULATION OF WIRELESS PHONE SYSTEMS

State regulation of wireless phone systems has collided with federal jurisdiction in many respects, with substantial preemption taking place in the Omnibus Budget Reconciliation Act of 1993 (“OBRA”) and the Telecommunications Act of 1996 (“1996 Act”). State regulation of cellular rates was preempted in OBRA, along with other regulatory functions, although the extent to which states are foreclosed from regulating has been a subject of legal debate.¹⁴⁵ The 1996 Act instituted further preemption, particularly of local zoning restrictions, which inhibited the siting of towers for wireless networks. Again, the extent to which state and local authorities are prohibited from regulating is under debate.¹⁴⁶

The basic logic of federal preemption, however, appears clear. It was detailed in a 1998 law review article by Leonard J. Kennedy and Heather A. Purcell:

Because wireless networks increasingly operate on a multistate or on a nationwide competitive basis and calls frequently traverse state borders, Congress freed wireless carriers from the dual (federal and state) regulatory jurisdictional system designed to regulate the monopoly common carrier activities of the former Bell System and the hundreds of independent telephone companies around the country (such as GTE) that were not part of the Bell System. Congress reasonably concluded that today’s wireless networks differ fundamentally from monopoly local exchange carriers. Indeed, a wireless call to Virginia may originate in the District of Columbia, while the caller drives across the state line to Maryland and the call is

144. Presentation: Mark Lowenstein, Mobile Ecosystem, *State of the Wireless Industry* presented at the Pacific Research Institute Conference 5 (Apr. 15, 2003) (on file with the Journal).

145. Kennedy & Purcell, *supra* note 7, at 547.

146. See Teske & Kuljiev, *supra* note 115, at 63. (“Thus, there is still no clear national policy on when local governments can oppose telecommunications facilities based on zoning considerations.”)

routed to and switched in New York. If CMRS providers were treated like wireline carriers they would be forced to make artificial distinctions so that their calls could be classified into historic state or federal regulatory categories that would be antediluvian, unnecessary, and harmful. The imposition of these outdated requirements would impede the development of wireless in the United States.¹⁴⁷

Jurisdictional issues are rarely settled in absolute terms, with federal preemption foreclosing any local or state involvement. Substantial public policy responsibility remains vested in state governments, for example, even after regulatory authority for consumer protection issues—rates, quality of service, contract disclosure—is placed in a federal agency. For the policy interventions now under consideration by regulators at the state and federal level, however, it is possible to categorize the efficiency implications of alternative jurisdictions. In general, each of the major regulatory proposals involves substantial jurisdictional externalities due to the strong influence of national network economies in the wireless telephone sector.

Advertising regulations. National marketing campaigns, including commercial messages distributed to nationwide audiences, and high-visibility national events sponsored by wireless carriers, could be seriously affected by advertising regulations. To introduce non-uniformity in such rules would lead competitors to shy away from national advertising, reducing any efficiencies to be gained in this realm.

Disclosure rules. The importance of national one rate plans in promoting competition and network growth is substantial. Disclosure rules can disrupt such marketing efficiencies by imposing different point-of-sale procedures and conflicting requirements for what information must be conveyed. Because some proposals (such as California's) consider mandating lengthy written agreements and/or third-party verification to ensure that subscribers understand contract terms, marketing practices could be forced off line. Non-uniformity would reduce efficiencies associated with telephone or Internet sign-ups, undermining investments in these arrangements.

Minimum Trial Periods. The six national carriers currently offer free trial periods of 14-30 days, during which telephone service can be terminated without payment of an "early termination fee."¹⁴⁸ Terms

147. Kennedy & Purcell, *supra* note 7, at 550.

148. Cellular Telecommunication & Internet Ass'n, Proposed Wireless Regulations:

extending this period in some states would alter carriers' incentives to offer free or discounted telephones, lowering network utilization and, in the long term, network development.

In essence, each of the proposals under consideration has the potential to impose costs on wireless subscribers outside the state in which the costs are levied. This is due to two factors. First, inefficient rules limiting network development in one state tend to spill over in other jurisdictions. Because costs and benefits are misaligned, suboptimal infrastructure investment results. This lowers service quality when local subscribers roam or when they attempt to call others on the network who rely on infrastructure that is underdeveloped due to regulation. Second, because the cost of rules falls, at least in part, on consumers on other states, regulators will tend to ignore some of the costs they impose. The latter effect allows regulators to free-ride; indeed, political constraints push them to do so, as electoral power is undermined by focusing on outside interests at the expense of constituents.

In the pattern seen among the examples above, competition between the states can work well where locally provided services do not entail substantial external effects. Where large interstate networks are involved, however, spillovers occur and regulations are easier to harmonize at the federal, rather than at the state, level. This appears to best describe wireless networks, where strong national economies of scale and scope lead to the emergence of efficient national-level system integration.

VI. STATE VS. FEDERAL WIRELESS REGULATION: A NATURAL EXPERIMENT

In exploring the optimal jurisdiction question, direct evidence revealing relative regulatory competencies is valuable but rare. Indirect evidence is more likely to be available, leading one, for instance, to compare the size of the professional staff at the Montana Public Service Commission with that of the FCC. Similarly, some rely on anecdotal evidence concerning the awareness of state versus federal regulators. A recent episode involving a member of the California Public Utilities Commission may be suggestive: "Henry Duque, a six-year member of the

California Public Utilities Commission, testified Monday that he didn't know until last year that his agency regulates the wireless telecommunications industry."¹⁴⁹

The FCC does enjoy certain economies of scale in evaluating nationwide data with a larger base of policy experts. It enjoys a work force of over 2,000 full-time employees; has a Wireless Telecommunications Bureau with staff attorneys, economists, engineers, and industry analysts knowledgeable about mobile telephony; and issues detailed annual reports evaluating the CMRS market for Congress. But how important is the federal regulatory advantage in crafting policies that help consumers? After all, dispersed experiments among the fifty states could contribute to a process that overcomes the disadvantage attendant to any one state commission's analysis by using trial and error to discover better modes of regulation.

Fortunately, there exists a case study that puts the issue to the test. In the 1993-94 federal deregulation of cellular telephone rates, alternative jurisdictions took different sides of the issue. In that instance, federal rules trumped those of state commissions, preempting rate regulations that many states were imposing and sought to continue to impose. Because we can now observe what happened to cellular rates following that federal preemption of state regulation, it is possible to contrast the rival regulatory positions. This is direct evidence as to which jurisdiction has most effectively protected economic efficiency, and thus, consumer interests.

A. Federal Preemption and Deregulation of Cellular Rates in 1994

The Omnibus Budget Reconciliation Act of 1993¹⁵⁰ preempted regulation of cellular rates by the states as of August 10, 1994, one year from the day of enactment.¹⁵¹ The rationale for preemption was that the FCC was responsible for spectrum allocation and licensing and, in this capacity, was the logical nexus of authority for related regulatory

149. Associated Press, *Duque Says He Didn't Know PUC Regulated Wireless Industry*, (Dec. 18, 2001), available at <http://www.consumerwatchdog.org/utilities/nw/nw002128.php3>. In fairness to Commissioner Duque, the position that the State of California merely regulates wireless telephone carriers in a formalistic, ineffectual manner since federal preemption of rate controls in 1994 (and possibly before) would be a compelling argument backed by empirical support.

150. Pub. L. 103-66, 107 Stat. 312 (codified as amended in scattered sections of U.S.C.).

151. Petition of N.Y. State Pub. Serv. Comm'n to Extend Rate Reg., *Report and Order*, 10 F.C.C.R. 8187, paras 2-3, 78 Rad. Reg.2d (P & F) 251 (1995).

decisionmaking. Specifically, in licensing other wireless entrants, only the FCC could create consistent rules for direct competitors. Because asymmetric regulation by the several states could clearly disrupt competitive forces, Congress vested the national regulatory agency with control over rates.

