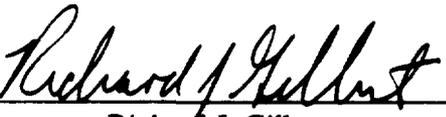


the estimation of market shares. Even if market shares are known at present, buyers could have private deals in the making that would drastically alter existing competitive relationships. To count only those services purchased by IXC's from either LECs or CAPs dramatically overstates the market share of LECs. Moreover, CAPs and IXC's have very strong incentives to keep such information private, for it has great strategic value in the regulatory process.

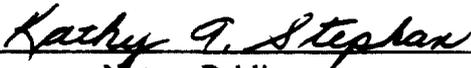
37. In summary, if the Commission wants to promote competition and allow customers to enjoy the full benefits of competition, it should allow LECs to use addressability and other indicators of competitive alternatives when seeking to remove a service from price cap regulation. Unnecessary restrictions on pricing flexibility should be removed and rules and procedures that delay the introduction of new services should be eliminated.

AFFIDAVIT OF RICHARD J. GILBERT

I, Richard J. Gilbert, being duly sworn, depose and say that the foregoing testimony is true and correct to the best of my knowledge and belief.


Richard J. Gilbert

Subscribed and sworn to before me this 7th day of December, 1995.


Notary Public

My Commission Expires

4-11-97

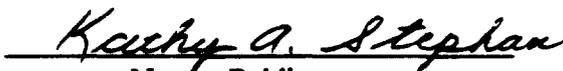


AFFIDAVIT OF ROBERT G. HARRIS

I, Robert G. Harris, being duly sworn, depose and say that the foregoing testimony is true and correct to the best of my knowledge and belief.


Robert G. Harris

Subscribed and sworn to before me this 7th day of December, 1995.


Notary Public

My Commission Expires

4-11-97



September 1995

CURRICULUM VITAE

Richard J. Gilbert

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University of California
Berkeley, CA 94720
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Berkeley, CA 94705
(510) 841-0990 tel
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- Background** Born January 14, 1945, Married, two children, U.S. citizen
- Education** B.S., Cornell University, Electrical Engineering (with honors),
1966
M.S., Cornell University, Electrical Engineering, 1967
M.A., Stanford University, Economics, 1975
Ph.D., Stanford University, Engineering-Economic Systems,
1976
- Present Position** Professor of Economics, University of California, Berkeley, 1983-
present
Professor of Business Administration (by Courtesy), University
of California, Berkeley, 1990-present
- Previous Positions** Deputy Assistant Attorney General for Economics, Antitrust
Division, U.S. Department of Justice, 1993-1995

Director, University of California Energy Institute, 1984-1993

Associate Professor of Engineering-Economic Systems (with tenure), Stanford University, 1982-1983

Associate Professor of Economics (with tenure), University of California, Berkeley, 1979-1983

Assistant Professor of Economics, University of California, Berkeley, 1976-1979

Research Associate, Department of Economics and Institute for Energy Studies, Stanford University, 1975-1976

U.S. Navy, Lieutenant, senior grade, 1967-71

Fellowships

Visiting Fellow, Churchill College, University of Cambridge, 1979

Visiting Fellow, Nuffield College, University of Oxford, 1979

Fulbright Scholar, South America, 1989

Professional Activities

President, *Industrial Organization Society*, 1993-1994

Associate Editor, *Journal of Economic Theory*, 1983-1989

Associate Editor, *Journal of Industrial Economics*, 1990-1993

Associate Editor, *Review of Industrial Organization*, 1990-1993

Associate Editor, *Energy Journal*, 1992-1993

Vice-Chair, American Bar Association Antitrust Economics Committee, 1993-present

Co-Director, Program on Workable Energy Regulation, 1990-1993.

Review Panel, National Science Foundation, Economics Program, 1985

Review Panel, National Science Foundation, Regulation Program, 1985-1986

Conference Organizer: Post-Chicago Economics Conference, Washington, D.C., May 26-27, 1994.

Conference Organizer: International Comparisons of Electricity Regulation, Toulouse, May 1993.

