JOINT DECLARATION OF T. RANDOLPH BEARD AND JOHN W. MAYO

ATTACHMENT 1

THOMAS RANDOLPH BEARD

ADDRESS:	Department of Economics 203 College of Business 415 West Magnolia Auburn University, AL 36849	232 Marion Circle Auburn, AL 36830
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WORK HISTORY:	September 1993-present	Associate Professor of Economics, Auburn University
	August 1988-September 1993	Assistant Professor of Economics, Auburn University
	August 1982-July 1988	Graduate Student, Teaching Assistant, Graduate Instructor Vanderbilt University

EDUCATION:

BA in Economics, *cum laude*, 1982, Tulane University

Ph.D. in Economics, 1988, Vanderbilt University

ACADEMIC HONORS:

Phi Beta Kappa (1982)
Harold Stirling Vanderbilt Fellowship (1982-1986)
Rendigs Fels Award for Excellence in Teaching, Vanderbilt University (1988)

Outstanding Faculty Research Award, College of Business, AuburnUniversity, 1991-1992

FIELDS OF INTEREST: Industrial Organization, Microeconomics, Statistical Methods, Regulation, Financial Economics

COURSES TAUGHT: (Graduate) Microeconomics, Financial Economics, Topics in Mathematical Economics, Statistics
(Undergraduate) Principles of Microeconomics, Business Policy, Forecasting, Industrial Organization, Intermediate Microeconomics

GRADUATE EXAMINING COMMITTEES:

13 Ph.D. Committees
3 M.S. Committees
14 Preliminary Exam Committees (Microeconomics, Industrial Organization, Financial Economics).

BOOKS AND CHAPTERS:

The Extraordinary Economics of Nicholas Georgescu-Roegen (with G. Lozada), Edward Elgar, forthcoming, 1999.

Initial Public Offerings: Findings and Theories (with S. Anderson and J. Born), Kluwer Academic Publishers, 1995.

"Monopoly Leveraging, Path Dependency, and the Case for a Local Competition Threshold for RBOC Entry into InterLATA Toll" (with D. Kaserman and J. Mayo) forthcoming in M. Crew, ed., *Regulation Under Increasing Competition*, Kluwer, Boston, Fall, 1998, pp. 17-44.

"Industrial Organization and the Defense Industry: A Research Agenda," in J. Leitzel, ed., *Economics and National Security*, Pew

Studies in Economics and Security, Westview Press, 1993, pp. 29-44.

JOURNAL ARTICLES:

"Bankruptcy and Care Choice," *RAND Journal of Economics*, Vol. 21, No. 4 (Winter, 1990), pp. 626-634.

"Quality Choice and Price Discrimination: A Note on Dupuit's Conjecture" (with R. B. Ekelund), *Southern Economic Journal*, Vol. 57, No. 4 (April, 1991), pp. 1155-1163.

"An Analysis of Bond Investment Company IPOs: Past and Present" (with S. Anderson and J. Born), *The Financial Review*, Vol. 26, No. 2 (May, 1991), pp. 211-222.

"Finite Mixture Estimation of Multiproduct Cost Functions" (with S. Caudill and D. Gropper), *The Review of Economics and Statistics*, Vol. 83, No. 4 (November, 1991), pp. 654-664.

"Financial Aspects of Motor Carrier Safety Inspection Performance," *Review of Industrial Organization*, Vol. 7, No. 1 (Winter, 1992), pp. 51-64.

"The Comparative Statics of Self-Protection" (with G. Sweeney), *Journal of Risk and Insurance*, Vol. 59, No. 2, (June 1992), pp. 301-309.

"Self-Protection in the Expected Utility of Wealth Model: An Impossibility Theorem" (with G. Sweeney), *GENEVA PAPERS on Risk and Insurance Theory*, Vol. 17, No. 2 (December 1992), pp. 147-158.

"Inefficient Pricing Can Kill: The Case of Dialysis Industry Regulation" (with A. Barnett and D. Kaserman), *Southern Economic Journal*, Vol. 60, No. 2 (October, 1993), pp. 393-404.

Reprinted in R. Ekelund, ed., The Foundations of Regulatory Economics, Vol. III. Edward Elgar Ltd., 1998, pp. 490-504.

"Modeling the Consumer's Decision to Replace Durable Goods: A Hazard Function Approach" (with J. Raymond and D. Gropper), *Applied Economics*, Vol. 25 (1993), pp. 1287-1292.

"The Medical Community's Opposition to Organ Markets: Ethics or Economics?" (with A. Barnett and D. Kaserman), *Review of Industrial Organization*, Vol. 8, No. 6 (December, 1993), pp. 669-678.

"Do People Rely on the Self-Interested Maximization of Others?: An Experimental Test" (with R. Beil), *Management Science*, Vol. 40, No. 2 (February, 1994), pp. 252-262.

"Purchase Decisions Made Prior to the Revelation of Price: Simple Analytics of the Consumer's Problem" (with G. Sweeney), *Southern Economic Journal*, Vol. 60, No. 4 (April, 1994), pp. 1055-1059.

"Random Pricing by Monopolists" (with G. Sweeney), *Journal of Industrial Economics*, Vol. 42, No. 2 (June 1994), pp. 183-192.

"Subsidy-Free Pricing of Interruptible Service Contracts" (with G. Sweeney and D. Gropper) *Energy Economics*, Vol. 17, No. 1 (January 1995), pp. 53-58.

"The Demand for Cigarette Smuggling" (with R. Saba, R. Ekelund, and R. Ressler), *Economic Inquiry*, Vol. 33, No 2 (April 1995), pp. 189-202.

"Insolvency, Moral Hazard, and Expense Preference: An Empirical Examination of Savings and Loans" (with D. Gropper), *Managerial and Decision Economics*, Vol. 16 (1995), pp. 607-617.

"Efficient vs. 'Popular' Tariffs for Regulated Monopolies" (with H. Thompson), *Journal of Business*, Vol. 69, No. 1 (January, 1996), pp. 75-87. Reprinted in R. Ekelund, ed., The Foundations of Regulatory Economics, Vol. II. Edward Elgar, Ltd., 1998, pp. 213-228.

"Scope, Learning and Cross Subsidy: Organ Transplants in a Multi-Divisional Hospital -- An Extension" (with A. Barnett and D. Kaserman), *Southern Economic Journal*, Vol. 62, No. 3 (January, 1996), pp. 760-767.

"Quotas, Quality, and Output in an International Duopoly" (with G. Sweeney and H. Thompson), *Journal of Economic Integration*, Vol. 12, No. 2 (July, 1997), pp. 180-205.

"Border-Crossing Sales, Tax Avoidance, and State Tax Policies: An Application to Alcohol" (with R. Saba and P. Gant), *Southern Economic Journal*, Vol. 64, No. 1 (July, 1997), pp. 293-306.

"Bill Averaging Programs and Consumer Behavior: Theory and Evidence" (with D. Gropper and J. Raymond), *Journal of Regulatory Economics*, Vol. 12, No. 1 (January, 1998), pp. 19-36.

"The Role of Resale Entry in Promoting Local Exchange Competition" (with D. Kaserman and J. Mayo), *Telecommunications Policy*, Vol. 22, No. 4, 1998, pp. 315-326.

"Finite Mixture Estimation of the Diffusion of Production Processes" (with S. Caudill and D. Gropper), *Journal of Banking and Finance*, Vol. 21, 1998, pp. 721-742.

"Estimating Multiproduct Cost Functions Over Time Using a Mixture of Normals" (with D. Gropper and S. Caudill), *Journal of Productivity Analysis*, Vol. 11, No. 3 (April, 1999), pp. 199-216

"Reliance and Non-Reliance on Self-Interested Behavior of Others: An Experimental Test," (with Y. Mataga and R. Beil), forthcoming, *Journal of the UMDS*, in Japanese.

"Testing for Collusion During Periods of Input Supply Disruptions: The Case of Allocations" (with D. Kaserman) forthcoming, *Antitrust Bulletin.*

OTHER PUBLICATIONS:

Nonlinear Pricing by Robert Wilson, *Business Library Review*, Vol. 19, No. 3, 1994 (Book Review).

Economics, Organization, and Management, by Milgrom and Roberts, *Business Library Review*, Vol. 18, No. 3, 1993 (Book Review).

The Theory of Contestable Markets, by William Tye, *Business Library Review,* Vol. 17, No. 3, 1992. (Book Review).

ARTICLES UNDER REVISION OR REVIEW

"Rebates, Inventories, and Intertemporal Price Discrimination" (with R. Ault, D. Laband, and R. Saba). Under revision, *Economic Inquiry.*

"Prices Arising from Politics: A Positive Theory" (with M. Ulrich). Under revision, *Journal of Regulatory Economics.*

"Regulation, Vertical Integration, and Sabotage" (with D. Kaserman and J. Mayo). Under revision, *Journal of Industrial Economics*.

"Cultural Determinants of Economic Success: Trust and Cooperation in the U.S. and Japan" (with Y. Mataga and R. Beil). Under review.

"IPOs as a Birth Process: 1970-1996" (with S. Anderson and J. Wells). Under review.

"Quotas and Domestic Downgrading in an International Duopoly" (with H. Thompson). Under review.

