

## **Robert G. Harris**

Senior Consultant

PhD, MA Economics  
University of California, Berkeley

BA, MA Social Science  
Michigan State University

Bob Harris is Professor Emeritus in the Haas School of Business, University of California, Berkeley. At Berkeley, he taught courses in competitive strategy, antitrust and competition policy, and network industries; he also served as Chair of the Business & Public Policy Group. Professor Harris has published more than 50 academic articles and dozens of reports analyzing competition and competitive strategies, competition and regulatory policies, and innovation and the effects of technological change. His current research is focused on the intersection of competition and patent policies, especially in mobile communications.

While on leave from the university, Professor Harris served as Deputy Director for Cost, Economic and Financial Analysis at the Interstate Commerce Commission, where he played a key role in the deregulation of US surface freight transportation. He has made presentations to the US Department of Justice and the Federal Trade Commission regarding mergers and investigations. He has testified before US Congressional Committees on antitrust, regulatory policy, and telecommunications legislation; the Federal Communications Commission; 27 state regulatory commissions; and national regulators in Canada, Australia, and Mexico. He has also testified in state and federal courts on class certification, market definition, competitive effects, liability, and economic damages in cases involving mergers, monopolization and attempted monopolization, price fixing, vertical restraints and dealer terminations, patent infringement and antitrust counterclaims, and commercial litigation in information technologies, telecommunications, transportation and a wide range of other industries.

## **Professional history**

2009–Present      *Senior Consultant*, Charles River Associates

Gave expert testimony before state and federal courts in business litigation regarding antitrust, unfair competition, price-fixing, monopolization, collusion, mergers, contracts, patents, trade secrets, and copyrights.

1977–Present      *Assistant, Associate, Professor Emeritus*, Haas School of Business, University of California, Berkeley (active duty 1977–1997)

Performed academic research on antitrust and regulatory policy, technological innovation, competitive strategy, telecommunications and transportation; published in journals of business, economics, law, management, and public policy.

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- Taught undergraduate, MBA, doctoral, and executive education courses in managerial economics; business and public policy; industry analysis and competitive strategy; antitrust economics; telecommunications economics, policy, and strategy and was highly rated.
- Took on leadership roles in school and campus governance: Chair of the Business and Public Policy Group, Member of the Executive Committee of the School, Chair of the Policy and Planning Committee (elected by faculty), and Director of Executive Education; active service to academic journals, professional societies, and government.
- Gave speeches and presentations to academic societies, university seminars and workshops, professional and trade associations, public policy forums, and corporate conferences.
- 1993–2006      *Founder and Director, LECG, LLP*
- Played key role in growth of LECG, development of professional staff from 50 to 400, and expansion from one to 13 offices worldwide; served on Board of Directors, Executive Committee, and Operations Committee; served as Managing Director of Telecommunications Practice from 1993–2000 (on leave, 2001).
- 2001–2002      *Executive Vice President, Kivera, Inc.*
- Took on leadership role in privately funded software development company offering navigational and location-based services for Internet, intranet, and wireless applications; was responsible for strategic planning, strategic alliances, business development, product management, sales, and marketing.
- 1981–1993      *Founder and President, EconomInc*
- Consulted in telecommunications, transportation, strategy, and public policy; gave expert testimony in regulatory proceedings and litigation.
- 1980–1981      *Deputy Director, Cost, Economic and Financial Analysis, Interstate Commerce Commission*
- Appointed to Senior Executive Service by President Jimmy Carter, 1980; managed staff of 160 analysts; played instrumental role in the implementation of Congressional acts deregulating railroad and motor carrier industries and in development of Uniform Rail Costing System for use in determination of maximum rate reasonableness.

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- 1969–1972      *Founder and CEO, Young America Corporation*
- Raised \$500,000 in venture capital for direct marketing company; published and direct-mailed over one million catalogs; developed network of student sales representative on 250 college campuses.
- 1968–1969      *Founder and Executive Director, Student Coalition for Congressional Action*
- Raised funding; organized college students on more than 800 campuses to lobby Congress to pass the 26th Amendment to the US Constitution, lowering the voting age to 18.
- 1968            *Vice Chairman, Young Citizens for Humphrey-Muskie Presidential Campaign*
- Organized student campaign, candidate rallies, and get-out-the-vote drives.
- 1968            *National Director, Student and Young Adult Campaign, Rockefeller for President Committee*
- Recruited, trained, and supervised staff of 25; organized college and high school students and young adults in more than 1,000 towns and cities.
- 1967–1968      *Special Assistant to the Publisher, TIME magazine*
- Conceived and organized Choice '68, the National Student Presidential Primary, a mock election held on 1,500 college campuses on April 28, 1968, resulting in more than two million students voting.
- 1966–1967      *Vice President of Sales and Marketing, National Student Marketing Corporation*
- Recruited and managed network of student representatives on 500 college campuses, selling specialty products and services.
- 1966            *Special Assistant to Governor Mark O. Hatfield*
- Conducted research and assisted in speech writing; traveled with the Governor to public appearances; organized student involvement in US Senate campaign.
- 1965            *Public Relations Field Representative, General Motors Corporation*
- Delivered high school assembly programs and conducted radio and TV interviews regarding technological innovation and new product development in the automotive industry.