Conference Organizer: Economics of Energy Conservation, Berkeley, June 1992.

Conference Organizer: Telecommunications Policy Research Conference, 1988, 1989

Conference Organizer: Developments in Electricity Regulation, Berkeley, June 1987.

Session Organizer: 1987 Meeting of the Econometrics Society, 1994 and 1984 Meetings of the American Economic Association, 1983 Meetings of ORSA/TIMS Associations.

Advisor to U.S. Department of Energy, Energy Assessment Panel on Energy Security, 1992

Referee for: *American Economic Review*, *Econometrica*, *International Economic Review*, *Journal of Political Economy*, *Quarterly Journal of Economics*, *Rand Journal*, *Review of Economic Studies*. Occasional referee for other journals

Member of American Economic Association, Econometric Society, Sigma Xi, Tau Beta Pi, Eta Kappa Nu. Listed in *Who's Who*.

PUBLICATIONS

ARTICLES

"Defining the Intersection of Intellectual Property and the Antitrust Laws: The 1995 Antitrust Guidelines for the Licensing of Intellectual Property," *Antitrust*, vol. 9, issue 3, Summer, 1995.

"Regulating Complementary Products: A Comparative Institutional Analysis." with Michael Riordan. **Rand Journal of Economics**, vol. 26, no. 2, Summer, 1995. pp. 243-256.

"Incorporating Dynamic Efficiency Concerns in Merger Analysis: The Use of Innovation Markets," with Steven Sunshine, **Antitrust Law Journal**, v. 63, no. 2, Winter 1995. pp. 569-602.

"The Dynamic Efficiency of Regulatory Constitutions," with David Newbery, **Rand Journal of Economics**, vol. 25, no. 4, Winter, 1994, pp. 538-554.

"A Review and Analysis of Utility Conservation Incentive Programs, with Steven Stoft, **The Yale Journal on Regulation**, Winter, 1994, pp. 1-42.

"Coordination in the Wholesale Market: Where does it Work?," with Edward Kahn and Matthew White, **The Electricity Journal**, vol. 6, no. 8, October 1993, pp. 51-59.

"Uncle Sam at the Gas Pump: The Causes and Consequences of Gasoline Distribution Regulations," **Regulation**, vol. 16, no. 2, 1993, pp. 63-75.

"Alternative Entry Paths: The Build or Buy Decision," with David Newbery, **Journal of Economics, Management, and Strategy**, Spring, 1992, pp. 129-150.

"Product Line Rivalry with Brand Differentiation," with Carmen Matutes, **The Journal of Industrial Economics**, September, 1993, pp. 223-240.

"Introduction to Symposium on Compatibility: Incentives and Market Structure," **The Journal of Industrial Economics**, March 1992, pp. 1-8.

"Legal and Economic Issues in the Commercialization of New Technology," **Journal of Institutional and Theoretical Economics**, March 1991. pp. 155-181.

"Multiproduct Competition," with Carmen Matutes, *Annales d'Economie et de Statistique*, vol. 18, April/June 1990, pp. 151-163.

"Optimal Patent Length and Breadth," with C. Shapiro, *Rand Journal of Economics*, vol. 21, no. 1, Spring 1990, pp. 106-112.

"The Role of Potential Competition in Industrial Organization," *Journal of Economic Perspectives*, vol. 3, No. 3, Summer 1989, pp. 107-127. Reprinted in Bonanno, G. and D. Brandolini (eds.), *Industrial Structure in the New Industrial Economics*, Clarendon Press, Oxford, 1990, pp. 38-67.

"Investment and Coordination in Oligopolistic Industries," with M. Lieberman, *Rand Journal of Economics*, vol. 18, no. 1, Spring 1987, pp. 17-33.

"Comment on Levin, R., A. Klevorick, R. Nelson, and S. Winter, 'Appropriating the Returns from Industrial Research and Development,'" *Brookings Papers on Economic Activity*, vol. 3, 1987, pp. 821-824.

"Investing Under Regulatory Uncertainty: What to do When the Rules Change," with H. Chao and S. Peck, *Energy Systems and Policy*, vol. 9, no. 4, 1986, pp. 385-396.