States that had been regulating cellular prices, however, were given one year to petition the FCC to request authority to continue regulating. Twenty-three states regulated rates in some way, and petitions to continue rate regulation were filed by seven states.¹⁵² All were denied, and state regulation was preempted.¹⁵³ The arguments employed by the states, however, are of interest.

The petitioners argued that cellular telephone service was not fully competitive; competitive entry would eliminate the need for regulation, but not until competition actually arrived in the market. There was no telling how long it would take the upcoming PCS licensees to become full-fledged wireless telephone competitors, and until they were, state-level rate controls were needed to protect consumers.¹⁵⁴

As the State of New York argued, "the market for cellular services is not fully competitive, and, therefore, state regulation, as it is employed in New York, serves as a deterrence to anticompetitive and discriminatory

152. See *supra* Table 12.

153. See Petition of Ariz. Corp. Comm'n, to Extend State Auth. Over Rate and Entry Reg. of All Commercial Mobile Radio Servs., *Report and Order and Order on Reconsideration*, Pr. Dkt. No. 94-104 (May 19, 1995), available at <http://www.fcc.gov/Bureaus/Wireless/Orders/1995/fcc95190.txt>; Petition on Behalf of the La. Pub. Serv. Comm'n for Auth. To Retain Existing Jurisdiction over Commercial Mobile Radio Servs. Offered Within the State of Louisiana, *Report and Order*, Pr. Dkt. No. 94-107 (May 19, 1995), available at <http://www.fcc.gov/Bureaus/Wireless/Orders/1995/fcc95191.txt>; Petition of N.Y. State Pub. Serv. Comm'n to Extend Rate Reg., *Report and Order*, PR Dkt. No. 94-108 (May 19, 1995), available at <http://www.fcc.gov/Bureaus/Wireless/Orders/1995/fcc95192.txt>; Petition of the State of Ohio for Auth. to Continue to Regulate Commercial Mobile Servs., *Report and Order*, PR Dkt. No. 94-109 (May 19, 1995), available at <http://www.fcc.gov/Bureaus/Wireless/Orders/1995/fcc95193.txt>; Petition on Behalf of the State of Hawaii, Pub. Util. Comm'n, for Auth. To Extend its Rate Reg. of Commercial Mobile Radio Servs. in the State of Hawaii, *Report and Order*, PR Dkt. No. 94-103 (May 19, 1995), available at <http://www.fcc.gov/Bureaus/Wireless/Orders/1995/fcc95194.txt>; Petition of the Conn. Dep't Pub. Util. Control to Retain Reg. Control of the Rates of Wholesale Cellular Serv. Providers in the State of Connecticut, *Report and Order*, 10 F.C.C.R. 7025 (1995); Petition of the People of the State of California and the Pub. Utils. Comm'n of the State of California to Retain Reg. Auth. over Intrastate Cellular Serv. Rates, *Report and Order*, 10 F.C.C.R. 7486, 78 Rad. Reg.2d (P & F) 108 (1995).

154. See, e.g., *California CPUC Filing*, *supra* note 135, at 19, 67.

practices.”¹⁵⁵ This is not an implausible argument, and it is now testable. There are costs as well as benefits inherent in public policy. Customers, firms, and regulators respond to constraints in multiple ways. Moreover, the ability of regulators to successfully constrain prices, given limited information about costs, demands, substitutes, and technology, cannot simply be assumed.

Curiously, evidence that state regulation proved ineffectual was introduced—and then ignored. New York regulators conceded that, “In general, cellular companies have been lightly regulated by this Commission.”¹⁵⁶ In fact, cellular operators did file tariffs with the New York State Public Service Commission, but regulators engaged in no substantial review of such rates (established by the firms themselves).¹⁵⁷

The appeal to postpone preemption was made, therefore, on the grounds that continuing the *threat* of substantive regulatory intervention was constraining duopoly cellular pricing. “However, the Commission retained the discretion to impose the stricter regulation permitted by the Public Service Law should it appear necessary.”¹⁵⁸ The California petition made similar claims, complaining that state rate regulation had failed to suppress prices but pleading for the opportunity to continue setting “just and reasonable” rates. In particular, the California Public Utilities Commission (“CPUC”) paradoxically based its request for continued rate regulation on the finding that, “Cellular rates in California are among the

155. Implementation of Sections 3(n) and 332 of the Communications Act, *Petition to Extend Rate Regulation*, PR No. 94-108, at 3 (Aug. 9, 1994) (citation omitted) [hereinafter *New York FCC Filing*]. The petition also stated: “[A]bsent a fully competitive market, continued light rate regulation is required to ensure that rates do not become discriminatory, unjust or unreasonable.” *Id.* at 4 (footnote omitted). Similarly, California regulators conceded that despite rate regulation, “[p]rices of wholesale cellular carriers [i.e., cellular networks] in California are highest in the nation and have remained high despite declining capital and operating costs.” *California CPUC FCC Filing*, *supra* note 136, at 7. This did not dissuade the CPUC from arguing that regulation was “necessary to protect cellular consumers from unjust and unreasonable rates.” *Id.* at 64.

156. *New York FCC Filing*, *supra* note 155, at app. III, p. 5.

157. Shew, *supra* note 136, at 21 (“Price caps are proposed by operators and are not subjected to any test of reasonableness by the [New York Public Service] commission, so there appears to be no effective regulation.”).

158. *New York FCC Filing*, *supra* note 155, at app. III, p. 5.

highest in the nation, and have failed to decline commensurate with substantial declines in capital and operating costs of providing cellular service.”¹⁵⁹

California noted that it “allowed the cellular industry to set retail rates for any service plan based on what the market would bear and not on cost.”¹⁶⁰ This regulatory approach was adopted due to the fact that state regulators had limited knowledge about how to deal with an evolving market. “Because the cellular market was relatively new at the time, the CPUC adopted a hands-off approach to rate regulation, hoping the rates would come down in time as economies of scale occurred and the cost of doing business declined. Unfortunately, this has not occurred.”¹⁶¹

159. *California CPUC Filing*, *supra* note 136, at ii.

160. *Id.* at 12.

161. *Id.* at 38-39.

Table 12. State Regulation of Cellular Telephone Service (Jan. 1993)¹⁶²

<i>Not Regulated</i>	<i>Partially Regulated</i>	<i>Regulated</i>	<i>Filed Petition With FCC to Continue Regulation (1994)</i>
Alabama Colorado Delaware District of Columbia Florida Georgia Idaho Indiana Iowa Kansas Maine Maryland Michigan Minnesota Missouri Montana Nebraska New Hampshire New Jersey North Carolina North Dakota Oklahoma Oregon Pennsylvania Rhode Island South Dakota Texas Washington Wisconsin	Arizona Arkansas Connecticut Illinois Kentucky Mississippi New Mexico Ohio South Carolina Tennessee Utah Vermont Virginia Wyoming	Alaska California Hawaii Louisiana Massachusetts Nevada New York West Virginia Puerto Rico	Arizona California Connecticut Hawaii Louisiana Ohio New York
29 Jurisdictions	14 Jurisdictions	9 Jurisdictions	8 Jurisdictions

Whatever the merits of state rate regulation in 1994, we now have an opportunity to test the hypothesis advanced by state commissions which regulated rates.¹⁶³ As the CPUC put it: "Nevertheless, the presence of rate regulation has probably prevented rates from being even higher and certainly has not contributed to higher rates."¹⁶⁴ But the claim is not accompanied by analysis. It is an empirical question as to whether state regulation was causing cellular telephone rates to rise or fall. California's

162. CELLULAR TELECOMM. INDUS. ASS'N, SEMI-ANNUAL REPORT ON STATE REGULATION (Jan. 1993); FCC Announces Establishment of Dkts. for Materials Filed in Connection with State Petition for Auth. to Regulate Commercial Mobile Radio Serv. Rates, *Public Notice*, 10 F.C.C.R. 751 (1994).

163. The fact that not all states regulated rates does not diminish the usefulness of the test. When efficient, regulatory decentralization improves consumer welfare overall.