"A Theory of Competitive Cross Subsidies." Under review.

AD HOC
REFEREE SERVICE:

International Economic Review
Review of Economics and Statistics
Southern Economic Journal
GENEVA PAPERS on Risk and Insurance Theory
Journal of Economic Education
National Science Foundation
Quarterly Review of Economics and Finance
Resource and Energy Economics
Environmental Economics and Management

SELECTED
GRANTS RECEIVED:

Auburn Policy Research Center, competitive grant, $6,000, summer, 1998.

Auburn Policy Research Center, competitive grant, $6,500, summer, 1994 (with D. Gropper).

Auburn Utilities Research Center, competitive grant, $5,500, summer, 1993 (with D. Gropper and J. Raymond).

Auburn Utilities Research Center, competitive grant, $5,000, summer, 1992 (with D. Gropper and J. Raymond).

Auburn Utilities Research Center, competitive grant, $2,500, summer, 1991.

Auburn Utilities Research Center, competitive grant, $5,000, summer, 1990 (with D. Gropper).

Auburn University Competitive Research Grant, $3,000, 1989 (with R. Beil).

PROFESSIONAL INSTRUCTION:

Public Utilities Economics program faculty member, Auburn University, 1991-1993.

Kellogg Foundation Leadership for Economic Development program faculty member and curriculum writer, 1991-1992.

UNIVERSITY AND COLLEGE SERVICE:

College of Business Undergraduate Curriculum Committee, 1996 - 1998.

College of Business Scholarship Committee, Auburn University, 1994 - 1996.

Graduate Programs Committee, College of Business, Auburn University, 1991-1993.

MBA Curriculum Design Team, College of Business, Auburn University, 1992-1994.

Economics Faculty Recruiting Committee, 1989-1992.

CONSULTING:

Before the South Carolina Public Service Commission, BellSouth Application to Provide InterLATA Toll Service, Section 271, July, 1997. Expert testimony sponsored by AT&T and MCI.

Before the Tennessee Regulatory Authority, Universal Service Funding Phase I, December, 1997. Expert testimony sponsored by AT&T and MCI.

Before the Tennessee Regulatory Authority, Permanent Prices Proceeding for Network Elements and Interconnection, Feb., 1998. Expert testimony sponsored by AT&T and MCI.

in re U.S. v. M. Maloof, Antitrust Litigation. U.S. Federal District Court, Houston, 1998. Expert testimony.

Partner, E-Group, Economic and Econometric Research and Consulting, 404 Blake Street, Auburn, Alabama 36830.

Principal Consultant, Nathan Associates, Economic and Management Consultants, Two Colonial Place, 2101 Wilson Boulevard Suite 1200, Arlington, Virginia 22201.

REFERENCES:

D. L. Kaserman
Torchmark Professor
of Economics
Department of Economics
College of Business
Auburn University, AL 36849

Harris Schlesinger
Samford Professor
of Insurance
College of Business
University of Alabama
Tuscaloosa, AL 35487

John J. Siegfried
Professor of Economics
Department of Economics
Vanderbilt University
Nashville, TN 37235

G. H. Sweeney
Associate Dean
College of Arts and Sciences
Associate Professor
Department of Economics
Vanderbilt University
Nashville, TN 37235

PERSONAL:

Date of Birth -- 12/30/59
Married, two children

JOINT DECLARATION OF T. RANDOLPH BEARD AND JOHN W. MAYO

ATTACHMENT 2

VITA

JOHN W. MAYO

CURRENT POSITION:

Senior Associate Dean, and
Professor of Economics, Business and Public Policy
Georgetown University
McDonough School of Business
Old North Building
37th and O Streets, N.W.
Washington, D.C. 20057

EDUCATION:

Ph.D., 1982, Washington University (St. Louis)

Dissertation: "Diversification and Performance in the U.S. Energy Industry"

M.A., 1979, Washington University (St. Louis)
B.A., 1977, Hendrix College, Conway, Arkansas

FIELDS OF SPECIALIZATION:

Industrial Organization
Regulatory and Antitrust Policy
Applied Microeconomics
Econometrics

PREVIOUS POSITIONS:

1997-1998 (Academic year) – Visiting Professor of Economics, Business and Public Policy, Georgetown University School of Business, Washington, D.C.

July 1994 – July 1998 – The University of Tennessee, Knoxville, TN.
Professor of Economics, Department of Economics.

July 1989 - June 1994 – The University of Tennessee, Knoxville, TN.
Research Associate Professor, Center for Business and Economic Research, and Associate Professor of Economics, Department of Economics.

September 1981 - June 1989 -- The University of Tennessee, Knoxville, TN.
Research Assistant Professor, Center for Business and Economic Research, and Assistant Professor of Economics, Department of Economics, September 1981-June 1988.

June 1984 - June 1985 -- U.S. Senate, Small Business Committee.
Chief Economist, Democratic Staff.

August 1982 - December 1982 – VPI, Blacksburg, VA.
Visiting Assistant Professor of Economics, Blacksburg, Virginia.

1980 - 1981 – Washington University, Center for the Study of American Business
Dissertation Fellow

1979 – International Institute for Applied Systems Analysis (IIASA) Laxenburg, Austria.
Energy Research Fellow

1979-1980 -- Washington University, Graduate School of Business Administration
Research Assistant.

1978 -- Washington University, Institute for Urban and Regional Studies.
Research Assistant

HONORS, AWARDS, AND GRANTS:

Undergraduate: Mosley Economics Prize (#1 graduating economics major), Alpha Chi (scholastic), Blue Key, Senior Honors Seminar.

Graduate: 1977-78 University Fellowship, Washington University; 1979 National Academy of Sciences Young Research Fellow, Laxenburg, Austria; 1979-81 President, Washington University Economics Graduate Student Association; 1980-81 Dissertation Fellowship, Center for the Study of American Business, Washington University.

Post-Graduate: 1993-1995 William B. Stokely Scholar, College of Business Administration, The University of Tennessee; 1988 South Central Bell Research Grant; Research Affiliate, Center of Excellence for New Venture Analysis, The University of Tennessee; 1983-1985 Summer Faculty Research Fellowships, College of Business Administration, The University of Tennessee.

COURSES TAUGHT:

Undergraduate: Principles of Microeconomics, Current Economic Problems, Government and Business, Intermediate Microeconomics, Energy Economics

Graduate: Managerial Economics (MBA), Managing in a Regulated Economy (MBA), Economics (Executive MBA), The Economics of Strategy (MBA), Business and Public Policy (MBA); Competition and Competition Policy (MBA); Regulation and Deregulation in the American Economy (MBA), Industrial Organization and Public Policy (Ph.D.), The Economics of Antitrust and Regulation (Ph.D.)

PUBLICATIONS:

A. JOURNAL ARTICLES

"Regulatory Policies Toward Local Exchange Companies Under Emerging Competition: Guardrails or Speedbumps on the Information Highway," (with David L. Kaserman) Information Economics and Policy, forthcoming.

"Open Entry and Local Telephone Rates: The Economics of IntraLATA Toll Competition," (with David L. Kaserman, Larry R. Blank, and Simran Kahai) Review of Industrial Organization, Vol. 14, June 1999, pp. 303-319.

"Modeling Entry and Barriers to Entry: A Test of Alternative Specifications," (with Mark L. Burton and David L. Kaserman), Antitrust Bulletin, Summer 1999, pp. 387-420.

"Targeted and Untargeted Subsidy Schemes: Evidence from Post-Divestiture Efforts to Promote Universal Telephone Service," (with Ross Eriksson and David L. Kaserman) Journal of Law and Economics, Vol. 41, October 1998, pp. 477-502.

"Dominant Firm Pricing with Competitive Entry and Regulation: The Case of IntraLATA Toll," (with Larry Blank and David L. Kaserman) Journal of Regulatory Economics, Vol. 14, July 1998, pp. 35-54.

"The Role of Resale Entry in Promoting Local Exchange Competition," (with David L. Kaserman) Telecommunications Policy, Vol. 22, No. 4/5, 1998.

"Telecommunications Policy and the Persistence of Local Exchange Monopoly," (with David L. Kaserman), Business Economics, Vol. 33, April 1998, pp. 14-19.

"An Efficient Avoided Cost Pricing Rule for Resale of Local Exchange Telephone Service," (with David L. Kaserman) Journal of Regulatory Economics, Volume 11, January 1997, pp. 91-107.

"A Dynamic Model of Advertising by the Regulated Firm," (with Francois Melese and David L. Kaserman) Journal of Economics (Zeitschrift fur NationalÖkonomie), Volume 64, 1996, pp. 85-106.

"Is the 'Dominant Firm' Dominant? An Empirical Analysis of AT&T's Market Power,"(with Simran Kahai and David L. Kaserman), Journal of Law and Economics, Volume 39, October 1996, pp.499-517.

"Competition and Asymmetric Regulation in Long Distance Telecommunications: An Assessment of the Evidence,"(with David L. Kaserman) CommLaw Conspectus: Journal of Communications Law and Policy, Volume 4, Winter 1996, pp. 1-26.