"Efficient Pricing During Oil Supply Disruptions," with K. Mork, *Energy Journal*, vol. 7, no. 2, April 1986, pp. 51-68.

"Entry Deterrence and the Free Rider Problem," with X. Vives, *Review of Economic Studies*, vol. LIII(1), no. 172, January 1986, pp. 71-84.

"Competition with Lumpy Investment," with R. Harris, *Rand Journal of Economics*, vol. 15, no. 2, Summer 1984, pp. 197-212.

"Will Oil Markets Tighten Again? A Survey of Policies to Manage Possible Oil Supply Disruptions." with K. Mork, **Journal of Policy Modelling**, vol. 6, no. 1, 1984, pp. 111-142.

"Customer and Investor Evaluations of Power Technologies: Conflicts and Common Grounds." with H. Chao and S. Peck, **Public Utilities Fortnightly**, vol. 113, no. 9, April 26, 1984, pp. 36-41.

"Preemptive Patenting and the Persistence of Monopoly: Reply." with D. Newbery, **American Economic Review**, vol. 74, no. 1, March 1984, pp. 251-253.

"Uncertain Innovation and the Persistence of Monopoly: Comment," with D. Newbery, **American Economic Review**, vol. 74, no. 1, March 1984, pp. 238-242.

"Strategic Considerations in Invention and Innovation: The Case of Natural Resources, with P. Dasgupta and J. Stiglitz, **Econometrica**, vol. 51, no. 5, September 1983, pp. 1439-1448. Reprinted in Binmore, K. and P. Dasgupta (eds.), **Economic Organizations as Games**, Basil Blackwell.

"Preemption, Leapfrogging and Competition in Patent Races," with D. Fudenberg, J. Stiglitz, and J. Tirole, **European Economic Review**, vol. 22, no. 1, June 1983, pp. 3-32.

"Incentives for Technical Change under Alternative Market Structures: The Case of Natural Resources," with P. Dasgupta and J. Stiglitz, **Review of Economic Studies**, vol. 49(4), no. 158, October 1982, pp. 567-582.

"Preemptive Patenting and the Persistence of Monopoly," with D. Newbery, **American Economic Review**, vol. 72, no. 2, June 1982, pp. 514-526.

"Investment Decisions with Economies of Scale and Learning," with R. Harris, **American Economic Review, Papers and Proceedings**, vol. 71, no. 2, May 1981, pp. 172-177.

"Reducing Uranium Resource Uncertainty: Is it Worth the Cost?" with R. Richels, **Resources and Energy**, vol. 3, 1981, pp. 13-37.

"Optimal Depletion of an Uncertain Stock." **Review of Economic Studies**, vol. 46, no. 142, January 1979, pp. 47-58.

"An Overview of the Economic Theory of Uncertainty and Its Implications for Energy Supply," with D. Newbery and J. Stiglitz, **Electric Power Research Institute Technical Report**, January 1978.

"Dominant Firm Pricing with Exhaustible Resources," **Bell Journal of Economics**, Autumn, vol. 9, no. 2, 1978, pp. 385-395.

"Factor Price Stabilization with Flexible Production," **Annals of Economic and Social Measurement**, vol. 5, no. 5, 1978, pp. 521-533.

"The Effects of Risk on Prices and Quantities of Energy Supplies," with J. Stiglitz, **Electric Power Research Institute Technical Report**, in four volumes, May 1978.

"Potential Competition and the Monopoly Price of an Exhaustible Resource," with S. Goldman, **Proceedings of the Lawrence Symposium on Systems and Decision Sciences**, October 1977, pp. 205-207; also published in **Journal of Economic Theory**, vol. 17, no. 2, April 1978, pp. 319-331.

"Resource Extraction with Differential Information," **American Economic Review**, Papers and Proceedings, February 1977, pp. 250-254.

"LSA Operation of Large Volume Bulk GaAs Samples," **IEEE Transactions on Electron Devices**, vol. Ed-14, no. 9, September 1967.

BOOKS

International Comparisons of Electricity Regulation, with Edward Kahn, forthcoming. Cambridge University Press.