164. *California CPUC Filing*, *supra* note 136, at 46.

rules allowed operators to set initial tariffs and then to file for permission to change rates. This provided asymmetric incentives where rate increases are anticipated to be more difficult to obtain than rate decreases, predictably raising rates by slowing rate reductions. In any event, elimination of state rate regulation allows one to evaluate whether postregulation market evidence indicates that proconsumer regulation was, in fact, applied.

B. Aggregate National Price and Usage Trends

The effect of state regulation of cellular telephone rates is first observed with national price and subscriber penetration trends. If state regulators effectively limited quality-adjusted prices, then releasing this constraint would result in a price increase. Costs would quickly rise for consumers, and subscriber growth would slow or reverse. This could be true even if the observed price differences across states did not favor consumers in regulated jurisdictions. As New York argued in its 1994 petition, the mere threat of state rate regulation constrained prices charged by operators.¹⁶⁵ With state regulators powerless to roll back rates because of federal preemption, cellular rates would be predicted to increase noticeably. This increase would manifest itself in two ways: a sharp rise in cellular rates, and a decline in consumer growth.

Rather than raise rates over an extended period of time, cellular operators would set prices at market levels with state regulatory constraints removed.¹⁶⁶ Rate increases should be visible in aggregate national data during the 1993-95 period surrounding rate deregulation via federal preemption (effective August 10, 1994).

Given the negative relationship between price and quantity demanded, consumers should respond to rate increases by reducing the amount of wireless service purchased. This is probably best measured by minutes of use (“MOU”), which reflects consumption by both new and

165. See *supra* note 158 and accompanying text.

166. In some contexts, it is argued that firms price strategically to prevent regulation. But this is implausible in this instance. The national market was highly deconcentrated, and the probability that an individual operator’s price increase would result in reregulation was virtually nonexistent. As Shew notes, the cable industry faced the threat of federal reregulation in 1992, but rates appeared unaffected through debate and passage of the Cable Television Consumer Protection and Competition Act of 1992. See Shew, *supra* note 136, at 29 n.27.

existing subscribers. Subscriber growth also reflects changes in service quality, providing an important cross-check on rate data.¹⁶⁷

In fact, however, average national cellular rates declined appreciably in the immediate postregulation period. In 1993, the average price per MOU was \$.57. In 1995, it declined to \$.51, a reduction of nearly 12%.¹⁶⁸ The reduction does not appear to have been due to long-term trends preceding rate deregulation. In fact, during the 1991-93 period, the average price per MOU increased 10.5%. Output growth, whether measured by total U.S. MOU or by subscribership, also appears strong in the period following deregulation. MOU, in percentage terms, grew 36% faster in the two-year period straddling federal preemption of state regulation than in the same period preceding deregulation. Given the higher base from which they started, it is surprising that both usage and subscribership grew faster in percentage terms in the later period.¹⁶⁹

Table 13. Rates and Usage Around 1994 Federal Preemption of State Regulation of Cellular Telephone Rates¹⁷⁰

<i>Metric</i>	<i>1991</i>	<i>1993</i>	<i>1995</i>	<i>1991-1993 (% change)</i>	<i>1993-1995 (% change)</i>
<i>Price (dollars)/MOU</i>	0.51	0.57	0.51	11.76%	-10.53%
<i>MOU (billions)</i>	11.2	19.2	37.8	71.43%	96.88%
<i>Subscribers (millions)</i>	7.6	16.0	33.8	110.53%	111.25%

167. That is because falling rates may be associated with quality reductions (or increasing rates with quality improvements). All else remaining constant, demand exhibits a negative relationship between price and quantity, but price and quantity can be positively correlated without violating the Law of Demand when quantity is changing. Examining subscriber (or MOU) growth in response to regulatory changes allows consumers to respond to both price and quality changes.

168. See *infra* Table 13.

169. Price and usage data from Table 13, *supra*.

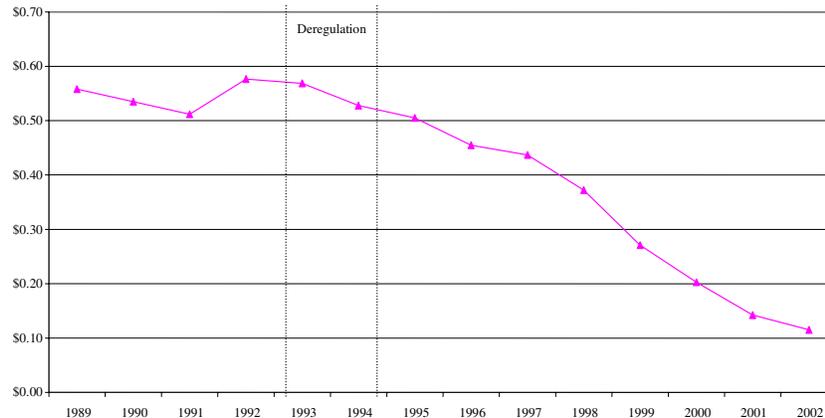
170. Price and usage data from Table 3, *supra*.

There is no evidence that the national wireless market suffered ill effects from federal preemption of state rate regulation in 1994. At an aggregated, national level, price and output have both responded positively. The proconsumer improvements may not be due to deregulation, and FCC reports tend to attribute the rate declines beginning about the time of federal preemption to the anticipated entry of PCS competitors. What can be said, however, is that the prediction of several state public service commissions is rejected by marketplace evidence. State regulation did not generally lower rates or benefit consumers.

It is important to remember that this test of state jurisdiction takes place prior to the entry of new PCS licensees, which began providing service in a few markets in late 1995 or early 1996. The pro-consumer outcomes cannot be directly ascribed to a change in market structure. While the coming of PCS was quite possibly a factor motivating service improvements by cellular operators bracing for intensifying competitive pressures, state regulators pleaded for continued rate regulation authority knowing that the PCS rulemaking was proceeding and that new licenses were likely to be issued. California's petition stated: "We envision that in the not too distant future market forces of competition will police the mobile market and allow for an orderly withdrawal of government oversight."¹⁷¹ Yet, the California petition saw state regulation as keeping rates at levels that were "just and reasonable," and predicted that were state controls not to continue, consumers would be adversely affected. The national data appear to contradict this view.

More dramatic, of course, were the improvements in price, usage, and functionality that drove the wireless telephone market in the late 1990s. With the arrival of new competitors, prices declined to 11.5¢ per MOU in 2002 (see fig. 3), and total annual MOU rose to over 600 billion. Given that regulators in California and other states established pre-1994 cellular rates as "just and reasonable," it now appears that regulation was entirely ineffective—relative to pro-competitive policies instituted at the federal level—in protecting consumer interests.

171. *California CPUC Filing*, *supra* note 136, at 80 (footnote omitted).

Figure 3. Average Wireless \$Cost/Min. 1989-2002¹⁷²

Source: CTIA Wireless Industry Survey and CMRS Reports.
1989-1993 Top 6 Subscriber data from Kidder Peabody & Co., *Wireless World: The Mobile Telephone Industry* (Spring 1994), p. 16.

C. Cross-Sectional Analysis of State Rate Regulation

A few studies analyze price differences during the period prior to federal preemption. As some states regulated cellular rates and others did not, observing differences in pricing between the jurisdictions may show the effectiveness of state regulation. In general, rates appear to have been higher in regulated markets. The key question is how to interpret the causal connection between the two variables of regulatory status and market prices.

