DEBRA J. ARON

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EDUCATION

Ph.D., Economics, UNIVERSITY OF CHICAGO, Chicago, IL, 1985

A.B. (summa cum laude), Economics, UNIVERSITY OF CALIFORNIA AT LOS ANGELES, Los Angeles, CA, 1979

PRESENT POSITIONS

LECG, LLC Evanston, IL, 1995-present <u>Director</u> <u>Office Director, LECG Evanston</u> NORTHWESTERN UNIVERSITY, Communication Systems Program, School of Speech, Evanston, IL, 2000-present <u>Adjunct Associate Professor of Communication Studies</u>

ACADEMIC AND PROFESSIONAL EXPERIENCE

NORTHWESTERN UNIVERSITY, J. L. Kellogg Graduate School of Management, Evanston, IL, 1985–1995 <u>Visiting Assistant Professor of Managerial Economics</u>, 1993-1995 Assistant Professor of Managerial Economics, 1985-1992

HOOVER INSTITUTION, 1992-1993 National Fellow

UNIVERSITY OF CHICAGO, Department of Economics, Chicago, IL, 1983–1984 Instructor CIVIL AERONAUTICS BOARD, Office of Economic Analysis, Washington, DC, Summers, 1979 and 1980 <u>Staff Economist</u>

HONORS & AWARDS

Guthman Research Chair, Kellogg Graduate School of Management, Northwestern University, Summer 1994.

Hoover National Fellowship, Hoover Institution, 1992-1993.

Faculty Research Fellow, National Bureau of Economic Research, 1987-1990.

Pepsico Research Chair, Northwestern University, 1990.

Kellogg Research Professorship, Northwestern University, 1989.

National Science Foundation Research Grant, 1987-1988.

Buchanan Chair, Kellogg Graduate School of Management, Northwestern University, 1987-1988.

IBM Chair, Kellogg Graduate School of Management, Northwestern University, 1986-1987.

RESEARCH AREAS

Industrial organization, antitrust economics, pricing, business strategy, information industries, network industries, telecommunications policy, theory of the firm, compensation and incentives.

TEACHING

Courses taught: Pricing Strategy; Information, Communication, and Competition (strategy and competition in communications industries); Intermediate Microeconomic Theory; Managerial Economics (microeconomic theory as applied to business strategy and decision making) at the M.B.A. level, The Economics of Information at the Ph.D. level.

Also qualified to teach: graduate Microeconomic Theory; Industrial Organization and Labor Economics; the Economics of Personnel; Public Finance; Applied Game Theory.

PUBLICATIONS AND WORKING PAPERS

- 1) "Economic Theories of Tying and Foreclosure Applied—And Not Applied—in *Microsoft*," with Steven S. Wildman, *Antitrust*, vol. 14, no. 1, 1999, pp.48-52.
- 2) "Modifications at HHIs for Vertical Supply Relationships" with Wenqing Li and James Langenfeld, White Paper submitted to European Commission, February 2000.

- "Effecting a Price Squeeze Through Bundled Pricing," with Steven S. Wildman, in *Competition, Regulation, and Convergence: Current Trends in Telecommunications Policy Research*, Gillett and Vogelsang, Eds., (New Jersey: Lawrence Erlbaum Associates, Inc.) 1999, pp. 1-17.
- 4) "Worldwide Wait? How the Telecom Act's Unbundling Requirements Slow the Development of the Network Infrastructure," with Ken Dunmore and Frank Pampush, *Industrial and Corporate Change*," vol.7, no. 4, 1998, pp. 615-621.
- 5) "The Pricing of Customer Access in Telecommunications," with Steven S. Wildman, *Industrial and Corporate Change*, vol. 5, no. 4, 1996, pp. 1029-1047.
- "Bonus and Penalty Schemes as Equilibrium Incentive Devices, With Application to Manufacturing Systems," with Pau Olivella, *Journal of Law, Economics, and Organization*, 10, Spring 1994, pp. 1-34.
- 7) "Diversification as a Strategic Preemptive Weapon," *Journal of Economics and Management Strategy*, 2, Spring 1993, pp. 41-70.
- 8) "Using the Capital Market as a Monitor: Corporate Spin-offs in an Agency Framework," *RAND Journal of Economics*, 22, Winter 1991, pp. 505-518.
- 9) "Firm Organization and the Economic Approach to Personnel Management, *American Economic Review*, vol. 80, no. 2, May 1990, pp. 23-27.
- 10) "The Introduction of New Products," with Edward P. Lazear, *American Economic Review*, vol. 80, no. 2, May 1990, pp. 421-426.
- 11) "Ability, Moral Hazard, Firm Size, and Diversification," *RAND Journal of Economics*, 19, Spring 1988, pp. 72-87.
- 12) "Worker Reputation and Productivity Incentives," *Journal of Labor Economics*, vol. 5, no. 4, October 1987, part 2, pp. S87-S106.
- 13) "The Role of Managerial Ability and Moral Hazard in the Determination of Firm Size, Growth and Diversification," Ph.D. Dissertation, University of Chicago, August 1985.