"Deregulation and Predation in Long-Distance Telecommunications: An Empirical Test," (with Simran Kahai and David L. Kaserman), Antitrust Bulletin, Vol. 40, Fall 1995, pp.645-666.

"Cross-Subsidies in Telecommunications: Roadblocks on the Road to More Intelligent Telephone Pricing" (with David L. Kaserman), Yale Journal on Regulation, Volume 11, Winter 1994, pp. 120-147.

> Reprinted in Public Utilities Law Anthology, Allison P. Zabriskie, editor, Vol. 17, Part 2 (July-December, 1994), pp. 899-929.

"Demand and Pricing of Telephone Services: Evidence and Welfare Implications" (with Carlos Martins-Filho), RAND Journal of Economics, Volume 24, Autumn 1993, pp. 399-417.

"Two Views of Applied Welfare Analysis: The Case of Local Telephone Service Pricing -- A Comment and Extension" (with David L. Kaserman and David M. Mandy), Southern Economic Journal, Volume 59, April 1993, pp. 822-827.

"The Political Economy of Deregulation: The Case of Intrastate Long Distance" (with David L. Kaserman and Patricia L. Pacey), Journal of Regulatory Economics, Volume 5, March 1993, pp. 49-64.

> Reprinted in The Foundations of Regulatory Economics, Robert E. Ekelund, Jr. (Ed.), Edward Elgar Publishing, Northhampton, MA, forthcoming.

"Demand, Pricing and Regulation: Evidence from the Cable TV Industry" (with Yasuji Otsuka), RAND Journal of Economics, Volume 22, Number 3, Autumn 1991, pp. 396-410.

"The Measurement of Vertical Economies and the Efficient Structure of the Electric Utility Industry" (with David L. Kaserman), Journal of Industrial Economics, Volume 39, Number 5, September 1991, pp. 483-502.

"Regulation, Market Structure and Hospital Costs: Reply and Extension" (with Deborah A. McFarland), Southern Economic Journal, Volume 58, Number 2, October 1991, pp. 535-538.

"Firm Size, Employment Risk and Wages: Further Insights on a Persistent Puzzle" (with Matthew N. Murray), Applied Economics, Volume 23, Number 8, August 1991, pp. 1351-1360.

"Competition for 800 Service: An Economic Evaluation" (with David L. Kaserman), Telecommunications Policy, October 1991, pp. 395-408.

"Regulation, Advertising and Economic Welfare" (with David L. Kaserman), Journal of Business, Volume 64, Number 2, April 1991, pp. 255-267.

> Reprinted in The Foundations of Regulatory Economics, Robert E. Ekelund, Jr., (Ed.), Edward Elgar Publishing, Northhampton, MA, forthcoming.

"Cross-Subsidization in Telecommunications: Beyond the Universal Service Fairy Tale" (with David L. Kaserman and Joseph E. Flynn), Journal of Regulatory Economics, Volume 2, Number 3, September 1990, pp. 231-250.

"Barriers to Trade and the Import Vulnerability of U.S. Manufacturing Industries" (with Don P. Clark and David L. Kaserman), Journal of Industrial Economics, Volume 38, Number 4, June 1990, pp. 433-448.

"Firm Entry and Exit: Causality Tests and Economic Base Linkages" (with Joseph E. Flynn), Journal of Regional Science, Volume 29, Number 4, November 1989, pp. 645-662.

"Regulation, Market Structure and Hospital Costs" (with Deborah A. McFarland), Southern Economic Journal, Volume 55, Number 3, January 1989, pp. 559-569.

"Long Distance Telecommunications Policy: Rationality on Hold" (with David L. Kaserman), Public Utilities Fortnightly, Volume 122, Number 13, December 22, 1988, pp. 18-27.

"The Effects of Regulation on R&D: Theory and Evidence" (with Joseph E. Flynn), Journal of Business, Volume 61, Number 3, July 1988, pp. 321-336.

"The Effectiveness of Mandatory Fuel Efficiency Standards in Reducing the Demand for Gasoline" (with John E. Mathis), Applied Economics, Volume 20, Number 2, February 1988, pp. 211-220.

"Market Based Regulation of a Quasi-Monopolist: A Policy Proposal for Telecommunications" (with David L. Kaserman), Policy Studies Journal, Volume 15, Number 3, March 1987, pp. 395-414.

"The Ghosts of Deregulated Telecommunications: An Essay by Exorcists" (with David L. Kaserman), Journal of Policy Analysis and Management, Volume 6, Number 1, Fall 1986, pp. 84-92.

"Economies of Scale and Scope in the Electric-Gas Utilities: Further Evidence and Reply," Southern Economic Journal, Volume 52, Number 4, April 1986, pp. 1175-1178.

"Advertising and the Residential Demand for Electricity" (with David L. Kaserman), Journal of Business, Volume 58, Number 4, October 1985, pp. 399-408.

"Multiproduct Monopoly, Regulation and Firm Costs," Southern Economic Journal, Volume 51, Number 1, July 1984, pp. 208-218.

"The Technological Determinants of the U.S. Energy Industry Structure," The Review of Economics and Statistics, Volume 66, February 1984, pp. 51-58.

B. BOOKS, MONOGRAPHS, AND OTHER PUBLICATIONS

"Monopoly Leveraging, Path Dependency, and the Case for a Competition Threshold for RBOC Reentry into InterLATA Toll," (with T.R. Beard and David L. Kaserman), in Regulation Under Increasing Competition, Michael A. Crew, Editor, Kluwer Academic Publishers, 1999.

"The Quest for Universal Service: The Misfortunes of a Misshapen Policy," (with David L. Kaserman) in Telecommunications Policy: Have Regulators Dialed the Wrong Number?, Donald L. Alexander, Editor, Praeger Publishing Group, Westport, CT, 1997, pp.131-144.

Government and Business: The Economics of Antitrust and Regulation (with David L. Kaserman), The Dryden Press, Harcourt Brace College Publishers, 1995.

"Long-Distance Telecommunications: Expectations and Realizations in the Post-Divestiture Period" (with David L. Kaserman), in Incentive Regulation for Public Utilities, Michael A. Crew, Editor, (Boston, MA.: Kluwer Academic Publications), 1994.

Monopoly Leveraging Theory: Implications for Post-Divestiture Telecommunications Policy (with David L. Kaserman), Center for Business and Economic Research: The University of Tennessee, April 1993.

State-Level Telecommunications Policy in the Post-Divestiture Era: An Economic Perspective (with William F. Fox), Center for Business and Economic Research, The University of Tennessee, March 1991.

A review of After Divestiture: The Political Economy of State Telecommunications Regulation, by Paul E. Teske. Albany: State University of New York Press, 1990. Publius, Winter 1991, pp. 164-166.

Deregulation and Market Power Criteria: An Evaluation of State Level Telecommunications Policy" (with David L. Kaserman) in Telecommunications Deregulation: Market Power and Cost Allocation Issues, J. Allison and D. Thomas (eds.), Quorum Books, 1990.

The Economics of Local Telephone Pricing Options (with J. E. Flynn), Center for Business and Economic Research, The University of Tennessee, October 1988.

Firm Entry and Exit: Economic Linkages in Tennessee (with J. E. Flynn), Center for Business and Economic Research, The University of Tennessee, Knoxville, July 1988.

"The Economics of Regulation: Theory and Policy in the Post-Divestiture Telecommunications Industry" (with David L. Kaserman) in Public Policy Toward Corporations, Arnold Heggestad, editor, University of Florida Presses, 1988.

"Entries and Exits of Firms in the Tennessee Economy: Foundations for Research," Survey of Business, The University of Tennessee, Volume 23, Number 1, Summer 1987, pp. 21-23.

"The Relationship of Manufacturing and Nonmanufacturing Firm Entry and Exit in Tennessee" (with Joseph E. Flynn), Survey of Business, The University of Tennessee, Volume 23, Number 2, Fall 1987, pp. 11-16.

A Review of Municipal Ownership in the Electric Utility Industry, by David Schap. New York: Praeger Publishing Company, 1986. Southern Economic Journal, Volume 54, Number 1, July 1987.

Entries and Exits of Firms in the Tennessee Economy (with W. F. Fox, et al.), Center for Business and Economic Research, The University of Tennessee, Knoxville, May 1987. (Condensed report published in Survey of Business, The University of Tennessee, Volume 23, Number 2, Fall 1987, pp. 3-10.

"The U.S. Economic Outlook," Survey of Business, The University of Tennessee, annual contributor, 1986-1994.

An Economic Report to the Governor of the State of Tennessee, Center for Business and Economic Research and the Tennessee State Planning Office, Annual Contributor, 1981-1994.

"An Economic Analysis of a Monitored Retrievable Storage Site for Tennessee" (with W. F. Fox, L. T. Hansen, and K. E. Quindry), Final Report and Appendices, December 17, 1985.

"Directly Served Industries and the Regional Economy" (with Charles Campbell), Contract Completion Report, the Center for Business and Economic Research, The University of Tennessee, October 1984.

"Comments on the Analysis and Methodology in 'Review of the TVA Load Growth/Plant Construction Situation.'" Contract Completion Report to the Tennessee Valley Authority, February 1982.