The first issue that arises in cross-sectional studies of cellular rate regulation is how to define the prevailing control regime. State rules differ widely and are not simply categorized as “regulated” or “unregulated.” Some states banned cellular regulation by statute, while others simply failed to regulate rates due to explicit or implicit actions taken by the state’s public service commission. Those states that imposed rate rules on cellular carriers did so in different ways. Some states regulated the rates charged to cellular resellers, others regulated the retail rates, and some regulated both. Some states capped rates based on “market prices,” while others established rates based on rate-of-return regulation. Some states simply required that tariffs be filed, others required that notice be given for

172. See *supra* Table 3.

changes, and others required that permission to change rates be obtained. Abstracting from many of these details, the CTIA, the principal trade association of cellular operators,¹⁷³ categorized regulatory regimes.¹⁷⁴

Shew, who provides his own regulatory classifications, compared prices across regimes. He adjusted for demographic and economic characteristics of local markets while examining rates charged in 95 cellular markets for the years 1985, 1988, and 1991. He discovered prices were typically higher when regulated, but not (in two of three regressions) by statistically significant margins. He concluded that, “The results provide no evidence that customers have benefited from price regulation.”¹⁷⁵

Another study uses a distinct data set to arrive at roughly similar conclusions. Tomaso Duso examined cellular telephone service charges across 122 U.S. markets during the December 1984 to July 1988 period.¹⁷⁶ This study found that prices in regulated markets were somewhat higher than those found in unregulated markets, but that these differences are generally not statistically significant. Moreover, the “cost drivers” which appear significant in explaining prices in estimated regressions were usually slightly higher in regulated markets. This begs the question of causality, which cannot be answered directly by statistical analysis. Yet, the evidence tends to reject the hypothesis that rate regulation is associated with gains for consumers.

D. Penetration in Deregulated States After Federal Preemption

One issue brought up in the Duso study is whether or not states that were regulated prior to 1994 were systematically different than states that were not. If so, and if these differences were entirely independent of the regulatory regimes implemented, then the positive correlation between higher rates and state regulation (as found by Shew) would not suggest that the latter caused the former. One way to shed light on this question is to see how prices or subscriber growth perform in the postregulation period.

173. CTIA is still the acronym for the industry trade group, but its full name has been changed to the Cellular Telecommunications and Internet Association. See the organization Web site, at <http://www.wow-com.com/>.

174. See *supra* Table 12.

175. Shew, *supra* note 136, at 35.

176. TOMASO DUSO, LOBBYING AND REGULATION IN A POLITICAL ECONOMY: EVIDENCE FROM THE US CELLULAR INDUSTRY 8 (Wissenschaftszentrum Berlin, Discussion Paper FS IV, 2001), available at <http://skylia.wz-berlin.de/pdf/2001/iv01-03.pdf>.

**Table 14. Penetration Rates in Deregulated vs. Unregulated
Top 10 Cellular Markets, 1990-2001¹⁷⁷**

<i>Markets in Regulated States</i>			
	<i>March 1990</i>	<i>September 1996</i>	<i>December 2001</i>
New York	1.50%	5.40%	47.00%
Los Angeles	2.30%	10.50%	46.00%
Boston	3.10%	17.30%	47.00%
San Francisco	1.80%	13.40%	49.00%
Weighted Avg.	1.96%	9.64%	47.00%
<i>Markets in Unregulated States</i>			
	<i>March 1990</i>	<i>September 1996</i>	<i>2000 Census</i>
Washington-Baltimore	3.20%	18.80%	53.00%
Philadelphia	2.40%	13.80%	48.00%
Chicago	3.40%	20.30%	49.00%
Detroit	3.40%	26.50%	51.00%
Houston	2.30%	17.90%	50.00%
Dallas	2.50%	18.10%	46.00%
Weighted Avg.	2.95%	19.27%	49.50%

Table 14 summarizes the quarterly wireless subscriber data for the top ten U.S. markets from 1990-1996.¹⁷⁸ The regulated markets consist of New York City, Los Angeles, San Francisco, and Boston. This classification is based on a 1994 CPUC report¹⁷⁹ and is consistent with categorizations by

177. *CMRS Seventh Annual Report*, *supra* note 131, app. C, table 3. Herschel Shosteck Associates, Data Flash: The Cellular Market Quarterly Review, 10 Quarterly Rev., Sept. 1996 [hereinafter Shosteck].

178. Data from cities outside the top ten markets are not available from Shosteck and are exceedingly difficult to obtain.

179. Cal. Pub. Utils. Comm'n, *Investigation on the Comm'n's Own Motion into Mobile*

the CTIA.¹⁸⁰ These data allow for an analysis that abstracts from complex pricing issues. Subscriber levels are a rough indicator of consumer satisfaction. The higher the growth rate relative to an underlying trend determined by nonregulatory variables, the better the bundle delivered to customers, as evaluated by customers themselves, (taking prices, service quality, customer service, and all other product dimensions into account).¹⁸¹

Two things are apparent from Table 14. The first is that penetration (subscribers as a percent of local market population) in regulated markets was considerably below the levels in unregulated markets in 1990 and 1996. The second is that penetration in regulated markets had nearly caught up to levels in other markets by 2001.¹⁸² This broadly supports Shew's conclusion that regulation was associated with higher rates.

In states with regulation, three impediments to price competition existed. First, when tariffs are publicly filed, changes are quickly communicated to competitors, often by law, and in advance of actual price reductions. Shew found this had a very large potential effect on prices, and it is easy to see how this would reduce incentives to engage in price competition.¹⁸³ Second, requiring tariff changes to be approved by utility commissions deters firms from lowering rates because operators face a cost in requesting permission to raise rates back to previous levels, should demand conditions change. Third, since operators working under rate-of-

Tel. Serv. and Wireless Comms., Decision No. 94-08-022, 1994 Cal. PUC LEXIS 487, app. 2 (Aug. 3, 1994) [hereinafter *CPUC 1994 Decision*].

180. One question that arises relates to the categorization of Illinois as a partially regulated state in the listing compiled by the CTIA. *See supra* Table 12. This is resolved by Shew, *supra* note 136, at 21, which provides a more detailed description of state regulatory regimes, noting that the Illinois Commerce Commission eliminated cellular rate regulation in a 1988 ruling, which phased out price controls from 1988 to 1990. Shew also notes that, while New York regulators imposed price caps, the caps were "proposed by operators and [are] not subjected to any test of reasonableness by the commission, so there appears to be no effective regulation." *Id.*

181. One weakness of the penetration metric is that it does not reflect changes in usage by inframarginal customers. So, if subscribers use their wireless telephones more, but not many new individuals subscribe, consumer gains may not be evident. There is little evidence that trends in minutes of use and subscriber levels actually diverge, however, so it is reasonable to use either as proxies for consumer preferences.

182. This is true even when New York City is eliminated from the analysis. As noted above, New York was considered a regulated state in CPUC analysis and by the CTIA, but was seen as having a nonbinding price cap regime by Shew, *supra* note 136, at 21. Moreover, the Shosteck data for New York City are highly variable and appear to contain errors.

183. Shew, *supra* note 136, at 35-37.

return or price cap regimes have substantial input as to where price levels are initially set, they will tend to favor higher prices when they believe that price reductions will be easier to obtain than rate increases. Effectively, high rates become an insurance policy against “get tough” policies by regulators.

In any event, the difference in the ratio of penetration rates (regulated to unregulated markets) narrows considerably during the seven years following federal preemption. By December 2001, previously regulated markets have about 47% mobile phone penetration, while the never-regulated markets have penetration rates of about 49.5%.¹⁸⁴ The factors limiting wireless phone use appear to have faded not immediately (see 1996 data) but over time.

Table 15. Starting Dates for Regulated and Unregulated Cellular Systems¹⁸⁵		
	<i>Cellular License B (Wireline)</i>	<i>Cellular License A (Nonwireline)</i>
New York	April 1984	April 1986
Los Angeles	June 1984	March 1987
San Francisco	April 1985	September 1986
Boston	January 1985	January 1985
Chicago	October 1983	January 1985
Washington, D.C.	April 1984	December 1983
Philadelphia	July 1984	February 1986
Detroit	October 1984	July 1985
Houston	September 1984	May 1986
Dallas	July 1984	March 1986

A factor that may explain this pattern is the initial tardiness of the cellular operators to offer service in regulated markets. By the time that the last regulated system in our sample, the nonwireline licensee in Los Angeles, began serving customers in March 1987, nonwireline licensees in unregulated states had been operating for an average of twenty months.¹⁸⁶

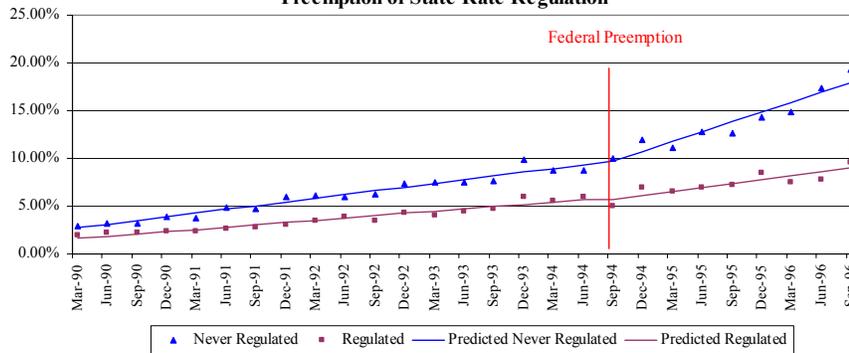
184. See *supra* Table 14.

