J O I N T C E N T E R

AEI-BROOKINGS JOINT CENTER FOR REGULATORY STUDIES

Comments of 37 Concerned Economists

Gregory L. Rosston and Thomas W. Hazlett*

Related Publication

February 2001

*Authors include Martin Neil Baily, Jonathan Baker, Timothy Bresnahan, Ronald Coase, Peter Cramton, Robert W. Crandall, Richard Gilbert, Shane Greenstein, Robert W. Hahn, Robert Hall, Barry Harris, Robert Harris, Jerry A. Hausman, Thomas W. Hazlett, Andrew Joskow, Alfred E. Kahn, Michael Katz, Robert E. Litan, Paul Milgrom, Roger G. Noll, Janusz Ordover, Bruce M. Owen, Michael Riordan, William Rogerson, Gregory L. Rosston, Daniel L. Rubinfeld, David Salant, Richard L. Schmalensee, Marius Schwartz, Howard Shelanski, J. Gregory Sidak, Pablo Spiller, David Teece, Michael Topper, Hal R. Varian, Leonard Waverman, Lawrence J. White.

Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20554

In the Matter of	)	
	)	
Promoting Efficient use of Spectrum Through	)	
Elimination of Barriers to the Development of	)	
Secondary Markets	)	WT Docket No. 00-230
	)	

To: The Commission

COMMENTS OF 37 CONCERNED ECONOMISTS

Contacts:

Gregory L. Rosston
Stanford Institute for Economic Policy Research
579 Serra Mall at Galvez
Stanford, CA 94305-6015
650-566-9211

Thomas W. Hazlett
American Enterprise Institute
1150 17th St., NW
Washington, DC 20036
202-862-5800

February 7, 2001

I. Introduction

The 37 signatories to this Comment are economists who have studied telecommunications, spectrum policy and competition policy. We believe that the current proceeding is of great importance to American consumers, entrepreneurs, and the growth of our economy. We have taken the significant step of coming together, as we have done on no previous issue or proceeding, to express our views to the Federal Communications Commission. In particular, we seek to encourage the Commission to advance the "public interest" by eliminating barriers to the productive use of radio spectrum. By adopting simple, common sense reforms, the Commission can help relieve the "spectrum shortage" that is choking key points of communications network development.

The signatories to this submission include 1 Nobel Laureate, 2 former members of the Presidents Council of Economic Advisers, 6 former Chief Economists and Deputy Chief Economists of the Commission, 10 former Deputy Assistant Attorneys General in the Antitrust Division, as well as many other former government economists involved in competition and telecommunications policy, telecommunication scholars, and auction experts. None of us has been retained by any client concerning this submission.

This Comment can be summarized as follows:

a. The Commission is correct in exploring market allocation of radio spectrum, and should proceed boldly in this direction;
b. The Commission should seek not to create secondary markets directly but instead to institute rules permitting such markets to emerge;
c. Relaxing restrictions on the use of radio spectrum by both current licensees and new entrants is the key enabling policy;
d. The Commission should eliminate all wireless license requirements unrelated to interference or anti-competitive concentration.

II. Efficient Allocation of Radio Spectrum

We applaud the important steps the Commission has taken towards flexible spectrum allocations and hope that the Commission will embrace reforms remaining to be implemented. More flexible use of spectrum will unleash large efficiencies in spectrum management. Economists have long advocated these policies, and we hope that past success will demonstrate that the adoption of further spectrum policy innovation will deliver far-reaching benefits to the public.

Constraints on the use of spectrum cause both static and dynamic inefficiencies. At any moment, unnecessary restrictions prevent beneficial uses of spectrum. Over time, these regulatory rigidities can discourage innovation altogether. Instead of being able to bid for spectrum space to introduce a new service, an entrepreneur must submit to a formal rule making process. There, the entrepreneur's counsel must convince the Commission that the proposed innovation warrants an allocation of spectrum and, if so, what rules should

govern it. This process is typically lengthy, arduous, lawyer-intensive, and expensive. Moreover, it often necessitates revealing proprietary investment ideas (and business models) to gain a "public interest" determination. This taxes entrepreneurship. Better rules would be permissive, allowing wireless licensees flexibility to use spectrum subject only to limits on out-of-band emissions and anti-competitive concentration.