CONGRESSIONAL AND REGULATORY TESTIMONIES:

U.S. Senate (Energy and Natural Resources Committee, Subcommittee on Water and Power; Commerce, Science and Transportation Committee); Tennessee State Legislature (Senate Finance, Ways and Means Committee; Special Joint Legislative Committee on Business Taxation; and, Senate State and Local Government Committee); Federal Communications Commission (Ex Parte presentation); Pennsylvania Public Utility Commission; Michigan Public Service Commission; Missouri Public Service Commission; Illinois Commerce Commission; West Virginia Public Utility Commission; Wyoming Public Utility Commission; Washington Utilities and Transportation Commission; Utah Public Service Commission; Wisconsin Public Service Commission; California Public Utilities Commission; Florida Public Service Commission; Delaware Public Service Commission; Montana Public Service Commission; Maryland Public Service Commission; Massachusetts Department of Public Utilities; Georgia Public Service Commission; Colorado Public Utilities Commission; North Carolina Public Utilities Commission; Texas Public Utility Commission; Arkansas Public Service Commission; Connecticut Department of Public Utility Control; Kansas State Corporation Commission; and New Jersey Board of Public Utility Commissioners.

SELECTED CONFERENCE PRESENTATIONS:

Rutgers University "Advanced Workshop in Regulation and Public Utility Economics" (Eighteenth Annual Conference, Newport, Rhode Island)

Presentation: "Regulation, Competition and the Optimal Recovery of Embedded Costs," (with T. Randolph Beard and David L. Kaserman), May 1999.

University of Missouri, Twenty-fifth Annual Rate Symposium (St. Louis, Missouri)

Presentation: "For Whom the Bell Tolls: The BOCs and InterLATA Entry," April 1999.

Rutgers University, Conference on Regulation Under Increasing Competition

Presentation: "Monopoly Leveraging, Path Dependency, And The Case For A Competition Threshold For RBOC Reentry Into InterLATA Toll," May 1, 1998.

American Enterprise Institute for Public Policy Research, Conference on Pricing and Costing in a Competitive Local Telecommunications Network, Washington, D.C.

Presentation: "Regulation and Common Costs: Estimation versus Allocation," November 1997.

University of Minnesota, Annual Meeting of the Minnesota Economics Association, Minneapolis

Presentation: "Policies for the Evolving Telecommunications Industry," September 1996.

University of Florida, Annual Public Utility Research Center Conference, Gainesville, Florida

Presentation: "Universal Service in Competitive Telecommunications Markets," January 1996.

University of Michigan, "Telecommunications Infrastructure and the Information Economy: Interactions Between Public Policy and Corporate Strategy," Ann Arbor, Michigan

Presentation "Regulatory Policies Toward Local Exchange Companies Under Emerging Competition: Guardrails or Speedbumps on the Information Highway" (with David L. Kaserman), March 1995.

Rutgers University "Advanced Workshop in Regulation and Public Utility Economics" (Thirteenth Annual Conference, Newport, Rhode Island)

Presentation: "Dominant Firm Pricing with Competitive Entry and Regulation" (with Larry R. Blank and David L. Kaserman), May 1994.

Twenty-first Annual Telecommunications Policy Research Conference, Solomons, Maryland

Presentation: "Open Entry and Local Telephone Rates: The Economics of IntraLATA Toll Competition," October 1993.

Vanderbilt University (Owen School of Management) Telecommunications Systems Modelling and Analysis Conference

Presentation: "Open Entry and Local Telephone Rates: The Economics of IntraLATA Toll Competition," March 1993.

Twentieth Annual Telecommunications Policy Research Conference, Solomons, Maryland

Presentation: "Demand and Pricing of Telecommunications Services: Evidence and Welfare Implications," September 1992.

Ohio State University (National Regulatory Research Institute) "Telecommunication Demand Conference"

Presentation: "The Economic Welfare Effects of Extended Area Telephone Service," August 1992.

University of Utah "Conference on New Directions for State Telecommunications Regulation"

Presentation: "Competition for Local Exchange Service--Is Nothing Sacred?" February 1991.

Rutgers University "Advanced Workshop in Regulation and Public Utility Economics" (Ninth Annual Conference, New Paltz, New York)

Paper presented: "Demand, Pricing and Regulation of Cable TV Services: Evidence From the Pre-Deregulation Period" (with Yasuji Otsuka), June 1990.

University of Kansas "Stakeholders' Symposium on Telecommunications"

Presentation: "The Modern History of Telecommunications Economics and Policy," Semi-annual February 1990-present.

Rutgers University "Advanced Workshop in Regulation and Public Utility Economics" (Eighth Annual Conference, Newport, Rhode Island)

Paper presented: "The Political Economy of Deregulation: The Case of Intrastate Long Distance" (with David L. Kaserman and Patricia Pacey), May 1989.

Southwestern Bell Corporation "Annual Regulatory Conference" (St. Louis, Missouri)

Presentation: "The New Regulatory Age - What Lies Ahead" April 1989.

University of Florida (Public Utility Research Center) Conference on "Beyond Traditional Regulation"

Presentation: "Expectations and Realizations in Post-Divestiture Telecommunications Policy," February 1989.

National Conference of State Legislatures and the U.S. Advisory Commission on Intergovernmental Relations "Conference on Telecommunications Policy" (Washington, D.C.)

Presentation: "Telecommunications Policy -- Past, Present and Future," November 1988.

University of Paris (Dauphine IX), Paris, France, EURO-TIMS, "Joint International Conference"

Presentation: "The Quantification of Entrepreneurship: The Determinants of Firm Entry, Exit, and Survival," July 1988.

University of Texas conference on "Current Issues in Telecommunications Regulation"

Papers Presented: "Deregulation and Market Power Criteria: An Evaluation of State Level Telecommunications Policy" (with David L. Kaserman), and "The Role of Cost Allocation Methodologies in the Deregulation of Long Distance Telecommunications," October 1987.

Rutgers University conference on "Interexchange Telecommunications and Regulatory Innovation"

Paper presented: "Long Distance Telecommunications Policy: Rationality on Hold" (with David L. Kaserman), October 1987.

University of Florida symposium on "Public Policy Toward Corporations"

Paper presented: "The Economics of Regulation: Theory and Evidence in the Post-Divestiture Telecommunications Industry" (with David L. Kaserman), March 1986.

CONSULTING:

U.S. Department of Justice, Antitrust Division; U.S. Federal Trade Commission; AT&T; Sprint; MCI Telecommunications; Enron Power Marketing, Inc.; Optus Communications (Australia); Tennessee Valley Authority; Antitrust Division, Office of the Attorney General, State of Tennessee; U.S. Senator Howard Baker, Jr., U.S. Senate Majority Leader; Oak Ridge National Energy Laboratory; Arkansas Consumer Research; Division of Energy Conservation and Rate Advocacy, Office of the Arkansas Attorney General; U.S. Department of Energy

PROFESSIONAL PRESENTATIONS:

"Regulation and Administrative Discretion: Evidence From the Electric Utility Industry" (with Thomas P. Lyon). Presented to the Southern Economic Association Annual Meetings, Atlanta, GA, November 1997.

"Regulation, Vertical Integration and Sabotage." (with T. Randolph Beard and David L. Kaserman)
Presented to the Western Economic Association Annual Meetings, Seattle, Washington, July 1997.

"Regulation and Investment: Evidence from the Electric Utility Industry." (with Thomas Lyon) Presented to the American Economic Association Annual Meetings, New Orleans, January 1997.

"Targeted and Untargeted Subsidy Schemes: Evidence from Post-Divestiture Efforts to Promote Universal Telephone Service." Presented to the Southern Economic Association Annual Meetings, New Orleans, November 1995.

"Dominant Firm Pricing with Competitive Entry and Regulation: The Case of IntraLATA Toll," with Larry Blank and David L. Kaserman. Presented to the Southern Economic Association Annual Meetings, Orlando, Florida, November 1994.
"The Economic Welfare Effects of Extended Area Telephone Service," with Carlos Martins-Filho. Presented to the Western Economic Association Annual Meetings, Seattle, Washington, July 1991.

"Demand, Pricing and Regulation of Cable TV Services: Evidence from the Pre-Deregulation Period," with Yasuji Otsuka. Presented to the Southern Economic Association annual meetings, New Orleans, Louisiana, November 1990.

"Market Contestability: Toward an Operational Index," with David L. Kaserman. Presented to the Western Economic Association annual meetings, Lake Tahoe, Nevada, June 1989.

"The Political Economy of Deregulation: The Case of Intrastate Long Distance," with David L. Kaserman and Patricia Pacey. Presented to the Southern Economic Association annual meetings, San Antonio, Texas, November 1988.

"Barriers to Trade and the Import Vulnerability of U.S. Manufacturing Industries," with Don Clark and David L. Kaserman. Presented to the Southern Economic Association annual meetings, San Antonio, Texas, November 1988.

"Cross-Subsidization in Telecommunications: Economic Theory Versus Regulatory Rhetoric" with David L. Kaserman, Western Economic Association annual meetings, Vancouver, British Columbia, July 1987. Also presented at the Southern Economic Association annual meetings, Washington, D.C., November 1987.

"The Effects of Regulation on R&D: Theory and Evidence," Southern Economic Association annual meetings, New Orleans, Louisiana, November 1986.