The Environment of Oil. Kluwer Academic Press, 1993.

Regulatory Choices: A Perspective on Developments in Energy Policy, University of California Press, 1991.

Strategic Competition and Barriers to Entry, with P. Geroski and A. Jacquemin, in series vol. 41: **Theory of the Firm and Industrial Organization**, Lesourne, J. and H. Sonnenschein (eds.), **Fundamentals of Pure and Applied Economics**, Harwood Academic Press, 1990.

CHAPTERS IN BOOKS

"On the Delegation of Pricing Authority in Shared ATM Networks," in M. Guerin-Calvert and S. Wildman (eds.), **Electronic Services Networks: A Business and Public Policy Challenge**. Greenwood, Praeger Publishers, New York, 1991.

"Mobility Barriers and the Value of Incumbency," Chapter 8 in Schmalensee, R. and R. Willig (eds.), **Handbook of Industrial Organization**, North-Holland, 1989.

"Forecasting Technology Adoption with an Application to Telecommunications Bypass," with Jeffrey Rohlfs, in de Fontenay, A., M.H. Shugard and D.S. Sibley (eds.), **Telecommunications Demand Modelling: An Integrated View**, North-Holland, Amsterdam, 1990, pp. 399-412.

"Preemptive Competition," in G. F. Mathewson and J. Stiglitz (eds.), **New Directions in the Analysis of Market Structure**. MIT Press, Cambridge; Macmillan Press, London, 1986.

"Coping with Major Oil Disruptions," in J. Plummer, editor, **Energy Vulnerability**, Ballinger Press, 1982.

"Patents, Sleeping Patents, and Entry Deterrence," in S. Salop, editor, **Strategy, Predation, and Antitrust Analysis**, Federal Trade Commission, 1981.

"The Social and Private Value of Exploration Information," in J. Ramsey, editor, **Symposium on the Economics of Exploration for Energy Resources**, Greenwich CT: JAI Press, 1981.

"Search Strategies and Private Incentives for Resource Exploration," in R. Pindyck, editor, **Advances in the Economics of Energy and Resources**, vol. 2, JAI Press, 1979, pp. 149-169.

"The Economic Common Sense of Controlling Nuclear Power Development," with M. Boskin, **The California Nuclear Initiative**, Institute for Energy Studies, Stanford University, 1976; also published in **California Energy: The Economic Factors**, Federal Reserve Bank of San Francisco, 1976.

"A 1.1 GHz Scanned Acoustic Microscope," in **Acoustical Holography**, vol. 4, Plenum Press, 1972.

WORKING PAPERS

"Asymmetric Gasoline Price Responses to Crude Oil Price Changes," with Severin Borenstein and A. Colin Cameron.

"An Economic Model of Rationing," with Paul Klemperer.

INVITED LECTURES AND TESTIMONY (Since 1986)

"Compulsory Licensing: Practical Facts and Economic Musings," American Bar Association Section of Antitrust Law, Annual Meeting, Chicago, IL, August 8, 1995. Also presented at Intellectual Property Antitrust 1995, Practising Law Institute, San Francisco, CA, July 20, 1995.

"Joint Venture Access Rules: An Antitrust Evaluation," American Bar Association Section of Antitrust Law, Annual Meeting, Chicago, IL, August 7, 1995.

"Competition in Electric Power Generation: Market Power and Market Pricing," Harvard Electricity Policy Group, Cambridge, MA, April 18, 1995.

"The 1995 Antitrust Guidelines for the Licensing of Intellectual Property: New Signposts for the Intersection of Intellectual Property and the Antitrust Laws," American Bar Association Section of Antitrust Law Spring Meeting, Washington, D.C., April 4, 1995. Also presented at The Aerospace Industries Association, Washington, D.C., April 20, 1995; The Fordham International Antitrust Conference, New York, NY, April 21, 1995.

"The Antitrust Agenda in the Clinton Administration," American Bar Association Business Law Section, March 24, 1995.

"The New Federal Antitrust Licensing Guidelines: The Music Behind the Words," Price Waterhouse Intellectual Property Conference, Tucson, AZ, February 23, 1995.