III. A Market Approach

Radio spectrum is a key input into wireless communications. While the communications capabilities of frequencies are increased by investments in transmitting or receiving equipment, as well as by improvements in technology, there are costs in using spectrum. What services are provided, what technologies are employed, and what equipment is used to send and receive, all involve complicated tradeoffs. Moreover, in a dynamic world many things change, including the state of technology, the development of wireline networks, and the imagination of entrepreneurs to invent new applications for radio devices.

The Commission has recognized that regulators have limited ability to plan markets. Indeed, one of the primary motivations for instituting competitive bidding for radio licenses in 1993-1994 was the inability of central administrative systems to out-perform the market in assigning rights. Auctions have proven a success in quickly moving licenses to those firms best able to provide service to the public. But auctions for licenses have not changed the underlying system of spectrum allocation. Radio frequencies are allocated to services by an FCC rule making. The opportunity cost of spectrum is evaluated not by market participants but by regulators. With few exceptions, spectrum continues to be offered to the market only as allocated and no price can be offered to reallocate it from the officially designated use.

The situation has led to predictable outcomes: shortage and waste. While many bands are used in systems that could be inexpensively upgraded to use less spectrum, new cutting-edge services cannot gain access to spectrum at any price. This has led to the "spectrum drought" decried by former Chairman William E. Kennard.[1] It is a complaint that may look like a natural by-product of the explosion in wireless technologies and applications, yet results significantly from the underlying regulatory structure.

In most sectors, resources are allocated by markets. This is efficient, generally increasing consumer welfare over what would obtain were bureaucratic decision-making to plan economic activity. While "market failures" can move resource allocation away from its socially optimal point, attempts to fix such failures are neither free nor fail-proof. Most economists believe that regulatory agencies should generally limit their involvement in allocating resources to the definition of rights and responsibilities (liability for interference), directly intervening to correct market outcomes in those instances where

[1] Press Statement of FCC Chairman William E. Kennard on FCC Actions to Allocate Additional Wireless Spectrum, October 12, 2000.

market failures are preventable by reasonably safe prophylactic measures. Many economists have written articles showing the benefits of moving to market allocation in spectrum.[2]

In some cases, the Commission has taken this perspective to heart. For example, by adopting a broad definition for the types of services that personal communications services (PCS) licensees can provide, the Commission has essentially left the choice of service provision to the providers who respond to consumer demands rather than regulatory filings. We believe that this approach should be applied across the board, not on a case-by-case analysis.

In addition to determining the initial transmission and interference rights, the Commission or the antitrust authorities should ensure that excessive concentration does not lead to the exercise of market power. The more spectrum that the Commission can effectively open for use by service providers and the fewer the restrictions on reallocation by resale, the smaller the probability that there will be problems with excessive concentration.

IV. Secondary Markets

Currently, there are significant restrictions on the ability of a licensee to lease allocated spectrum to other parties. These restrictions should be minimized to facilitate market transactions. Just as a building owner can rent out space, a wireless service provider should be able to lease out the use of spectrum assigned to its license.

Some questions in the Notice discuss responsibility for complying with Commission rules in the context of spectrum leases. For example the Commission has "buildout" requirements. Without resale restrictions and with antitrust oversight, buildout requirements are unnecessary and can harm the operation of a secondary market because