"The Measurement of Vertical Economies and the Efficient Structure of the Electric Utility Industry" with David L. Kaserman, American Economic Association annual meetings, San Francisco, California, December 1983.

"Regulation, Advertising and Economic Welfare" (with David L. Kaserman), Southern Economic Association annual meetings, Washington, D.C., November 1983.

"Multiproduct Monopoly, Regulation and Firm Costs," Southern Economic Association meetings, Atlanta, Georgia, November 1982.

"Forecasting Economic Activity in Tennessee with a Quarterly Econometric Model," Southeastern Economic Analysis Conference, Charlotte, North Carolina, September 1982.

"The Technological Determinants of U.S. Energy Industry Structure." Regulatory Workshop, Center for the Study of American Business and the Department of Economics, Washington University, December 1981.

WORK IN PROGRESS:

"Regulation, Competition and the Optimal Recovery of Common Costs," (with T. Randolph Beard and David L. Kaserman), May 1999.

"Regulation and Common Costs: Estimation versus Allocation," (with Mark L. Burton and David L. Kaserman), July 1998.

"Regulation, Vertical Integration and Sabotage," (with T.R. Beard and D.L. Kaserman), September 1998.

"Administrative Discretion and Investment Behavior: Evidence from the U.S. Electric Utility Industry," (with Thomas P. Lyon), July 1997.

EDITORIAL REVIEWER:

National Science Foundation, Brookings Institution, Federal Trade Commission, The MIT Press, American Economic Review, The Economic Journal, Journal of Business, RAND Journal of Economics, Journal of Regulatory Economics, Review of Economics and Statistics, Economic Inquiry, Journal of Industrial Economics, Journal of Economics & Management Strategy, Review of Industrial Organization, Scandinavian Journal of Economics, Eastern Economic Journal, Southern Economic Journal, Contemporary Economic Policy, Industrial Relations, Growth and Change, Review of Regional Studies, Journal of Economics and Business, Quarterly Review of Economics and Business, Journal of Policy Analysis and

EDITORIAL REVIEWER (CONT):

Management, Quarterly Journal of Business and Economics, Regional Science and Urban Economics, Financial Review, Journal of Money, Credit, and Banking, Social Science Quarterly, Telecommunications Systems, Public Finance Quarterly, Japan and the World Economy

EDITORIAL BOARDS AND OVERSIGHT BODIES

Editorial Board, Journal of Regulatory Economics, 1999-present.

Research Advisory Committee, National Regulatory Research Institute (Ohio State University), 1993-1997.

PROFESSIONAL MEMBERSHIPS AND COMMITTEES:

American Economic Association
Western Economic Association
Southern Economic Association
American Law and Economics Association

JOINT DECLARATION OF T. RANDOLPH BEARD AND JOHN W. MAYO

ATTACHMENT 3

THE INTERLATA MARKET IS COMPETITIVE

1. Virtually all parties to the debates regarding Section 271 reintegration appear to believe that the extent of competition in telecommunications markets matters. These same parties disagree regarding the state of competition within the various telecommunications market. BA-NY argues that local markets are open to (and indeed have experienced) massive entry and are, consequently, vigorously competitive. At the same time BA-NY argues that the interexchange industry currently is noncompetitive and, therefore, that reintegration by these firms will increase competition and enhance consumer welfare.

2. For reasons we identify in this Attachment, we believe that the long distance market in the United States is effectively competitive today and, therefore, the critical public interest standard embedded in Section 271 of the Communications Act should focus on the nature of competition in local exchange markets. The Commission appears to agree, as indicated by its conclusion in a previous 271 application: "In section 271, Congress granted the Commission the authority to exercise its expert judgment as to relevant issues in determining whether RBOC entry into a particular in-region, interLATA market is consistent with the public interest. We believe that such an inquiry should focus on the status of market-opening measures in the relevant local exchange market ."[1]

3. The RBOCs' previous attempts to distract the Commission from its focus on local markets have been entirely unsuccessful in the past, and the latest attempts by Drs. MacAvoy and Taylor should prove equally as futile. As the Commission acknowledged in its rejection of BellSouth's application for 271 approval in Louisiana: "BellSouth asserts that entry into a particular in-region, interLATA market is consistent with the public interest requirement whenever a BOC has implemented the competitive checklist. BellSouth also asserts that our responsibility to evaluate public interest concerns is limited narrowly to assessing whether BOC entry would enhance competition in the long distance market. Both of these arguments were considered and rejected in the *Ameritech Michigan Order*, and BellSouth has given us no reason to revisit the prior determinations on these issues here."[2] With the exception of the economists who have filed affidavits on behalf of RBOCs, there appears to be a consensus as to the appropriate focus of the 271 proceedings.

4. The arguments raised by BA-NY's economists in this particular proceeding regarding the lack of competition in the interexchange industry are all too familiar. These

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[1] In re Application of Ameritech Michigan Pursuant to Section 271 of the Communications Act of 1934, as Amended, to Provide In-Region, InterLATA Services in Michigan, CC Docket No. 97-131, Memorandum Opinion and Order, 12 F.C.C.R. 20543, ¶ 385 (1997). Furthermore, the Commission stated: "We reject the view that our responsibility to evaluate public interest concerns is limited narrowly to assessing whether BOC entry would enhance competition in the long distance market." Id. ¶ 386.

[2] In re Application Of Bellsouth Corporation, Bellsouth Telecommunications, Inc., and Bellsouth Long Distance, Inc., for Provision of In-Region, InterLATA Services in Louisiana, CC Docket No. 98-121, Memorandum Opinion and Order, 13 F.C.C.R. 20599, ¶ 361 (1998) (footnotes omitted).

arguments include such assertions as a) the long distance industry is uncompetitive and effectively cartelized; b) long distance rates have increased in recent years; and c) long distance carriers have failed to flow through access charges. Despite persistent and repeated rejection by the Commission and the DOJ of the RBOC economists' positions, Drs. MacAvoy and Taylor unrelentingly run these discredited ideas up the flagpole once again.

5. For example, Dr. Taylor asserts "long distance carriers substantially raised rates for residential customers (p. 7)" and "raised rates in spite of reductions in access charges (p. 4)." This claim is in stark contrast to the recent Congressional testimony of FCC Chairman William Kennard, where the Chairman indicated that between 1992 and 1997 long distance rates fell by 24 percent, and by twice the amount of access charge reductions.[3]

6. The Chairman is not alone in his views on the long distance industry. Commissioner Harold Furchtgott-Roth appreciates the fact that "the Commission has long recognized that the market for long distance services is substantially competitive."[4] Commissioner Michael Powell concurs, recently noting that "the long distance industry is highly competitive and has created greater choice and value for all consumers."[5] Likewise, Commissioner Susan Ness has concluded that "most consumers are reaping the benefits of thriving competition in the long distance market – choice is abundant, innovation is rampant, and per-minute rates are the lowest they have ever been."[6] Even the United States Telephone Association (USTA), the lobbying organization for the RBOCs, recently noted: "Consumers, whether they are high or low volume long-distance users, are free to choose among the offerings of the IXCs in a competitive market ...."[7] It would appear that Drs. MacAvoy and Taylor stand alone in their views on competition, or the lack of it, in the long distance industry. The benefits of the vigorous rivalry in the long-distance (interLATA) market are plainly visible to even the casual observer.

7. This general consensus on the degree of competitiveness in the long distance industry has formed over years of the Commission's and others' analysis of the competitiveness of the industry. This analysis has focused on both the supply-side and demand-side characteristics of the long distance marketplace. We discuss these characteristics, and their implications, below.

Supply-Side Conditions

8. The cornerstone of competitive markets -- consumer choice -- is amply evident throughout the United States. By the end of 1996, there were over 600 firms competing in

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[3] A New Federal Communications Commission for the 21st Century, Mar. 17, 1999.

[4] Statement of Commissioner Furchtgott-Roth, In re Low Volume Long Distance Users, CC Docket No. 99-249, Notice of Inquiry, 1999 WL 511193, at 32 (rel. July 20, 1999) (footnote omitted).

[5] Id. at 59 (Statement of Commissioner Powell).

[6] Id. at 28-29 (Statement of Commissioner Ness) .

[7] USTA Comments, In re Low-Volume Long-Distance Users, CC Docket No. 99-249 (filed Sept. 22, 1999).

the interexchange marketplace in the United States.[8] Since that time, new long distance firms have continued to enter the market to give consumers even more choices. Furthermore, "[a]t least 20 of these carriers had annual revenues exceeding $100 million in 1997, and eight carriers had revenues exceeding $1 billion."[9] In New York, this choice of long distance carriers is extraordinarily abundant. Indeed, in Manhattan and Buffalo there are numerous carriers from which to choose for residential interexchange services. Likewise, in smaller cities such as Oneonta there are between 50 and 60 long distance carriers from which to choose.[10] Today, there are a host of facilities-based interexchange carriers in New York State. As is readily apparent, consumers now have many available long-distance carriers from which to choose.