185. PAUL KAGAN ASSOCIATES, INC., KAGAN CELLULAR TELEPHONE ATLAS 139, 151, 165, 191, 193, 221, 243, and 261 (1998).

186. See *supra* Table 15.

The average time in the regulated sample was 10.75 months. Two of the four regulated nonwireline licensees opened for business after all six unregulated systems had begun operations, mirroring the relative entry delay among wireline licensees. This substantial head start clearly put the unregulated systems in the pole position in the race for subscribers. Whether the regulated system lag was related to state rate regulation is unknown.

Figure 4. Wireless Subscriber Penetration Growth Before and After Federal Preemption of State Rate Regulation¹⁸⁷



What is known, as illustrated in Figure 4, is that subscriber growth across both sets of markets is higher in the post-preemption years. If the Shosteck quarterly data are truncated at September 1994 (the first month federal cellular deregulation was imposed on the states), it is seen that both regulated and unregulated markets experience higher penetration gains in percentage terms. An important argument for this policy reform was that eliminating state-by-state rate regulation would result in greater efficiencies in the provision of regional or national networks, and that such economies would result in consumer gains. The observed increases in subscriber growth are consistent with this view.

They are also consistent with the hypothesis that state regulation of wireless telephony has effects that spill over into other states. National wireless penetration appears to respond positively to federal preemption, providing a strong argument that the policy was efficient. It is buttressed by

187. Shosteck, *supra* note 177.

the fact that subscriber growth is higher everywhere after preemption, not just in deregulated states. Subscriber growth in states that were unregulated exceeds growth in states deregulated through federal preemption, through 1996.¹⁸⁸ This supports the view that wireless telephone regulation is properly based at the federal level.

**Table 16. Quarterly Penetration Growth
(March 1990 to September 1996)¹⁸⁹**

	<i>Pre- Sept. 1994</i>	<i>Post- Sept. 1994</i>	<i>Ratio</i>
<i>Markets under State Regulation</i>	0.25%	0.58%	2.29
<i>Markets not under Regulation</i>	0.37%	1.05%	2.86
<i>Ratio</i>	1.44	1.81	

E. Summary of the Natural Experiment

The evidence is strong that consumers did not benefit from state regulation of cellular telephone rates. During the period prior to federal preemption, rates tended to be higher in regulated markets, and some of this difference may have been due to inefficiencies imposed by state rules (including higher lag times for market entry). After federal preemption, rates did not shoot up in regulated states, or across markets generally. This surge in rates would have occurred if state regulation, or the threat of state regulation, were constraining prices for customers. Importantly, even in markets where incumbent duopoly providers possessed substantial pricing power,¹⁹⁰ state regulators proved unable to (a) protect consumers via rate

188. See *infra* Table 16.

189. Shosteck, *supra* note 177.

190. The California Public Utilities Commission generously cited my work in establishing that cellular providers possessed market power. *CPUC 1994 Decision*, *supra* note 180. But the existence of less than ideal competitive conditions does not establish that

regulation, and (b) learn from their policy experiment, arguing for a continuation of price controls and against federal preemption. Due to the failure of such arguments to carry the day, and to the ultimate success of deregulation (including preemption of state price caps), we conclude that state cellular regulation did not benefit consumers. This finding can be used to evaluate federal preemption of other state regulatory rules.

VII. CONCLUSION

In their lengthy law review article analyzing the optimal jurisdiction for determining when federal, as opposed to state, antitrust regulation was appropriate, Robert P. Inman and Daniel L. Rubinfeld propose a seven-part test.¹⁹¹ The results of this approach suggest that federal preemption of state regulatory intervention is appropriate when the following three questions can be answered in the affirmative: First, “[i]s the proposed national regulatory activity justifiably national in scope involving national externalities?” Next, “[i]s the proposed regulatory activity . . . efficiently provided at the national level?” Finally, “[d]o the potential efficiency advantages of the proposed legislation outweigh the likely loss of political participation when policies are decided at the national rather than at the state level?”¹⁹² Economic analysis of the wireless telephone industry provides the answers to these questions—each in the affirmative. The first and second questions are answered jointly: the industry is clearly characterized by strong national network effects, and policies adopted by a company or a state regulatory authority in one part of the country tend to have important implications for consumers and carriers in other parts of the country.

The drop in per-minute charges from more than \$.50 per minute in the mid-1990s to just above \$.10 today has been accompanied by two distinct, reinforcing trends: competitive entry and national network consolidation. Mobile wireless services are efficiently provided, packaged, and sold via

regulation can do better. This crucial point has often been noted by economist Alfred Kahn, who writes that “society’s choices are always between or among imperfect systems, but that, wherever it seems likely to be effective, even very imperfect competition is preferable to regulation.” ALFRED E. KAHN, *THE ECONOMICS OF REGULATION: PRINCIPLES AND INSTITUTIONS*, xxiii (1988 ed.) (citation omitted).

191. Robert P. Inman & Daniel L. Rubinfeld, Making Sense of the Antitrust State-Action Doctrine: Balancing Political Participation and Economic Efficiency in Regulatory Federalism, 75 *TEX. L. REV.* 1203, 1290 (1997).

192. *Id.*

national service plans. This has been learned, not assumed, as regulation initially forced an atomistic licensing grid on the industry. The wireless phone industry employed innovative products and business models, specifically traced by the FCC to the introduction of AT&T's "Digital One Rate" plan in May 1998, to discover a more efficient organizational structure.¹⁹³ Analyses by the FCC repeatedly stress the importance of seamless wireless networks in meeting customer demands. Many of these comments are found in Appendix 1. One representative observation is this passage from the Fourth Annual CMRS Services Report issued in 1999:

[O]perators with larger footprints can achieve economies of scale and increased efficiencies compared to operators with smaller footprints. The need for this increased size was exacerbated in the past year by the introduction and success of AT&T's DOR plan and, in particular, its low-cost roaming feature. According to analysts, it can be significantly more expensive for regional operators to provide customers with this feature than for national operators.¹⁹⁴

Competitive rivalry has pushed all firms to adapt, seizing the efficiencies of national scope to offer the services—and prices—demanded by consumers. Local service provision has been replaced by aggregation of thousands of wireless licenses and nationalization of service plans offered to subscribers. Subscribers have rewarded companies providing harmonized wireless telephone networks, and idiosyncratic state regulatory regimes threaten such efficiencies.

The last hurdle to be cleared in the Inman-Rubinfeld test is a political judgment. Does federal preemption, when resulting in economic efficiency, also rationalize legislative decisionmaking? Fortunately, we have a direct test of the competency of federal vs. state regulatory efforts, which embed the political advantages of federalism (giving broad discretion to state policymakers). The test is the consumer protection offered by state rate regulation of cellular telephony.

When preempted by federal legislation in 1993 and decisions by the FCC in 1994 (denying state petitions to continue regulation beyond the August 10, 1994, preemption enacted by Congress), market evidence reveals state price regulation failed to protect consumers. Rates in regulated states were generally higher than rates in unregulated states prior to federal preemption. Service provision in regulated states appears to have lagged

193. See *supra* Table 3.

194. *CMRS Fourth Annual Report*, *supra* note 121, pp. 10159-60 (footnotes omitted).