[2] *See* for example, R.H. Coase, "The Federal Communications Commission," 2 J.L. & Econ. 1 (1959); T.W. Hazlett, "The Wireless Craze, the Unlimited Bandwidth Myth, the Spectrum Auctions Faux Pas, and the Punchline to Ronald Coase's 'Big Joke': An Essay on Airwave Allocation Policy," 15 Harv. J. Law & Tech. (forthcoming, Spring 2001); M. L. Katz, "Interview with an Umpire," in *The Emerging World of Wireless Communications*, 1996; E. R. Kwerel, and J. R. Williams, "Changing Channels: Voluntary Reallocation of UHF Television Spectrum," Federal Communications Commission, Office of Plans and Policy Working Paper No. 27, 1992; R. Litan and W. Niskanen, *Going Digital!* Brookings Institution, 1998; B.M. Owen, "Spectrum Allocation: A Survey of Alternative Methodologies," U.S. Office of Telecommunications Policy, 1971; G.L. Rosston and J. Steinberg "Using Market-Based Spectrum Policy to Promote the Public Interest," 50 Fed. Comm. L.J. 1 (1997); P. Spiller and C. Cardillo, "Towards a Property Rights Approach to Communications Spectrum," 16 Yale J. of Reg. 1 (1999); H. Shelanski, and P. Huber, "Administrative Creation of Property Rights to Radio Spectrum" 41 J.L. & Econ 581 (1998); D. W. Webbink, "Frequency Spectrum Deregulation Alternatives," Federal Communications Commission, Office of Plans and Policy Working Paper No. 2, 1980; L.J. White, "'Propertizing' the Electromagnetic Spectrum: Why It's Important and How to Begin," in J.A. Eisenach and R.J. May, eds., *Communications Deregulation and FCC Reform: What Comes Next?* The Progress & Freedom Foundation (2001) (reprinted in 9 Media Law & Policy 19 [2000]).

they burden secondary market transactions with additional compliance and monitoring costs. If a licensee faces the appropriate opportunity cost of not using spectrum, then there is no need to have a buildout requirement.

In promoting secondary markets, the Commission should generally remove restrictions and not mandate the terms upon which spectrum markets emerge. In the 700 MHz Guard Band decision, the Commission has instituted requirements to force a secondary leasing market by mandating that a carrier lease out more than half of its spectrum to unaffiliated entities. While leasing may facilitate efficiency, requiring the operation of a secondary market can reduce efficiency and lead to regulatory game-playing simply to comply with the express provisions of the rules.

Instead of either preventing or requiring a secondary market, the Commission should quickly restructure its rules to *allow* a secondary market. Delays will impose huge costs on consumers as the market starves for access to radio spectrum today.[3] Further delays continue the costly waste of perishable services available from misallocated spectrum.

V. Primary Markets

Several times in the Notice, the Commission made it clear that it was not addressing primary licensing rights and also was limiting its Notice to non-broadcasting licenses. Both of these limits are counterproductive. To promote efficient secondary markets, the Commission must address its primary license rights. The Commission should move decisively to broaden the rights generally granted licensees, permitting *flexible use of the allocated spectrum.* Licensees will then find it profitable to pursue all productive uses of available airspace, and market trades will make such space available to consumers, technology suppliers, wireless service providers, and other businesses.

To facilitate this transition to market allocation, the Commission should focus on improving the definition of interference for existing licensees, and streamlining the ability of new users to obtain transmission rights where they do not interfere with existing rights. If there are mutually exclusive requests for specific new transmission rights, the Commission should expeditiously conduct an auction. Strict time limits should streamline the process whereby an entrant requests permission to use unoccupied frequencies, others are given opportunity similarly to request the desired rights, and competitive bidding procedures are used to resolve the conflict.

The Commission should eliminate all requirements that are not related to interference or anti-competitive concentration. These superfluous requirements generally fall into four categories – eligibility requirements, service requirements, technology requirements and implementation requirements.

[3] For one estimate, see Hausman, J. "Valuing the Effect of Regulation on New Services in Telecommunications," *Brookings Papers on Economic Activity: Microeconomics*, 1997.

Eligibility requirements restrict license assignments to specific categories of potential licensees. These can impose costs on consumers by giving priority to relatively inefficient suppliers. In addition, eligibility requirements create incentives for firms to circumvent the spirit of the rules. For example, it is hard to believe that the promotion of "small" businesses is served by creating protection for companies that spend billions of dollars in FCC auctions.

Service requirements prescribe the provision of certain services and proscribe the provision of other services. For example, PCS providers are prevented from providing broadcast services, whereas DTV licensees will be required to provide DTV service. Both types of restrictions may prevent spectrum from being used to deliver services that the public most desires to receive.

Technical restrictions differ from interference restrictions. Rules limiting interference can advance efficiency by yielding good information about where one wireless operator's rights stop and another's begin. But so long as a new technology respects existing interference boundaries, it should be allowed. For example, the Commission recently forbade the use of cellular technology in the 700 MHz guard bands rather than simply setting requirements to protect public safety users from interference. This eliminated a potentially valuable technology. In other instances, the Commission has mandated minimum technical efficiency without regard for service quality.