9. While the huge number of extant suppliers of long distance services alone is adequate to constrain market power in the long distance industry, the number of competitors increases every year with tremendous growth both in the deployment of transmission facilities and the number of retailers. Barriers to entry and expansion are low, and this fact has not escaped the recognition of the Commission: "[a]lthough we believe that the time and expense needed to construct a fiber network represents a barrier to entry, the existence of the four firms [Qwest, IXC, Williams, and Level 3] that are already building national networks shows that these barriers are far from insurmountable; in addition, we find that the existing and new carriers face relatively few barriers to using this transmission capacity to constrain any market power possessed by incumbents."[11] The Commission also recognized that companies such as GTE and Frontier "are purchasing fiber from these firms [Qwest, IXC, Williams, and Level 3] to use in their own national networks."[12] Even Professor MacAvoy recognizes that the evidence suggests that bandwidth capacity is tripling every year.[13]

10. It is well established in the economic literature that the presence of excess capacity constrains market power and erodes the prospects for successful collusion.[14] As Professor Stephen Martin has pointed out, "[E]conomists have argued that substantial excess capacity increases the likelihood of price wars and a breakdown in oligopolistic

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[8] Federal Communications Commission, Common Carrier Bureau, Trends in Telephone Service, Table 10.2 (Sept. 1999).

[9] In re Application of WorldCom, Inc. and MCI Communications Corporation for Transfer of Control of MCI Communications Corporation to WorldCom, Inc., CC Docket No. 97-211, Memorandum Opinion and Order, 13 F.C.C.R. 18025, ¶ 40 (1998) ("MCI/WorldCom Order").

[10] Based on call made to Bell Atlantic customer service offices on October 6, 1999.

[11] Id. ¶¶ 42, 43.

[12] Id. ¶ 35.

[13] See BA-NY Decl. of Paul W. MacAvoy at 13 (BA-NY App. A, Vol. 5, Tab 9).

[14] See, e.g., Robert W. Staiger and Frank A. Wolak, "Collusive Pricing with Capacity Constraints in the presence of Demand Uncertainty," RAND Journal of Economics, Vol. 23, 1992, who refer to "a large body of empirical evidence" supporting the proposition that the incentive for vigorous price competition is most likely when capacity utilization is low. See also the discussion in David L. Kaserman and John W. Mayo, "Competition and Asymmetric Regulation in Long-Distance Telecommunications: An Assessment of the Evidence," CommLaw Conspectus, Vol. 4, Winter 1996, p. 16.

control of prices."[15] Indeed, there is little doubt that the substantial amount of capacity in place has been a contributing factor in the downward pressure on long-distance prices for the past decade.[16] The Commission concluded in 1995 that competitors in the long distance industry had enough readily available excess capacity to constrain other competitors' pricing behavior.[17] Since 1995, fiber route miles deployed have increased by 65 percent.[18]

11. Not only have firms been aggressive about their expansion of physical facilities in the interexchange industry, but they have also demonstrated in incontrovertible terms their willingness and desire to expand output. As is readily apparent, post-divestiture competitors to the incumbent (AT&T) have collectively exhibited a remarkable growth rate of roughly twenty percent per year over the past dozen years and "carriers other than the four largest long distance carriers have demonstrated annual growth rates exceeding 40 percent."[19] The fact that competitors of all types have successfully demonstrated for over a dozen years that they are able to grow and capture market share is a very serious deterrent to the ability of any one firm or small set of firms to raise prices to supra-competitive levels. While the RBOC's experts have in the past attempted to discount the value of smaller interexchange carriers, the Commission has rejected such arguments, noting that "[w]e find unpersuasive the arguments that interexchange carriers other than AT&T, MCI, and Sprint are too small to exert competitive pressure."[20] This is in striking contrast to the absence of evidence regarding the ability of firms to grow and capture local exchange business.

12. An examination of market share data in the interexchange industry is evidence of the tremendous increase in the number of competitors and vigorous rivalry displayed in the industry. At the outset of the post-divestiture period, AT&T had a preponderance (roughly 90 percent) of interLATA traffic in the United States. AT&T's minutes-of-use market share has dropped consistently during the past decade. At the same time, the output and breadth of competitors' service offerings has expanded dramatically. By 1998, AT&T's revenue market share had fallen to 43 percent.[21] The consistent and pronounced declines in AT&T's market share reveal a vulnerability of this (or any) firm to competitive attacks by other incumbents and new entrants.[22] Importantly, this

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[15] Stephen Martin, Industrial Economics: Economic Analysis and Public Policy, 1988, pp. 149-150.

[16] See Steve Rosenbush, "MCI Rate Cut May Rattle Phone Giants," USA Today, 1A (January 23, 1997).

[17] Motion of AT&T Corp. to be Reclassified as a Non-Dominant Carrier, CC Docket No. 95-427, Order, 11 F.C.C.R. 3271, ¶ 58 (1995), recon., 12 FCC Rcd 20787 (1997) ("Non-Dominant Carrier Order").

[18] Jonathan Kraushaar, Federal Communications Commission, Fiber Deployment Update: End of Year 1998, Table 1 (Sept. 9, 1999).

[19] See MCI/WorldCom Order ¶ 40; David L. Kaserman and John W. Mayo, "Competition and Asymmetric Regulation in Long-Distance Telecommunications: An Assessment of the Evidence," CommLaw Conspectus, Vol. 4, Winter 1996, p. 24.

[20] Non-Dominant Carrier Order ¶ 62.

[21] Federal Communications Commission, Trends in Telephone Service, Table 11.3 (Sept. 1999).

[22] Moreover, as discussed below, the movement in the market shares for individual carriers masks the even more volatile pattern of consumer behavior underlying the aggregate statistics. Millions of households switch long distance carriers every year, with considerable migration between existing firms and new entrants. Were not every long

observed decline in market share has come about during a period in which the real price of long-distance services has fallen by over 70 percent. This decline in market share in the face of falling prices reveals a pronounced vulnerability of interexchange companies. Clearly, in the event of any unwarranted attempt to raise prices to anticompetitive levels, the resulting market share loss would be overwhelming. Therefore, the market share evidence also provides unequivocal support for the conclusion that the interLATA market is subject to effective competition.

Demand-Side Conditions

13. The demand characteristics of the interexchange market reinforce the competitive impact of the high elasticity of firm supply and the distribution of market shares in the interLATA market. Several considerations support this conclusion. First, overall market growth has been pronounced. Sales of interexchange services have increased dramatically since the divestiture. This large growth rate has had the effect of attracting new firms into the market and has mitigated the risk of failure for prospective new entrants.

14. Second, the distribution of demand across telecommunication customers has also contributed to the vulnerability of incumbent firms. Specifically, a large proportion of consumer demand for interexchange services is accounted for by a relatively small percentage of customers. That skewed distribution, together with a pronounced propensity of customers to switch long-distance carriers (about which we will say more momentarily), makes the sales of any particular carrier subject to potentially large losses in the event of an anticompetitive price increase.

15. Third, consumer demand in long-distance services is characterized by an acute tendency to switch carriers. On the issue of market demand characteristics, the FCC has found that "residential customers are highly demand-elastic and will switch to or from AT&T in order to obtain price reductions and desired features."[23] Indeed, consumer switching of carriers has become so rampant that by 1996 some 55 million households switched long distance carriers. In the face of such a pronounced willingness and demonstrated ability of consumers to switch long-distance providers, the high elasticity of other firms' supply, and the existing distribution of market shares, it is virtually inconceivable that the long-distance market is characterized by anything other than effective competition. In short, buyers have too many choices, firms have too much capacity, and there is simply too little customer loyalty to any given carrier for any firm to possess a significant degree of monopoly power or exploit consumers of long-distance services.

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distance carrier scrambling to retain or increase its market share by winning back or luring customers, the outflow of customers would lead to devastating market share losses.

[23] Non-Dominant Carrier Order ¶ 63 (footnote omitted).

Long Distance Competition and Rates

16. The RBOCs have often pointed toward the trend in long distance rates as an indicator of the degree of competition in the industry. On this point, the price data is unequivocal. As shown in Table A1, FCC data reveals that the average revenue per minute (ARPM) for long distance service has fallen precipitously during the past 15 years. In 1998, ARPM was 70% less than its 1985 level.

Table A1. Average Revenue Per Minute

Year	*ARPM (1998 Dollars)*	*Percent Change from 1984*
1984	0.51	...
1985	0.47	-8%
1986	0.42	-18%
1987	0.35	-31%
1988	0.32	-37%
1989	0.29	-43%
1990	0.25	-51%
1991	0.24	-53%
1992	0.22	-57%
1993	0.22	-57%
1994	0.20	-61%
1995	0.18	-65%
1996	0.17	-67%
1997	0.15	-71%
1998	0.14	-73%

Source: *Trends in Telephone Service*, Sept. 1999, Table 14.6.