"Intellectual Property and the Antitrust Laws: Protecting Innovators and Innovation," Annual Winter Meeting of the Licensing Executives Society, Phoenix, AZ, February 17, 1995. Also presented at The Conference Board, New York, NY, March 2, 1995; The Antitrust '95 Conference, Washington, D.C., March 15, 1995.

"Traditional Antitrust for Non-Traditional Markets: The Case of High-Tech and Intellectual Property," American Bar Association Conference, Washington, D.C., November 17, 1994.

Interview in *Competition*, The Journal of the Antitrust and Trade Regulation Law Section of the State Bar of California, Vol. 4, No. 2, Fall 1994.

"The Antitrust Division Guidelines for Intellectual Property." Licensing Executives Society Annual Meeting, Crystal City, VA, September 12, 1994. Also presented at the Federal Bar Association, Washington, D.C., September 13, 1994; The Golden State Antitrust and Trade Regulation Institute, Los Angeles, CA, October 6, 1994; The Antitrust Conference, Washington, D.C., October 12, 1994; The American Intellectual Property Law Association, Washington, D.C., October 28, 1994; The Intellectual Property Owners Association, Washington, D.C., December 5, 1994; The New York State Bar Association, New York, NY, January 26, 1995.

"The Antitrust Division 1994 Intellectual Property Guidelines." ABA Antitrust Section, Amelia Island, FL, August 11, 1994.

"Emerging Issues in Intellectual Property Antitrust: Recent Antitrust Division Guidelines for Intellectual Property," ABA Annual Meeting, Antitrust Section, New Orleans, LA, August 9, 1994.

"Antitrust Issues Confronting High-Technology Companies in a Coverging Industries Information Age: Mergers, Joint Ventures, Strategic Alliances," ABA Annual Meeting, Antitrust Section, New Orleans, LA, August 8, 1994.

"The Clinton Administration's Views on the Application of the Antitrust Laws to Intellectual Property, Technology Exploitation, and Innovation," Practising Law Institute, San Francisco, CA, July 15, 1994.

"Antitrust Policy in High Technology Markets: A View from the Antitrust Division." D.C. Bar Trade Regulation and Intellectual Property Committees, Washington, D.C., June 15, 1994; also presented at the D.C. Bar Association's Patent, Trademark, Copyright Section Annual Luncheon, Washington, D.C., June 21, 1994.

"The Use of Innovation Markets in Merger Analysis," Conference on Post-Chicago Economics, Washington, D.C., May 26, 1994.

"Antitrust and Regional Electricity Transmission Groups,"
Program on Workable Energy Regulation Annual Conference,
Oakland, CA, May 19, 1994.

"The Antitrust Division Intellectual Property Task Force,"
American Intellectual Property Law Association, Cleveland, OH,
April 22, 1994.

"Antitrust Issues in Patent Infringement Litigation: The
Antitrust Counterattack," ABA Section of Antitrust Law 42nd
Annual Spring Meeting, Washington, D.C., April 7, 1994.

"The Licensing of Intellectual Property," presented at San
Francisco Patent and Trademark Law Association, San
Francisco, CA, March 19, 1994.

"Intellectual Property," Law & Technology Seminar Workshop,
Boalt School of Law, University of California, Berkeley, CA,
March 16, 1994.

Statement submitted to the Subcommittee on Patents,
Copyrights and Trademarks, Committee of the Judiciary,
United States Senate, Concerning the Patent Term Publication
Reform Act of 1994, March 9, 1994.

"Product Distribution Arrangements: Legal and Economic
Issues," The Conference Board, New York, NY, March 3, 1994.

"Intellectual Property Licensing Issues: A View from the
Antitrust Division," Practising Law Institute, New York, NY,
March 1, 1994; also presented at San Francisco, CA, April 8,
1994.

"Mergers in High Technology Industries," presented at the
Antitrust Practice Group, San Francisco, CA, February 4, 1994.

"Antitrust Policy in High Technology Markets," presented at the
conference of the Association of American Law Schools, Orlando,
FL, January 7, 1994.