REPRESENTATIVE PRESENTATIONS

"Trends in Voice and Broadband Competition in Telecommunications Markets: Markets, Strategies, and Regulation," 82nd Annual Convention of the Indiana Telecommunications Association, Lexington, Kentucky, June 2002.

"Broadband Deployment in the United States," Emerging Opportunities in Broadband Symposium, Northwestern University, Evanston, Illinois, December 2001.

"Local Competition in Illinois," Illinois Telecommunications Symposium, Northwestern University, Evanston, Illinois, December 2000.

"Licensing and Access to Innovations in Telecommunications and Information Services," Telecommunications Policy Research Conference, Alexandria, Virginia, September, 2000.

"Effecting a Price Squeeze Through Bundled Pricing," Federal Communications Commission, Washington, D.C., May 1999.

"Competitive and Strategic Use of Optional Calling Plans and Volume Pricing Plans," The Institute for International Research Conference for Competitive Pricing of Telecommunications Services, Chicago, Illinois, July 1998.

"Effecting a Price Squeeze Through Bundled Pricing," Consortium for Research in Telecommunications Policy Conference, University of Michigan, Ann Arbor, Michigan, June 1998.

"The Pricing of Customer Access in Telecommunications," Conference on Public Policy and Corporate Strategy for the Information Economy, Evanston, Illinois, May 1996.

"Diversification as a Strategic Preemptive Weapon," University of Iowa, Iowa City, Iowa, February 1994.

"Diversification as a Strategic Preemptive Weapon, "University of Buffalo, Buffalo, New York, February 1994.

"Diversification as a Strategic Preemptive Weapon," University of Southern California, Los Angeles, California, December 1993.

"Strategic Pricing" Winter Meetings of the Econometric Society, Discussant, Anaheim, California, December 1993.

"Innovation, Imitation, Productive Differentiation, and the Value of Information in New Markets," Michigan State University, Lansing, Michigan, November 1993.

"Diversification as a Strategic Preemptive Weapon," Rutgers University, New Brunswick, New Jersey, November 1993.

"Diversification as a Strategic Preemptive Weapon," University of California at Santa Cruz, Santa Cruz, California, November 1993.

"Diversification as a Strategic Preemptive Weapon," Graduate School of Business, Stanford University, Stanford, California, November. 1993.

"Innovation, Imitation, Productive Differentiation, and the Value of Information in New Markets," Purdue University, West Lafayette, Indiana, September 1993.

"Innovation, Imitation, Productive Differentiation, and the Value of Information in New Markets," Summer Meetings of the Econometric Society, Boston University, Boston, Massachusetts, June 1993.

"Innovation, Imitation, Productive Differentiation, and the Value of Information in New Markets," University of California, Department of Economics, Berkeley, California, May 1993.

"Innovation, Imitation, Productive Differentiation, and the Value of Information in New Markets," Stanford University, Graduate School of Business, Stanford, California, May 1993.

"Diversification as a Strategic Preemptive Weapon," Stanford University, Graduate School of Business, Stanford, California, April 1993.

"Innovation, Imitation, Productive Differentiation, and the Value of Information in New Markets," Hoover Institution, Stanford, California, April 1993.

"Innovation, Imitation, Productive Differentiation, and the Value of Information in New Markets," University of California, Graduate School of Business, Berkeley, California, February 1993.

"Innovation, Imitation, Productive Differentiation, and the Value of Information in New Markets," Stanford University, Department of Economics, Stanford, California, February 1993.

"Innovation, Imitation, Productive Differentiation, and the Value of Information in New Markets," Hoover Institution, Stanford, California, January 1993.

"Pricing Strategies," Session Discussant, 1992 North American Winter Meeting of The Econometric Society, Anaheim, California, January 1992.

"Diversification as a Strategic Preemptive Weapon," University of Toronto, Toronto, Canada, November 1991.