17. Within this genre of price measures of competition, perhaps the most common approach is to examine the flow through of access charge reductions to prices. A recent study conducted by Professor R. Carter Hill and one of the present authors evaluates "flow through" using the PNR database. The study "demonstrates conclusively that the average revenue per minute of MCI exhibits complete pass through of access charge reductions to consumers."[24]

18. The key findings of this analysis are summarized in Table A2 below. The Hill-Beard study evaluates ARPM and access charge reductions over an 18 month period, which includes three discrete periods surrounding two access charge reductions. Period I is defined as the first half of 1997, Period II the second half of 1997, and Period III the first half of 1998. The reduction in ARPM between each period, as well as the 90 percent confidence interval of that reduction, is provided in the second and third columns of the table. When these reductions in ARPM are compared to the estimated reduction in access charges, it is apparent that "MCI's ARPM has fallen over time in a manner consistent either with 100% pass through of access charge reductions, or else has fallen by more than the reductions in access charges depending on the time period studied."[25]

[24] R. Carter Hill & T. Randolph Beard, A Statistical Analysis of the Flow-Through of Reductions in Switched Access Charges to Residential Long Distance Rates, at ii (May 1999) (Attachment 4 of the declaration) (available for downloading from www.egroupassociates.com).

[25] See id. at iv.

Table A2.

Statistical Tests of ARPM and Access Charge Reductions

Period	*ARPM Reduction*	*Bootstrap 90% Confidence Interval*	*Estimated Access Reduction*	*Flow-through Assessment*
I - II	0.0200	$0.014 < \delta < 0.026$	0.0087	> 100%
II - III	0.0012	$-0.004 < \delta < 0.006$	0.0018	100%
I - III	0.0211	$0.015 < \delta < 0.027$	0.0105	> 100%

Changes in ARPM may not add due to rounding. Confidence intervals for δ indicate values δ must assume to conclude $\Delta ARPM = \delta$ in a statistical sense. ">" indicates "more than" 100% pass-through.

19. The findings of the Hill-Beard study contradict those of a study co-authored (with Paul Brandon) by BA-NY economist Dr. Taylor. Dr. Taylor's study used the same data (although less of it) as did the Hill-Beard study but finds that ARPM increased over the relevant time periods while access charges declined. Obviously, the conclusions of two studies are markedly different. These differences are based on (at least) three factors. First, Brandon and Taylor's finding that the interexchange carriers raised rates as their costs fell is inconsistent with economic theory: even a monopoly changes price in the same direction as changes in incremental costs. Second, Brandon and Taylor did not conduct statistical tests to determine if their purported increase in ARPM was significant. Brandon and Taylor merely inferred this by comparing averages. Third, and most importantly, it appears that the primary sources of the differences between the Brandon and Taylor results and those given here may arise from the selective sample periods used by Brandon and Taylor. The Hill-Beard study (Attachment 4 of the declaration) clearly illustrates the consequences of Brandon and Taylor's careful selection of time periods. While the Hill-Beard study confirms that the flow through of access charge reduction did in fact occur, it also illustrates why any claims made by Dr. Taylor based on an analysis of the PNR data should be viewed with great circumspection.

20. Additionally, the Commission has at its disposal the confidential ARPM and access charge data of MCI. We have reviewed the MCI data, and it clearly shows that access charges have been passed through to consumers in the form of lower prices.

21. While it is nearly impossible to dispute that long distance rates have declined over time, it is sometimes asserted that many customers do not qualify for the plans that have the best rates and, consequently, are not beneficiaries of interexchange company rivalry.[26] Such claims are, frankly, preposterous. While long distance carriers vary in their pricing structures, the presence of hundreds of carriers ensures that each household can match its usage characteristics with a carrier to receive long distance rates that are substantially below those paid in the past. It is a gross mischaracterization of the facts for the RBOCs to allege that residential and small business customers are not able to take advantage of the rivalry that exists for larger customers. Television, newspaper and other forms of solicitations are frequently targeted at exactly these customer groups.

[26] See BA-NY Decl. Taylor ¶¶ 13, 26 (BA-NY App. A, Vol. 5, Tab 8).

22. The result is that, for any consumer willing to engage in a modest amount of shopping, very attractive rates are available even if they are not high volume customers. For example, a recent inquiry to Erbia Long Distance indicated a rate of 6.9 cents per minute anytime, with no minimum amount of calling required.[27] This is a far cry from the 55 cents per minute rate that prevailed for a coast-to-coast call at the time of the divestiture. Similarly, long distance carrier Unidial ($183 million in 1998 revenues) offers a flat rate of $0.09 per minute with no monthly minimums or flat charges (excluding the $1.04 charged for the PICC). For a monthly fee of $9.95, Qwest offers customers a flat rate of $0.05 per minute. MCI WorldCom offers a plan of $0.09 per minute during the day and $0.05 per minute at night and on weekends with a minimum bill of $5. AT&T and Excel offer $0.07 per minute for a flat monthly fee of $4.95. Clearly, a variety of calling plans are available to suit the needs of all customers.

23. Even the local exchange carriers recognize this fact. For example, BellSouth recently noted: "Low-volume users, as have every other consumer, have a variety of choices they can make with regard to purchasing long distance services. The range of alternatives available enable the low-volume user to decide how much he will spend on long distance services and whether or not his long distance charges will primarily be usage based or a combination of flat-rate and usage based charges. ... Further, the long distance alternatives that are available are not obscure, hidden pricing plans, known only to a savvy few."[28] Likewise, GTE noted, "consumers are regularly exposed to numerous advertisements from carriers offering new pricing plans. These include options with no monthly minimum charges, and, as the Commission has noted, dial-around plans with no monthly minimums abound. Thus, a low-volume consumer has a variety of options available to avoid the minimum monthly charges some carriers are requiring."[29] Similarly, USTA asserts, in contradiction to Dr. Taylor, that "low-volume long-distance customers are not without choices.... Consumers can switch rate plans, switch to another long-distance company, not have a presubscribed long-distance company at all, or utilize dial around services."[30]

24. The obvious fact is that long-distance firms are openly competitive in their aggressive attempts to solicit and retain customers. Whether one opens the daily newspaper, watches television, answers telephone solicitations, listens to the radio, or reads hand-out literature in check-out lines at grocery and hardware stores, it is clear that long-distance companies of every size and heritage ranging from AT&T to the tiniest new entrant are actively striving to win the patronage of customers. Only the most reclusive of hermits -- and apparently the RBOC witnesses -- could miss seeing the intense rivalry and competition occurring in the provision of long-distance services. Competition has led to a proliferation of new services for residential and small business customers, continuous improvement in the technical quality of service, improved

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[27] See http://www.9line.net/ (accessed Oct. 13, 1999).

[28] BellSouth Comments, CC Docket No. 99-249 ¶ 10, 11 (filed Sept. 22, 1999).

[29] GTE Comments, CC Docket No. 99-249, at 9 (filed Sept. 22, 1999).

[30] USTA Comments, CC Docket No. 99-249, at 2-3 (filed Sept. 22, 1999).

customer service, and prices that more accurately reflect cost than at any other time in the post-divestiture era.

The Tacit Collusion Claim

25. BA-NY's economic experts claim that the interexchange industry is not competitive and that a single RBOC can do what the over 600 existing carriers cannot. Put succinctly, the gist of these arguments is that the long distance industry is uncompetitive and effectively cartelized by the big three -- AT&T, MCI (now MCI WorldCom), and Sprint. They assert that only the entry of an RBOC into the long distance market will solve the collusion problem. In other words, one RBOC is worth 600 non-RBOC competitors.

26. But a thorough examination of the structural and behavioral characteristics of the interexchange market reveals that the industry is definitely not conducive to collusion, tacit or otherwise.[31] At least seven structural characteristics act to deter collusive activity: (1) the market is characterized by low barriers to entry; 2) the market is characterized by substantial spare capacity; 3) the market shares of the largest firms are highly disparate; 4) the market is characterized by a relatively complex price structure; 5) the market is characterized by rapid product innovation; 6) the market is characterized by a highly skewed distribution of demand; and 7) the market is characterized by a very large number of competitors.[32]

27. Additionally, an examination of the behavioral characteristics of the industry provides equally compelling evidence that tacit collusion is not present in the interexchange industry. Specifically, at least four aspects of observed conduct and performance in the interexchange marketplace are patently inconsistent with the RBOCs' claim that tacit collusion is occurring in this market: 1) the downward trend in prices (both gross and net of access charges) over the past dozen years; 2) AT&T's market share has exhibited marked instability over time; 3) aggressive advertising and marketing campaigns by the various long-distance firms; and 4) the consistent propensity and willingness of interexchange competitors to expand output.[33]

28. The affidavits of Drs. Taylor and MacAvoy in the instant proceeding offer nothing new to the debate. Professor Paul MacAvoy, for example, presents several familiar arguments seeking to show that the long distance market is not competitive. This analysis, however, suffers from a number of conceptual and empirical problems that invalidate its conclusions. Included among these problems are the following: (1) the analysis assumes that increasing price-cost margins together with falling concentration

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[31] David L. Kaserman and John W. Mayo, "Competition and Asymmetric Regulation in Long-Distance Telecommunications: An Assessment of the Evidence," CommLaw Conspectus: Journal of Communications Law and Policy, Vol. 4, Winter 1996, pp. 1-26.

[32] For a detailed explanation of how these factors act to deter the emergence of collusion, see David L. Kaserman and John W. Mayo, "Competition and Asymmetric Regulation in Long-Distance Telecommunications: An Assessment of the Evidence," CommLaw Conspectus: Journal of Communications Law and Policy, Vol. 4, Winter 1996, pp. 15-20.