"An Equilibrium Theory of Rationing," presented at the Federal Trade Commission, Washington, D.C., November 17, 1993.

"Asymmetric Gasoline Price Responses to Crude Oil Price Changes," presented at the NBER Conference on Industrial Organization, Boston, December 6, 1991.

"Do We Need a National Energy Strategy?," invited comments before the Subcommittee on Economic Stabilization, Committee on Banking, Finance and Urban Affairs, U.S. House of Representatives, October 17, 1991.

"Developments in Electricity Regulation," presented at the Latin American Meetings of the Econometrics Society, Montevideo, Uruguay, August 28, 1991.

Comments on the outlook for petroleum prices, KPIX-TV, January 15, 1991.

Comments on the petroleum industry, Public Radio Broadcasting Network, September 3, 1990.

"Developments in Energy Regulation," Conference on Bidding for Electric Power, Davis, Ca, March 1990.

"Pricing Delegation in Shared ATM Networks," Annenberg Conference on Electronic Service Networks, February 1990.

"Outlook for Competition in Electric Power Markets," California Public Utility Commission, February 1990.

"Progress of Deregulation in the U.S.," Montevideo, Uruguay and Buenos Aires, Argentina, August 1989.

"Entry vs. Acquisition," Harvard University, March 1989; also presented at U.S. Department of Justice, October 1988.

"The Role of Potential Competition in Industrial Organization," invited lecture, Bank of San Paolo, Turin, Italy, June 1988.

"Competition in Electric Power Markets," Executive Seminar on Utility Regulation, University of California, Berkeley, June 1988.

"Multiproduct Competition," presented at University of California, April 1988. Also presented at Stanford University, May 1988, University of Florence, June 1988.

"Rate Reform in Competitive Electric Power Markets," presented at the Management Institute of Berlin, May 1987.

"Lectures in the Theory of Economic Regulation," presented at the Autonomous University of Barcelona, May 1987. Also presented at the Stockholm School of Economics, June 1987.

En Banc Testimony before the California Public Utilities Commission on revising rate-making mechanisms for electric utilities, March 1987.

"The Nuclear Industry After Chernobyl," University Explorer Series #860630, June 30, 1986.

INDUSTRY AND LITIGATION EXPERIENCE
(omits activities during tenure as Deputy Assistant Attorney General)

TESTIMONY Semiconductor Markets

Testimony on behalf of Intel Corporation regarding competition in semiconductor markets, 1990-92.

Computer Software

Appearance before the Federal Trade Commission on behalf of IBM and Lotus Corporation, 1995.

Computer Maintenance Services

Testimony on behalf of Datagate and Hy-Point technology regarding market definition, 1988-90.

Computer Reservation Systems

Deposition testimony on behalf of System One regarding competitive impacts of practices in the airline computer reservation systems industry, 1989.

Electric Power Markets

Testimony on behalf of the California Public Utility Commission on the impacts of merger in bulk electric power markets, 1989-90.

Testimony on behalf of the Chevron Corporation regarding California Energy Commission siting policy for self-generation facilities, 1985-87.

Financial Markets

Deposition testimony in a class action regarding competitive impacts of savings and loan lending practices, 1982-84.

Deposition testimony in a class action regarding competitive impacts of bank lending practices, 1986.

Geothermal Industry

Testimony on behalf of R.C. Dick Geothermal involving competitive impacts of geothermal field development, 1983-85.

Intellectual Property

Testimony on behalf of Conlux Corporation regarding damages for infringement of electronic coin vending machines, 1992.

Testimony on behalf of Universal Manufacturing involving antitrust and contractual issues in technology development, 1988-89.

Deposition testimony on behalf of Nicolet regarding damages for infringement of semiconductor inspection equipment patent, 1989.

Petroleum Industry

Testimony on behalf of Chevron Corporation regarding crude oil refinery economics, 1991.

Uranium Industry

Testimony on behalf of Chevron Corporation regarding price formation in the uranium fuels industry, 1987-89.