"Diversification as a Strategic Preemptive Weapon," Queen's University, Kingston, Ontario, Canada, November 1991.

"Bonuses and Penalties as Equilibrium Incentive Devices, with Application to Manufacturing Systems," University of Chicago, Chicago, Illinois, June 1991.

"The Timing of Entry into New Markets," Summer Meetings of the Econometric Society, University of Pennsylvania, Philadelphia, Pennsylvania, June 1991.

"Innovation, Imitation, Productive Differentiation, and the Value of Information in New Markets," University of Chicago, Chicago, Illinois, April 1991.

"Bonuses and Penalties as Equilibrium Incentive Devices, with Application to Manufacturing Systems," Winter Meetings of the Econometric Society, Washington, D.C., December 1990.

"Corporate Spin-offs in an Agency Framework," University of Washington, Seattle, Washington, October 1990.

"The Timing of Entry Into New Markets," University of British Columbia, Vancouver, British Columbia, October 1990.

"Corporate Spin-offs in an Agency Framework," Texas A&M University, College Station, Texas, April 1990.

"Firm Organization and the Economic Approach to Personnel Management," Winter Meetings of the American Economic Association, New York, New York, Dec. 1989.

"Corporate Spin-offs in an Agency Framework," Western Finance Association Meetings, Seattle, Washington, June 1989.

"Corporate Spin-offs in an Agency Framework," University of Rochester, Rochester, New York, May 1989.

"Corporate Spin-offs in an Agency Framework," North American Summer Meetings of the Econometric Society, Minneapolis, Minnesota, June 1988.

"Competition, Relativism, and Market Choice," North American Summer Meetings of the Econometric Society, Berkeley, California, June 1987.

"Competition, Relativism, and Market Choice," University of Chicago, Chicago, Illinois, April 1987.

"Rate Reform and Competition in Electric Power," Discussant, Conference on Competitive Issues in Electric Power, Northwestern University, Evanston, Illinois, March 1987.

"Worker Reputation and Productivity Incentives," New Economics of Personnel Conference, Arizona State University, Tempe, Arizona, April 1986.

"Ability, Moral Hazard, and Firm Diversification," Various Universities, 1985, 1994, including Yale University, University of Rochester, Stanford University, University of Minnesota, California Institute of Technology, Duke University, Northwestern University, Brown University, Harvard University, University of California - Los Angeles, University of Pennsylvania.

ACADEMIC JOURNAL REFEREEING

Dr. Aron has served as a referee for *The Rand Journal of Economics, the Journal of Political Economy, the Journal of Finance, the American Economic Review, the Quarterly Journal of Economics, the Journal of Industrial Economics, the Journal of Economics and Business, the Journal of Economic Theory, the Journal of Labor Economics, the Review of Industrial Organization, the European Economic Review, the Journal of Economics and Management Strategy, the International Review of Economics and Business, the Quarterly Review of Economics and Business, Management Science, the Journal of Public Economics, the Journal of Institutional and Theoretical Economics,* and the National Science Foundation.

SELECTED TESTIMONY AND HEARINGS

For a large local exchange carrier, *expert testimony pertaining to allegations of anticompetitive effects of long term contracts*, 2002.

For a large local exchange carrier, White Paper pertaining to the competitive effects of "winback" and "retention" pricing, 2002.

For a large local exchange carrier, *expert affidavit pertaining to irreparable harm caused if court declined to grant a stay of disputed performance remedy plan*, 2001.

For a large local exchange carrier, *expert testimony pertaining to the economic viability of constructing and provisioning ADSL services, including market definition and examination of competitive conditions in broadband markets, 2001.*

For a small long distance carrier, *expert testimony pertaining to price squeeze allegations in the long distance market*, 2001.

For a large local exchange carrier, *expert testimony pertaining to the proper economic principles governing unbundling obligations*, 2001.

For a large local exchange carrier, *empirical examination and evaluation of competitive conditions in the local exchange market in a U.S. state*, 2001.

For a major manufacturer of mobile wireless communications equipment and for a mobile wireless communications provider, as defendants in a class action lawsuit, *expert affidavit examining the economic impediments to class certification, focusing on the determinants of price in the relevant equipment markets*, April 2001.

For a large local exchange carrier, written testimony in the Illinois Commerce Commission's Investigation Into Certain Payphone Issues, *examined the economic and public policy issues pertaining to pricing of access lines for independent pay telephone providers*, April 2001.