(started later) than in unregulated states. Cross-sectional multivariate studies prior to preemption suggest that states imposing rate regulation featured rates that were higher than those of other states, and subscriber growth appears to rise faster in previously regulated states after federal preemption. Federal policymakers pursued a pro-consumer path in deregulating cellular rates and awarding new licenses to PCS operators. Prices declined rapidly after preemption, belying the predictions of price increases made by state regulatory commissions attempting to extend controls. These included the best-staffed and most expert of the state commissions, those of California and New York. The CPUC conducted an extensive investigation in the cellular telephone market and offered this assessment of regulation in August 1994:

[E]ven though the cellular rates of major California carriers remain among the most expensive in the nation, as indicated by the NCRA [National Cellular Resellers Association] study, at least they have not significantly increased their rates. . . . We believe that the presence of regulation in California served as a restraint on carriers' tendency to raise rates when compared with carriers in other states which do not regulate carriers.¹⁹⁵

This analysis was faulty even prior to the empirical evidence gleaned following federal preemption. California regulators argued that *high prices* were no more of a problem to consumers than *rising prices*, which is clearly false. California consumers are not compensated for the higher prices they paid by the knowledge that at least these high prices were stable. Under a regime of deregulated federal preemption, on the other hand, California consumers have been compensated in cash. With nationwide service plans, and rapidly falling prices among national networks, they have had the opportunity to save money along with consumers in other states.

Moreover, the empirical evidence that was soon to become available reveals that, following preemption, rates did not increase when caps were removed. Rate regulation had no effect, at best. At worst, it actually raised rates by reducing competitive forces and introducing incentives for firms to delay price reductions.

The federal preemption of state cellular rate regulation shows that decentralized political decisionmaking did not add value for customers. Today's market, which has generated great increases in efficiency by

195. CPUC 1994 Decision, *supra* note 180, at *74.

developing six competing national networks, owes much to regulatory harmonization, suggesting that the results of a reverse experiment today would likewise underscore the deleterious effects of balkanization. As one prominent industry analyst notes, “Regulatory initiatives such as the proposed ‘Bill of Rights’ legislation [in California] . . . could have a disruptive effect on the industry.”¹⁹⁶ It would be ironic that, after spending more than a decade piecing thousands of fragmentary cellular telephone licenses into efficient national networks, resulting efficiencies could be at least partly undone by disparate state regulatory regimes that left the industry with a patchwork of conflicting rules.

196. Mark Lowenstein, Mobile Ecosystem, *The Wireless Industry at Mid-Year* (June 2003), at http://www.m-ecosystem.com/newsletter_603.html (June 2003).

Appendix 1.
Key FCC Findings Regarding Competition, Consolidation,
and Regulation of Wireless Telephone Networks, 1995-2002

In the Matter of Implementation of Section 6002(b) of the Omnibus Budget Reconciliation Act of 1993, <i>First Report</i>, 10 F.C.C.R. 8844, (1995) (footnotes omitted).	
<i>Pages</i>	<i>Excerpt</i>
8845	“CMRS is a part of the telecommunications business that is undergoing major changes that have resulted in growing competition, convergence and popularity, all under a system of reduced regulation.”
8845	“Cellular service in automobiles and via portable telephones has become a universally recognized business tool, and its providers have recently begun to target their marketing strategies towards the mass consumer market.”
8846	“CMRS may become a single market of telecommunications for ‘people on the move.’”
8849	“Second, because lotteries are not necessarily won by the applicants that value the licenses most, many licenses, particularly for Block A, were initially won by persons who later sold their licenses to more experienced telecommunications providers for substantial sums of money.”
8856	“The Commission is also replacing its traditional licensing of individual base stations by regulations that allow wide-area licensing similar to that for cellular systems. . . . Thus, while [Specialized Mobile Radio’s] service areas generally encompass local markets, they will increasingly be able to expand easily to serve regional and nationwide markets. Moreover, while there are thousands of SMRs in the United States, there is a trend towards consolidation which may leave one to three large SMRs per market, plus a fringe of smaller SMRs.”
8864	“The Commission’s <i>Third CMRS Report and Order</i> contained an analysis of trends in CMRS and found that the direction is away from a ‘balkanized view’ that sees cellular, SMRs, paging, <i>etc.</i> , competing in separate markets: <p style="margin-left: 40px;">[g]rowth in the wireless marketplace is bringing with it an increasing degree of service convergence. Technology and consumer demand, facilitated by our general policy not to restrict the services that can be provided over any particular</p>

	band, are prompting commercial service providers to follow marketing strategies that blur the differences between the various services comprising the wireless marketplace.”
8864	“The principal force driving this convergence, the Commission noted, was the desire of carriers to meet the demand of their customers for ‘one-stop shopping,’ the ability to buy at one place a mixture of different mobile services. For its part, the Commission emphasized that its policy is to allow such convergence.”
8865	“Already, there is evidence of declining cellular prices and increasing features, which has been attributed to PCS’s approach. Also adding to the blurring and intensity would be any Commission action that facilitates the consolidation of small SMRs into wide-area systems providing mobile telephone service.”
8866	“Broader geographic markets have been asserted on several grounds. First, some carriers are offering ‘regional’ service options, which give customers flat-rate calling areas as large as a whole state. At the present time, however, such plans (and customers using them) are the exception, not the rule. Second, most mobile radio services are provided by large regional or national corporations, and there is case law holding that the relevant geographic market is nationwide when a service, even a local one, is provided uniformly across the nation by centrally managed companies. Third, the industry and some analysts speak increasingly of customers demanding ‘seamless service.’ However, this may show simply that some customers want a recognized national brand name on a product that remains essentially local. In sum, while there is evidence that regional and national markets may be emerging, it appears that the vast majority of mobile radio services are provided in local and metropolitan geographic markets under current conditions.”

In the Matter of Implementation of Section 6002(b) of the Omnibus Budget Reconciliation Act of 1993, <i>Second Report</i>, 12 F.C.C.R. 11266 (1997).	
<i>Page</i>	<i>Excerpt</i>
11269	“Our examination of the commercial mobile radio services (CMRS) industry indicates that competition in the mobile marketplace is emerging . . . as many as four new competitors have been licensed to provide CMRS in each market throughout the Nation.”
11272	“Mobile telecommunications initially consisted largely of discrete services that did not compete with each other to any significant degree, were used by relatively few customers, and were regulated in a traditional public utility manner by the Commission and by most states.”
11273	“This trend towards reduced regulation is continuing, as the Commission is licensing geographic area SMR systems that can compete on a more equal footing with cellular service and PCS to meet a variety of consumer and business needs.”
11277	“[L]ack of uniformity has significant implications for cellular carriers as well, particularly those that seek to meld their cellular and broadband PCS properties into a seamless, nationwide telecommunications service that bundles wireless, local, long distance, and paging into a single product under a nationally recognized brand name.”
11281	“The second half of 1995 and 1996 have witnessed continued consolidation among major cellular operators. Much of this consolidation has occurred in a continuing effort to create national and supra-regional footprints of cellular coverage.”
11284	“Greater geographic scope has broadened the number of pricing packages as well.”
11310	“Traditionally, SMRs were small, independent companies, unaffiliated with larger communications companies. The SMR environment has changed considerably in the last few years. The Commission recently changed its Rules to permit telephone companies and their affiliates (<i>e.g.</i> , cellular companies) to own SMRs. . . . This will facilitate the implementation of new spectrum efficient technologies and enable small SMRs to consolidate into wide-area SMRs. Thus, while SMRs’ service areas generally encompass local markets, they will increasingly be able to expand easily to serve regional and nationwide markets.”