**INDUSTRY
ANALYSIS**

Energy Markets (general)

Formulation of a framework for the Federal Energy Agency for public policy intervention in exhaustible resource markets, 1975-77.

Examination for the Electric Power Research Institute of the effects of risk on the supply of and demand for energy resources. Development of methods for estimating impacts of risk on energy prices and quantities traded in markets, 1976-78.

Analysis for the World Bank of implications of resource limitations and market organization for the economies of developing countries, 1976-82.

Analysis for the Electric Power Research Institute of alternative strategies to mitigate impacts of energy supply disruptions, 1980-82.

Electric Power

Analysis for the Electric Power Research Institute of utility regulatory policies and their consequences for risk-sharing between stockholders and ratepayers, 1982-86.

Analysis of nuclear plant construction economics, 1983.

Chemicals

Analysis on behalf of the U.S. Federal Trade Commission regarding competitive impacts of investment in the titanium dioxide industry, 1978-79.

Petroleum Markets

Evaluation for British Petroleum, Ltd of the effects of contracting policies on the supply, price, and reliability of energy resources, 1978-80.

Analysis for the Chevron Corporation of crude oil refining and transportation economics, 1984-91.

Telecommunications

Consultant to Bell Telephone Laboratories, Murray Hill, NJ, Summer 1982. Evaluation of rate of adoption of new telecommunications technologies.

Analysis for Bell Atlantic of adoption rates for new technologies and development of strategies for the introduction of new telecommunications products and services, 1985-85.

Other

Analysis of the effects of alternative pricing practices for Automated Teller Machines, 1988.

Analysis of competitive behavior in the wood-pulp processing industry, 1984.

Analysis of pricing practices in the retail recorded media market, 1985.

ROBERT G. HARRIS

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EDUCATION

Ph.D., M.A., UNIVERSITY OF CALIFORNIA, Economics, Berkeley, 1973-77.
Fields of Emphasis: Industrial Organization, Antitrust, Regulation, Public Finance.
M.A., B.A., MICHIGAN STATE UNIVERSITY, Social Science, 1961-65, 1972-73.

PRESENT POSITION

HAAS SCHOOL OF BUSINESS, UNIVERSITY OF CALIFORNIA, Berkeley, 1977 - present.
Associate Professor, Business & Public Policy Group; and
Co-Director, Consortium for Research in Telecommunications Policy and Strategy

LAW & ECONOMICS CONSULTING GROUP, 1993-present.
Principal-in-Charge, Regulation Practice Group

ACADEMIC HONORS AND AWARDS

Industry Expert Panel, Center for Telecommunications Management, University of Southern California
Charles C. Slater Award (outstanding contribution to the Journal of Macromarketing, 1983-86).
Schwabacher Prize (outstanding University service), 1983.
Phi Beta Kappa, 1977.
Alfred P. Sloan Dissertation Fellowship, 1975-77.
Blue Key and Excalibur Honorary Fraternities, 1964-65.
President, All-University Student Government, 1964-65.

TEACHING

Graduate Courses: **Business and Public Policy (MBA Core Course), Competitive Strategies & Public Policies in Telecommunications, Microeconomic Analysis for Managerial Decisions, Industry Analysis and Competitive Strategy, Doctoral Research in Business & Public Policy, Antitrust Law (School of Law, with L. Sullivan), Antitrust Economics (Department of Economics).**

Undergraduate Courses: **Social and Political Environment of Business (Core Course), Economics of Regulated Industries, The Corporation and the Global Economy.**

Executive Education: **Competitive Strategy, Telecommunications Policy and Strategy, Public Policy Strategy, Managing Business-Government Relations.**

PUBLICATIONS

"Competition and Public Policies in Telecommunications: A Survey of U.S. Developments," presented to Conference on Privatization and Deregulation in the US, UK and Japan, Economic Research Institute of the Economic Planning Agency of Japan, Tokyo, 1995; forthcoming in *Conference Proceedings*.

"Competition and Unbundling in Local Telecommunications: Implications for Antitrust Policy," with Gregory L. Rosston and David J. Teece, presented to Telecommunications Policy Research Conference, Solomons, Maryland, October 1994; forthcoming in *Conference Proceedings*. EAL Press.