For a large local exchange carrier, in the matter of the Illinois Public Utility Commission's Investigation Into Tariff Providing Unbundled Local Switching And Shared Transport, *provided written testimony regarding economic antitrust perspectives on obligations of firms to affirmatively help their competitors, and related public policy issues*, April 2001.

For a large local exchange carrier, in the matter of PrimeCo Communications Inc. v. Ameritech Illinois, Testimony of Debra J. Aron, *provided testimony as to the extent of competition in the Chicago area for high capacity (broadband) wireless and wireline dedicated access services; and as to the economic principles pertaining to the role of the courts in enforcing contracts*, January 2001.

For a large local exchange carrier, Declaration of Debra J. Aron, *analyzed proposed regulation aimed at preventing incumbents from executing a price squeeze; developed a framework for evaluating claims of a price squeeze consistent with antitrust principles of predation*, August 2000.

For a large local exchange carrier: written and oral testimony in Illinois and Michigan in various arbitration matters pertaining to the proper compensation for the use by competitors of client's facilities for foreign exchange services, 2000.

For a large local exchange carrier: written and oral testimony regarding the proper economic interpretation of the standards for declaring a service competitive under the Illinois Public Utilities Act, and quantification of the extent of competition in relevant Illinois markets: *including discussion of market definition,; the relevance of entry conditions; the relevance of resale competition and analysis of various resale entry strategies; the interdependence of resale and facilities-based entry strategies; and implementation of a new technology-based method of measuring market participation, 1999-2000.*

For a large local exchange carrier: affidavit submitted jointly with Robert G. Harris to the Federal Communications Commission in the matter of "unbundled network elements" and commenting on the proper interpretation of the "Necessary and Impair" standard, *including discussion of entry conditions and the business-case approach to valuation of an entry strategy*, April 1999; reply affidavit May 1999.

For a large local exchange carrier: "An Analysis of Market Power in the Provision of High-Capacity Access in the Chicago LATA," submitted to the Federal Communications Commission, *including an analysis of the US DOJ merger guidelines and their applicability to regulatory relief in a regulated market, as well as extensive empirical modeling of the costs and business case for network buildout of high capacity facilities,* February 1999.

For a large local exchange carrier: "Proper Recovery of Incremental Signaling System 7 (SS7) Costs for Local Number Portability," White Paper submitted to the Federal Communications Commission, April 1999.

Written and oral testimony on behalf of a large local exchange carrier regarding the economics of resale of local exchange services; testimony on behalf of a large local exchange carrier regarding a new model and methodology for estimating the cost of unbundled local switching; written and oral testimony on behalf of a large local exchange carrier regarding the provision of intraLATA toll service to customers of competing basic local exchange service providers; written and oral testimony on behalf of a large local exchange carrier regarding the determination of proper forward looking costs for purposes of determining Federal Universal Service support; 1998.

For a large local exchange carrier: affidavit submitted to the Federal Communications Commission in the matter of "Telephone Number Portability," regarding competitively neutral cost recovery for shared and common costs for permanent local number portability.

For a large local exchange carrier: affidavit submitted to the Federal Communications Commission in the matter "Application by Ameritech Michigan for Authorization under Section 271 of the Communications Act to Provide In-Region, InterLATA Service in the State of Michigan."

Written and oral testimony on behalf of a large local exchange carrier in state arbitration proceedings pursuant to the Telecommunications Act of 1996, regarding the issue of limitations of liability in provision of telecommunications services; testimony on behalf of a large local exchange carrier in five states in proceedings before the state regulatory commissions to determine economic costs of providing unbundled network elements to competitors under the FCC's "TELRIC" cost theory pursuant to the Telecommunications Act of 1996; 1996-1997.

For a large local exchange carrier: testimony submitted to Michigan Public Service Commission on efficient pricing of local exchange services; testimony submitted to Michigan Public Service Commission on "just and reasonable" price increases in local exchange services; 1995.

OTHER ENGAGEMENTS

Dr. Aron has been engaged for a variety of clients on matters pertaining to market definition, pricing strategy, market power, merger analysis, vertical constraints, regulatory ratemaking, and entry analysis, for clients in various media, consumer, and industrial markets, including baking, aerospace, and pharmaceuticals.

PROFESSIONAL ORGANIZATIONS

Member, American Economic Association Member, Econometric Society Associate Member, American Bar Association

PERSONAL INFORMATION

Born: March 15, 1957 Los Angeles, CA

November 2001