In the Matter of Implementation of Section 6002(b) of the Omnibus Budget Reconciliation Act of 1993, <i>Third Report</i>, 13 F.C.C.R. 19746 (1998).	
<i>Pages</i>	<i>Excerpt</i>
19766-67	<p>“The process of license consolidation in the mobile telephone market discussed in the <i>Second Report</i> continues to occur. In general, operators are acquiring new licenses to gain the efficiencies of larger and/or more cohesive footprints and the marketing possibilities of multiple product offerings. To date, consolidation has not significantly reduced the number of providers of a given service within a geographic market. Most of the activity in the CMRS license secondary market over the past year fits into three categories: footprint expansion, footprint refinement, and rural investment.</p> <p><i>Footprint Expansion.</i> Since the first cellular licenses were granted, mobile telephone operators have been accumulating licenses to expand their footprints into new regions in hopes of capitalizing on the various efficiencies associated with economies of scale. . . .</p> <p><i>Footprint Refinement.</i> In addition to the outright acquisition of new wireless licenses, operators often exchange licenses with other operators to fill in gaps around their existing clusters. In one of the largest examples in the past year, United States Cellular Corporation (“US Cellular”) and BellSouth Corporation (“BellSouth”) swapped 34 cellular licenses. US Cellular received a controlling interest in 12 licenses around its existing service areas in Wisconsin and Illinois. In return, BellSouth obtained ownership interests in 22 licenses, most of which were situated around its existing clusters in Kentucky and Tennessee.”</p>
19772-73	<p>“AT&T Corp. (“AT&T”), Sprint PCS, and Nextel are all in the process of deploying systems that will allow them to offer seamless coverage throughout most of the country on their own networks. Sprint PCS’ licenses will allow it to reach the largest number of potential customers with unduplicated coverage of approximately 243 million POPs. AT&T and Nextel are close behind with 234 million and 230 million unduplicated POPs. It is important to note that because Nextel’s coverage is based on SMR licenses with smaller amounts of spectrum, it has a lower total of MHz-POPs than its two nationwide competitors. The next category of mobile telephone operators consists of those who are executing large regional strategies, or super-regions. This group includes LECs relying on</p>

	<p>their cellular and broadband PCS licenses (<i>e.g.</i>, BellSouth, SBC, and GTE Corp. (“GTE”)) and pure wireless operators who are relying almost entirely on their broadband PCS licenses (<i>e.g.</i>, NextWave Telecom, Inc. (“NextWave”), Omnipoint Corp. (“Omnipoint”), and PrimeCo Personal Communications L.P. (“PrimeCo”). In order to compete against those operators with nationwide footprints, some operators have formed alliances designed to simulate a national presence. For example, PrimeCo has signed a roaming agreement with its two partner companies (Bell Atlantic Corp. (“Bell Atlantic”) and Airtouch Communications, Inc. (“Airtouch”)) that will allow its broadband PCS customers to access their wireless service on cellular networks covering two-thirds of the nation’s POPs, including 35 of the top 50 cities. In addition, thirteen broadband PCS operators have formed the North American GSM Alliance to facilitate roaming throughout North America for customers using Global System for Mobile Communications (“GSM”) mobile telephones.”</p>
19781	<p>“So far this year, broadband PCS licensees have entered into several joint ventures making use of the Commission’s partitioning and disaggregation rules.”</p>

In the Matter of Implementation of Section 6002(b) of the Omnibus Budget Reconciliation Act of 1993, <i>Fourth Report</i>, 14 F.C.C.R. 10145 (1999).	
<i>Pages</i>	<i>Excerpt</i>
10155	“The most dramatic change in the mobile telephone industry since the release of the <i>Third Report</i> has been the widespread adoption of what are often referred to as ‘digital-one-rate’ (“DOR”) price plans. . . . While the details of various operators’ plans differ, they generally include some combination of the following: bundles of large quantities of minutes for a fixed monthly rate that translated into . . . a low per-minute price; no long distance charges when used on the operator’s network; no roaming charges when used on the operator’s network; reduced roaming charges when off the operator’s network; and, in some cases, no extra roaming charges anywhere.”
10159-60	“In 1998, three of 1997’s top 25 operators in subscribership consolidated with other carriers. Furthermore, if deals announced since the release of the <i>Third Report</i> are completed, five additional operators that were in the top 25 at the end of 1998 will be consolidated into other carriers. One of the driving forces behind many of these consolidations has been the desire of large regional carriers to enhance their ability to compete effectively with national operators like AT&T, Sprint PCS, and Nextel. As was discussed in the <i>Third Report</i> , operators with larger footprints can achieve economies of scale and increased efficiencies compared to operators with smaller footprints. The need for increased size was exacerbated in the past year by the introduction and success of AT&T’s DOR plan and, in particular, its low-cost roaming feature. According to analysts, it can be significantly more expensive for regional operators to provide customers with this feature than for national operators. One obvious way for an operator to reduce roaming costs is by acquiring licenses covering as much of the country as possible.”
10167	“[A] number of carriers are reporting that DOR plans are beginning to exert downward price pressure on their roaming rates. During 1998, carriers have reported that even though DOR plans have encouraged increased roaming, they have also led to reductions in the negotiated roaming rate charged to customers. In order to remain competitive, carriers expect that they will continue to proactively renegotiate their reciprocal roaming rates between operators to reduce rates even further.”

In the Matter of Implementation of Section 6002(b) of the Omnibus Budget Reconciliation Act of 1993, <i>Fifth Report</i>, 15 F.C.C.R. 17660 (2000).	
<i>Pages</i>	<i>Excerpt</i>
17669	“The Commission previously concluded that operators with larger footprints can achieve economies of scale and increased efficiencies compared to operators with smaller footprints. Such benefits permit companies to introduce and expand innovative pricing plans such as digital-one-rate type (“DOR”) plans, reducing prices to consumers.”
17669	“Analysts have drawn similar conclusions, predicting that the current consolidation will intensify competition among nationwide wireless providers.”
17670	“Moreover, it is important to emphasize that, along with the process of consolidation, the mobile telephone sector continues to experience heightened competition as a result of the expansion by broadband PCS carriers and Nextel.”
17678	“According to a report by a third analyst, subscribers with medium-usage level . . . saw the greatest benefits of price competition during 1999. This is a change from this analyst’s same study from the previous year in which it concluded that price competition had focused primarily on high-usage customers . . . during 1998.”
17679	“Competition from firms with large or nationwide footprints that are able to minimize the need for roaming by their customers may be forcing other firms to lower their roaming rates.”
17682	“[The trend of increasing minutes-of-use] may also indicate that mobile telephony is moving away from just complementing existing wireline voice service and towards competing directly with it.”
17682	“The desire by operators to create nationwide footprints for their chosen digital technology continued during 1999. The <i>Fourth Report</i> discussed how this drive stems from cellular operators needing to improve capacity as well as increase their advanced service offerings, and from broadband PCS and digital SMR operators needing to expand their footprints and increase their competitiveness.”
17686	“Of the 12 companies on the mobile telephone sector’s list of the top 25 operators by subscribership (<i>pro forma</i> year-end 1999) that have consolidated since the end of 1998, seven were cellular-only operators and two others were predominantly cellular carriers with broadband PCS operations. As a result, the three largest carriers on the <i>pro forma</i>

	year-end 1999 top 25 subscriber list controlled systems serving 82 percent of all cellular customers. The top three carriers previously had controlled only 40 percent at the end of 1998.”
17734	“Among the major carriers, achieving a national presence and a nationwide infrastructure are perceived as necessary to respond to consumer demands for seamless service at reasonable prices.”
17734	“Between December 1998 and December 1999, five of the top 25 operators by subscribership combined with other carriers. Furthermore, since the end of 1999, five operators in the year-end 1999 top 25 have merged with other carriers. . . . As was the case last year, the two most prominent mergers involved large regional operators attempting to create nationwide footprints in order to compete effectively with existing nationwide operators.”
17734-35	“Some analysts predict that the current consolidation will intensify competition among nationwide wireless providers. Their reasoning is that the cost savings made possible by operating large scale wireless networks will push these carriers to extend innovative pricing plans, such as DOR-type plans, to broader segments of the market. . . . Indeed, there is some evidence that the addition of new nationwide operators already may be contributing to decreasing prices. For example, according to one survey, prices declined by approximately eight percent during the last six months of 1999.”
17735	“[I]t is important to emphasize that, along with the process of consolidation across geographic areas, the mobile telephone sector continues to experience heightened competition within geographic areas as a result of the expansion by broadband PCS carriers and Nextel.”