Implementation requirements are buildout mandates. Licensees may not be ready to introduce a service instantaneously. For example, a firm may wish to acquire more bandwidth before constructing a system. Or, it may desire to wait for the next generation of capital equipment to come to market. If private firms that engage in buildout "delays" simultaneously shoulder the associated opportunity cost, it is likely to be efficient for them to do so.[4] In addition, if the Commission allows flexible spectrum use, available bandwidth could be sold or rented to third parties to provide valuable services while another system was either being constructed or was subject to delays.

These changes in the initial license requirements would help remedy today's wireless traffic jam. They will promote the efficient transfer of spectrum in secondary markets by reducing uncertainty and increasing the flexibility of spectrum use. They will promote higher valued services for frequencies already in use, as well as development of new, non-interfering technologies like ultra wide-band and software-defined radio.[5]

---

[4] An exception to this rule occurs where withholding spectrum access is an exercise of market power. Actions taken to raise prices to consumers can and should be dealt with via competition policy.

[5] The license flexibility advocated throughout this filing may appear to be a "windfall" for incumbents, as operators are permitted to use spectrum more productively. However, a general FCC policy permitting greater flexibility will simultaneously reduce license values by introducing increased competitiveness. Net "windfalls" may be positive or negative, and will vary case by case. What is clear, however, is that more efficient use of spectrum will benefit consumers. Efforts to extract gains from licensees (or compensate for losses) should not be permitted unduly to hinder or delay realization of the public benefits from promoting greater competitiveness through spectrum liberalization.

VI. Conclusion

We strongly encourage the Commission to adopt market-oriented rules opening the radio spectrum and capturing its full potential for society. Current spectrum policies continue to decrease consumer welfare and reduce the effectiveness of the wireless half of our telecommunications world. Without an initiative to eliminate unnecessary bureaucratic restrictions, spectrum will continue to be artificially scarce in some uses and wasted in others. With this exciting opportunity to discuss rules allowing secondary markets to reallocate radio spectrum, it is our hope that momentum builds to go much farther than the modest measures proposed in the Notice.

Respectfully Submitted,

Martin Neil Baily[4]
Institute for International Economics

Jonathan Baker[1,3,4]
American University

Timothy Bresnahan[1]
Stanford University

Ronald Coase
University of Chicago

Peter Cramton
University of Maryland

Robert Crandall[2,5]
Brookings Institution

Richard Gilbert[1]
University of California, Berkeley

Shane Greenstein
Northwestern University

Robert Hahn[4]
AEI-Brookings Joint Center for Regulatory Studies

Robert Hall
Stanford University

Barry Harris[1]
Economists Incorporated

Robert Harris[5]
University of California, Berkeley

Jerry Hausman
Massachusetts Institute of Technology

Thomas Hazlett[2]
American Enterprise Institute

Andrew Joskow[1,4]
National Economic Research Associates

Alfred E. Kahn[5]
Cornell University

Michael Katz[2]
University of California, Berkeley

Robert Litan[1,4,5]
Brookings Institution

Paul Milgrom
Stanford University

Roger Noll[4]
Stanford University

Janusz Ordover[1]
New York University

Bruce Owen[1,5]
Economists Incorporated

Michael Riordan[2,3]
Columbia University

William Rogerson[2]
Northwestern University

Gregory Rosston[2]
Stanford University

Daniel Rubinfeld[1]
University of California, Berkeley

David Salant
National Economic Research Associates

Richard Schmalensee[4]
Massachusetts Institute of Technology

Marius Schwartz[1,4]
Georgetown University

Howard Shelanski[2,4]
University of California, Berkeley

J. Gregory Sidak[2,4]
American Enterprise Institute

Pablo Spiller
University of California, Berkeley

David Teece
University of California, Berkeley

Michael Topper
Cornerstone Research

Hal Varian
University of California, Berkeley

Leonard Waverman
London Business School

Lawrence White[1,4,5]
New York University

[1]Served at the U.S. Department of Justice
[2]Served at the U.S. Federal Communications Commission
[3]Served at the U.S. Federal Trade Commission
[4]Served at the President's Council of Economic Advisers
[5]Served elsewhere in government