[33] Id.

are a sufficient basis for drawing a conclusion of tacit collusion;[34] (2) the analysis performed is on narrow service offerings that do not correspond to the relevant market for drawing market power conclusions;[35] (3) the price data employed to draw conclusions regarding tacit collusion are taken primarily from essentially irrelevant basic service tariffs; and (4) the marginal cost calculations are flawed.

29. Contrary to the claims of Professor MacAvoy, increases in tariffed rates by interexchange carriers do not support the assertion that there is collusion in the long-distance market.[36] In this regard, it is important to examine the issue of pricing more generally.[37] Specifically, as competition has evolved in the interexchange industry, a host of new discount calling plans has emerged that make basic tariffed rates less and less relevant. Whether purchased from AT&T, Sprint, MCI WorldCom or another long-distance carrier, the transaction price faced by customers is likely to be substantially lower than basic tariffed rates. This price-cutting has led the average rate per minute that is actually paid for long-distance service to decline in recent years despite the nominal increases in basic tariffed rates. Thus, while the tariffed rate for basic service for, say, a 10 minute daytime call carried by AT&T is $.28 cents per minute, the latest available FCC data indicate that the realized average revenue per minute (ARPM) for switched interstate calling is less than half that rate, at 11 cents per minute.[38] This suggests that the average effective price reduction is considerably over 50 percent off the basic tariffed rates.

30. Professor MacAvoy criticizes the use of ARPM to measure price changes, preferring tariffed rates. Specifically, he argues that (1) ARPM fails to control for changes in mixes of usage levels, times of day, and so on, and (2) customers who switch to a lower price plan are not receiving a price cut, but are instead merely buying some

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[34] Indeed, if an inverse relationship between market concentration and industry price cost margins were sufficient to draw conclusions regarding tacit collusion, as claimed by Professor MacAvoy, the same analysis would indicate that tacit collusion is present in a number of industries. We have, for instance, observed rising price-cost margins in several 4-digit SIC industries wherein concentration indices were falling over time.

[35] Errors in market definition are a fundamental source of erroneous conclusions in market power analysis. Thus, it is far from inconsequential that Professor MacAvoy's focus on *basic residential* service fails to acknowledge, for example, the market broadening property brought about by supply-side substitutability among the various interexchange telecommunications services. The proper market definition, as acknowledged by the FCC, includes *all* interexchange services. "[T]he Commission has repeatedly found that 'interstate domestic, interexchange services', is the relevant market for assessing an interexchange carrier's market power ...." See Non-Dominant Carrier Order ¶ 20 .

[36] Indeed, if the simple act of raising price provided proof of tacit collusion, then virtually every market must be subject to such anticompetitive behavior. Prices fall and prices rise in competitive markets every day.

[37] As a technical matter, MacAvoy's analyses utilize several incorrect assumptions in model specification. First, the conjectural variations formulation used implies that the long-distance carriers are irrational. Second, the MacAvoy model is a static one, inapplicable to time series analyses. Finally, MacAvoy's approach allows no scope for advertising or sales promotion despite the importance of these activities to the subject at hand. Consequently, little confidence can be placed in his results.

[38] Both the tariffed and actual prices are taken from Federal Communications Commission, Trends in Telephone Service (Sept. 1999). The tariffed rate is as of July 1999, for a call of between 431 and 935 miles and is equally weighted by residential and business tariffs. The time-of-calling weights applied to the tariffed rates correspond to those used in Professor MacAvoy's Affidavit, Appendix A, Table A, while the average revenue per minute data are as reported by the FCC (Trends, Table 14.5). This analysis contradicts claims by the RBOCs that discounts are small and inapplicable to most consumers.

new product. Professor MacAvoy's position on this matter, however, is untenable. For example, suppose the IXCs established a new tariff of 2¢/minute, and everyone switched to this new plan, but basic rates remained the same. By Professor MacAvoy's logic, this would not be a price cut, but rather the introduction of a new service. This conclusion is simply not credible.

31. The theoretical framework employed by Professor MacAvoy, which relies upon a static, conjectural variations-based model is dubious, at best. As Professors Sibley and Weisman stated in their affidavit for SBC, it is incorrect to rely upon a "now-discredited conjectural variations model."[39] Perhaps more seriously, the framework used by Professor MacAvoy is based on a Cournot model in which goods are identical, there is centralized market clearing, and all sales occur at a single point in time. The equilibrium condition obtained from this analysis is then used to derive conclusions about the evolution of price-cost margins that are *beyond the scope* of the model. For example, in such an analysis, there is no mechanism that can cause market shares to change.

32. The highly improbable character of this analysis is apparent when one applies the model's predictions to individual firms. According to the model on which MacAvoy relies, we have:

$$\frac{p-c}{p} = \frac{s_i(1+v_i)}{\eta}$$

where p is price, c is marginal cost, s_i and v_i are firm i's market share and conjectural variation and η is the own-price elasticity of market demand. As noted by Professor MacAvoy, v_i equals -1 for a perfectly competitive market and 0 for monopoly. Yet, given the shares and margins for AT&T and MCI WorldCom used by Professor MacAvoy and an elasticity of demand of -0.7, we obtain the very curious conclusion that AT&T has a conjectural variation (in January, 1999) of -2.356 for standard rate service. At the same time, MCI WorldCom has a conjectural variation of -3.278 for standard service. These nonsensical results are well below the theoretical bound of -1. The use of a single, homogenous good, static, conjectural variations model is not realistic, and the above calculations illustrate that fact.

33. Dr. Taylor takes a somewhat different tack, by charging that the interLATA market evidences price leadership and, therefore, must not be competitive. It is important to recognize, however, that prices charged by rival firms routinely move together in competitive markets. Indeed, a high correlation among the prices charged by rivals is an indication that consumers view the services provided by these firms as close substitutes. Thus, the claim of "price leadership" requires far more specification if one is to take seriously the allegation that contemporaneous (or nearly contemporaneous) price changes signal anything less than competitive performance. In this regard, the RBOCs' position that the correlation of price movements is evidence of anticompetitive behavior is, at

[39] Joint Affidavit of David S. Sibley and Dennis L. Weisman on Behalf of Southwestern Bell Long Distance, CC Docket No. 97-121, ¶ 29 (May 17, 1997).

best, a poorly thought out rush to judgment.[40] Indeed, the United States Supreme Court has held that a pattern in which one firm calls out a price while others (in a temporal sense) follow that price does not constitute evidence of anticompetitive behavior:

> ... the most that can be said as to this, is that many of its competitors have been accustomed, independently and as a matter of business expediency, to follow approximately the prices at which it has sold . . . [its products]. . . . *And the fact that competitors may see proper, in the exercise of their own judgment, to follow the prices of another manufacturer, does not establish any suppression of competition or show any sinister domination.*
>
> United States v. International Harvester Co., 274 U.S. 693, 708-09 (1927) (emphasis added).

34. Furthermore, as we discussed earlier, numerous structural and behavioral factors in the interexchange industry indicate that collusive price leadership is not present in this industry.[41] Thus, the RBOCs' claims that the observed "price leadership" (really, just a correlation of price movements over time) is inconsistent with competitive market performance is, at best, mistaken, and, at worst, an intentional attempt to mislead policymakers.

35. At the heart of the tale spun by Drs. MacAvoy and Taylor is the implicit, if not explicit, argument that there are enormous profits to be had in the long distance marketplace due to an unwillingness of the more than 600 firms to compete vigorously for those profits. If this were true, it would seem that BA-NY would pursue such profits without hesitation. It would certainly be difficult to explain to Bell Atlantic shareholders why the company's management had decided to forgo the profits from serving, say, 75 percent of this profitable market. But BA-NY has done exactly that. Bell Atlantic serves only about 25 percent of the nation's switched access lines (in-region), giving it unimpeded access to the long distance profits of the 75 percent of the nation's lines outside of its own region. Yet, despite this access to a large (out-of-region) portion of the long distance market Bell Atlantic has chosen not to pursue these "exploited" long distance customers. Of course, this incongruence between Bell Atlantic's rhetoric and its own behavior belies the credibility of its argument that there is a failure of competition in the long distance marketplace today.

Conclusion

36. When properly examined, the evidence regarding the interexchange industry indicates that long-distance firms are engaged in intense rivalry to attract each other's customers, and consumers are reaping the benefits of the competitive process through the availability of increasingly attractive prices. Taken together, this body of evidence unequivocally demonstrates the presence of effective competition in this market.

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[40] See, e.g., the discussion of "low-cost price leadership" found in David L. Kaserman and John W. Mayo, Government and Business: The Economics of Antitrust and Regulation, Dryden Press, 1995, pp. 199-200.

[41] Indeed, given the numerous times that product innovations, marketing and promotional plans have been initiated by someone other than AT&T, it is not at all clear that AT&T is most accurately described as the industry "leader." For instance, as acknowledged by Professor MacAvoy (p. 91), the most recent round of pricing cuts was initiated by Sprint with its "Nickel Nights" plan, which was followed chronologically by cuts from MCI WorldCom and then AT&T.

Consumers have benefited tremendously from declining prices, expanded service offerings, and increased choices resulting from the intense rivalry that permeates that market. The long distance market is effectively competitive.