In the Matter of Implementation of Section 6002(b) of the Omnibus Budget Reconciliation Act of 1993, Sixth Report, 16 F.C.C.R. 13350 (2001).	
<i>Page</i>	<i>Excerpt</i>
13353-54	“In the year 2000, the CMRS industry continued to experience increased competition and innovation as evidenced by lower prices for consumers and increased diversity of service offerings. The process of carriers building nationwide footprints continues to be a significant trend in the mobile telephone sector. The year 2000 saw a number of operators fill in gaps in their coverage through mergers, acquisitions, and license swaps. In parallel with the process of footprint building, mobile telephone operators continue to deploy their networks in an increasing number of markets, expand their digital footprints, and develop innovative pricing plans.”
13362-63	“The Commission has concluded previously that operators with larger footprints can achieve certain economies of scale and increased efficiencies compared to operators with smaller footprints. Such benefits . . . have permitted companies to introduce and expand innovative pricing plans such as digital-one-rate type . . . plans, reducing prices to consumers.”
13363	“Since the end of 1999, carriers have continued to build nationwide footprints using combinations, acquisitions, and license swaps. One of the driving forces behind many of these transactions has been the desire of large regional carriers to enhance their ability to compete with existing nationwide operators that offer attractive nationwide pricing plans. National operators have also sought to [fill in gaps] in their coverage.”

In the Matter of Implementation of Section 6002(b) of the Omnibus Budget Reconciliation Act of 1993, <i>Seventh Report</i>, 17 F.C.C.R. 12985 (2002).	
<i>Pages</i>	<i>Excerpt</i>
12988	“In the year 2001, the CMRS industry continued to experience increased competition, innovation, lower prices for consumers, and increased diversity of service offerings. The year saw a number of operators continue to fill in gaps in their national coverage through mergers, acquisitions, license swaps, and joint ventures. In parallel with this process of footprint building, mobile telephone operators continue to deploy their networks in an increasing number of markets, expand their digital networks, and develop innovative pricing plans.”
12990	“Finally, in part because of competitive pressures in the marketplace, the average price of mobile telephone service has declined during the year since the <i>Sixth Report</i> , continuing the trend of the last several years. According to the U.S. Department of Labor’s Bureau of Labor Statistics, the price of residential mobile telephone service declined by 5.5 percent during 2001. Another survey indicates that the average revenue per minute of mobile telephone use fell 31 percent between 2000 and 2001.”
12997-98	“The Commission has concluded previously that operators with larger footprints can achieve certain economies of scale and increased efficiencies compared to operators with smaller footprints. Such benefits, along with advances such as digital technology, have permitted companies to introduce and expand innovative pricing plans such as digital-one-rate . . . type plans, reducing prices to consumers. Since the end of 1999, carriers have been building nationwide footprints through various forms of transactions. One of the driving forces behind many of these transactions has been the desire of large regional carriers to enhance their ability to compete with existing nationwide operators that offer attractive nationwide pricing plans. More recently, national operators have sought to fill in the gaps in their coverage areas.”
13003	“In addition, continued downward price trends and continued expansion of mobile networks into new and existing markets are related in different ways to the level of competition for mobile telephony customers. These metrics generally demonstrate a high level of competition for most consumers.”

13015	“Roaming revenues as a percentage of total service revenue have been declining for years, from 11 percent reported in [a] December 1997 survey to 5.6 percent in the June 2001 survey. CTIA attributes this decline to the growth of DOR plans and the extended calling areas established by many of the larger carriers.”
13023	“Econ One conducted an analysis in October 2001 of mobile telephony pricing in rural versus urban markets. Econ One reviewed the pricing plans of 25 markets it considered to be rural. The average population of the rural markets was 95,000, compared to the average population of 4.4 million in the top 25 U.S. cities. Econ One found there was virtually no difference in the average monthly charge for wireless service between the two groups.”
13024	“In most respects, small market carriers like Dobson are subject to the same competitive pressures as the large market carriers. Because of national advertising and the Internet, consumers all over the country are educated about nationwide rate plans and services enabled by digital technology and the prices of wireless handsets. No matter where they live, customers expect and demand the diversity of services at competitive rates. . . . Econ One’s pricing study found evidence of this nationwide pricing effect, in that its study showed no differences in service costs between rural and urban markets.”

Appendix 2.
**Comments from Investment Analysts on the Efficiency
of National Wireless Networks**

In 1999, the publicly traded wireless telephone carriers included two national players, Sprint PCS and Nextel, and four major regional PCS carriers—Aerial Communications, Omnipoint, Powertel, and Western Wireless. Analysts noted a disequilibrium: “Bottom line, the regional carriers trade at a significant discount.”¹⁹⁷ Reading the market evidence drove Merrill Lynch to a conclusion regarding economies of geographic scope:

There’s little question in our mind that wireless in the US is becoming a national game. With one-rate plans offering no roaming and no long distance charges, national reach appears to be important.

We understand the argument that most people only use their phone locally—but we also think that people would like to think that they might use their phone nationally. Think about it.

Moreover, national pricing is simple to understand. There is one rate. Period. No more roaming charges. No more long distance charges. The unknown is taken out of the equation. We think that this helps to simplify the purchase decision.¹⁹⁸

In the intervening years, this observation has played out, as the leading regional wireless phone companies have been consolidated into the national systems. VoiceStream (which was spun off from Western Wireless) purchased Omnipoint in February 2000 and Aerial in May 2000; VoiceStream and Powertel were then both purchased by Deutsche Telekom, creating T-Mobile, in May 2001. Essentially, all four of the leading regional carriers listed by Merrill Lynch in March 1999 became integrated components of national networks over the next two years.¹⁹⁹

As late as 2001, analysts comparing U.S. wireless penetration to levels achieved in many European countries were struck by the handicap imposed by small U.S. license areas. In distributing cellular franchises across 734 markets, and PCS across 51 MTAs or 493 BTAs, U.S.

197. LINDA J. MUTSCHLER & PAUL WUH, MERRILL LYNCH, THE NEXT GENERATION III: WIRELESS IN THE US 17 (1999).

198. *Id.* at 19.

199. While Western Wireless is still an independent carrier serving 1.2 million subscribers, the portion spun off in the form of VoiceStream is substantially larger. Western Wireless Corporation Web site, at <http://www.wwireless.com/Default.asp?xdir=AB> (last visited Oct. 5, 2003).

regulators undermined national economies of scope. This imposed a substantial tax on subscribers. Legg Mason theorized that “local licenses” were the number one problem faced by American wireless carriers vis-à-vis their counterparts elsewhere:

Local Licenses. While most developed countries around the world allocated wireless licenses on a nationwide basis, the U.S. had done so market by market. Accordingly, very few wireless carriers have truly nationwide footprints and the ones that do have yet to build them out completely. As a result, subscribers often are forced to roam on the wireless networks of other carriers when they are outside of their home calling area. Not only does roaming often result in the loss of enhanced digital services, but it has historically cost about \$.50 per minute or more, inhibiting wireless usage.²⁰⁰

The same report found, conversely, that subscribers had benefitted as consolidation took place:

. . . although wireless licenses continue to be allocated on a market-by-market basis (and potentially on a regional basis, with the upcoming 700 MHz auction), the number of nationwide carriers has increased materially from just three a year ago (Sprint PCS, AT&T Wireless, Nextel) to potentially six today (including Verizon Wireless, Cingular Wireless, and VoiceStream). Most of these wireless operators have launched some type of “One Rate” plan over the last two years, essentially making high roaming and long distance charges a thing of the past.²⁰¹

200. *What's Next for Wireless*, *supra* note 43, at 14.

201. *Id.* at 20.