"State Regulatory Policies and the Telecommunications/Information Infrastructure," presented to Workshop of the National Research Council, Washington D.C., October 1993; *The Changing Nature of Telecommunications/Information Infrastructure*, National Academy Press, 1995.

"Access and Competition Policy in the Deregulated Rail Freight Industry, with Comparisons to Competitive Access Issues in Telecommunications," with Curtis M. Grimm, presented to Columbia Institute for Telecommunications and Informatics, New York, November 1993; forthcoming in *Conference Proceedings*, Oxford University Press.

"R&D Expenditures by the Bell Operating Companies: A Comparative Assessment," invited paper, Twenty-Third Annual Conference, Michigan State University Institute of Public Utilities, Williamsburg, Virginia, December 9, 1991; *MSU Public Utility Conference Proceedings*, 1993.

"Strategic Uses of Regulation: The Case of Line-of-Business Restrictions in Communications," with Robert A. Blau, presented to Academy of Management, Miami, FL, August 14, 1991; *Research in Corporate Social Performance and Policy*, James E. Post (ed.), JAI Press, 1992.

"Structural Adjustment Through Industry Deregulation: The U.S. Experience in Telecommunications and Transportation," invited paper, Pacific Economic Cooperation Conference on Structural Adjustment, Kyoto, Japan, October 11, 1990; published in *PECC Conference Proceedings*, 1991.

"Gaining Competitive Advantage through Strategic Public Policies: The Case of Japanese Telecommunications," invited lecture, National Economists Club, Washington, D.C., June 1988; published in *Economics and the Public Interest*, Richard T. Gill (ed.); Mayfield Publishing: Mountain View, CA, 1991.

"The Political Economy of Regulation: Analysis of Market Failures and Regulatory Responses," with James A. Carman, *Scaling the Corporate Wall: Readings in Social Issues of the Nineties*, S. Prakash Sethi, Paul Steidlmeier and Cecilia M. Falbe (eds.); Prentice-Hall: Englewood Cliffs, 1991.

"Telecommunications Services as a Strategic Industry: Implications for United States Policy," *Competition and the Regulation of Utilities*, Michael A. Crew (ed.), Kluwer Academic Publishers: Boston, 1990.

"Telecommunications as a Strategic Industry: Is There a Threat?" *Powernomics: Economics and Strategy After the Cold War*, Clyde V. Prestowitz, Jr., Ronald Morse and Alan Tonelson (eds.), University Press of America, 11. Reprinted from *Vital Speeches of the Day* LV(12), April 1989. Invited lecture, New York University Symposium on Telecommunications and Economic Development, December 1988.

"New Plans for Joint Ventures," with David C. Mowery, *The American Enterprise*, Sept/Oct 1990.

- "Strategies for Innovation: An Overview," with David C. Mowery, *California Management Review* 32(3), Spring 1990, Co-Editor of Special Issue, "Strategies for Innovation."
- "The Implications of Divestiture and Regulatory Policies for Research, Development and Innovation in the U.S. Telecommunications Industry," presented to Telecommunications Policy Research Conference, September 1988; *Telecommunications Policy*, April 1990.
- "Telecommunications Policies in Japan: Lessons for the U.S.," presented to Advanced Workshop in Regulation and Public Utility Economics, Monterey, CA, July 1988; presented to Telecommunications Policy Research Conference, October 1988; *California Management Review* 31(3), Spring 1989.
- "California Telecommunications Policy for the Twenty-First Century," *Report to the California Economic Development Corporation*, Sacramento, June 1988.
- "A Qualitative Choice Analysis of Rail Routings: Implications for Vertical Foreclosure and Competition Policy," with Curtis A. Grimm, *The Logistics & Transportation Review*, March 1988.
- "Horizontal Merger Policy: Promoting Competition and American Competitiveness," with Lawrence A. Sullivan, *Antitrust Bulletin*, January 1987.
- "The Political Economy of Regulation," with James M. Carman, *Business & Society*, S.P. Sethi and C. Falbe (ed.), Lexington Books: Lexington, 1987.
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