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## Consulting experience

### Consulting to business and industry

- Google: analysis of interplay between competition policy/antitrust law and innovation policy/patent law; analysis of the use/abuse of patent law for anticompetitive purposes.
- AT&T Mobility: analysis of market value of and royalty rates for TTY patents for use in negotiations with patent holder.
- Morgan Stanley: valuation of substantial portfolio of WiMax and LTE patents; strategies for monetizing value of portfolio, including identification of potential strategic buyers of portfolio.
- Pacific Telesis: spin-off of wireless properties into separate entity (AirTouch)—presentation to Board of Directors; business case analysis—sale of public coin-operated communications line of business; development of corporate strategy for offering advanced services.
- Pacific Bell: pricing structure of local exchange and enhanced services; competitive strategy; broadband deployment and entry into video program distribution; new product introduction; development of corporate strategy for changing state regulatory policy from rate of return to price regulation; reciprocal compensation arrangements among local carriers.
- US WEST: analysis of joint venture with Time-Warner Entertainment to form MediaOne: economic and technological analysis of hybrid-fiber-coaxial networks, the emergence of intermodal competition between telephone and cable companies and implications for delivery of Internet access and video programming services; presentation to the Board of Directors.
- US WEST Communications: regulatory policy, costing and pricing principles; local competition and interconnection; development of corporate strategy for changing state regulatory policy from rate of return to price regulation; reciprocal compensation arrangements among local carriers.
- Ameritech: price regulation; local competition policy; development of corporate strategy for changing state regulatory policy from rate of return to price regulation; entry into long distance services; reciprocal compensation arrangements among local carriers; implications of intermodal competition (wireless-wireline; cable-telco).
- VISA (Arthur Andersen): evaluation of Visa's membership policies and potential alternative membership guidelines and their effects on competition in the market for credit card services.
- IBM: implications of networked computing for market structure and competitive dynamics in the property casualty insurance industry.
- Lucent: implications of emerging competition in local exchange telephone services for switching equipment and related equipment markets.
- Nortel: adoption of ISDN; effects of acquisition or sale of assets on competition in advanced telecommunications desktop equipment (smartphones, screen phones).

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- Bell Communications Research: public benefits of basic and applied research and development projects and leading-edge telecommunications technologies.
  - BellSouth Corporation: effects of rate of return versus incentive regulation for adoption of new digital technologies in local telephone service; corporate restructuring of wholesale, retail businesses; implications of the Internet for local and long distance telephone service.
  - BellSouth Communications: development of corporate strategy for changing state regulatory policy from rate of return to price regulation; implications of intermodal competition (wireless-wireline; cable-telco).
  - Twelve Bridges (real estate developer): business case analysis for large-scale residential development; revenue and profit potential of constructing optical fiber network to provide integrated telecommunications, Internet access, and video programming services.
  - TELUS: implications of broadband deployment by local exchange telephone carriers for competition in Canadian market for video program distribution.
  - AGT and Stentor Companies: Canadian interconnection and local competition policy.
  - Iusacell: Mexican interconnection and local competition policy.
  - Southern New England Telephone: development of corporate strategy for changing state regulatory policy from rate of return to price regulation.
  - CNW Railroad: corporate restructuring (joint ventures, merger, acquisitions, and sale of assets).
  - Southern Pacific: route rationalization analysis (economic model for branch line abandonments); pricing of joint trackage rights.
  - American President Companies, LTD: evaluate business practices that could result in litigation or other legal proceedings and develop alternatives.
  - American Presidents Intermodal: economics of joint venture or strategic alliance with major rail carrier; implications of rail mergers for competition in intermodal traffic.

### Consulting to government agencies

- COFETEL: Mexican Commission on Federal Telecommunications: third-party expert (COFETEL constituted a group of three experts, one chosen by Cofetel, one chosen by Telmex, and one chosen by mutual consent of the parties to determine the price cap system for the basket of controlled services applied to Telmex during the 2003–2006 period).
- Economic Planning Agency, Japan: comparative analysis of telecommunications policy reforms in Japan, USA, and UK.
- California Corporation for Economic Development: analysis of benefits of regulatory reforms in the adoption of new technologies in telecommunications.

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- California Department of Consumer Affairs: industry analysis; technology innovation and adoption; telecommunications policy.
  - California Office of the Attorney General: resale price maintenance and distribution policies in video game consoles and games; pricing of infant formula; consolidation of grocery retailing industry and emergence of club stores.
  - Interstate Commerce Commission: rail rate regulatory policy; rail merger policy; rail costing methodologies; branch line abandonment policy and process.
  - Office of Technology Assessment: role of regulatory policy in technological innovation and adoption in the telecommunications industry.
  - US Department of Justice: competitive analysis of office equipment market.
  - US Department of Transportation: railroad line consolidation and rationalization; railroad merger policy; freight transportation regulatory policy.
  - US Government Accountability Office: surface freight transportation policy.

## **Expert testimony in regulatory proceedings**

### **Testimony presented on behalf of:**

- Verizon Wireless: Federal preemption of state regulation of mobile carriers' rates; testimony to Federal Communications Commission.
- Telstra Corporation Limited: costing and pricing of unbundled local loop services to competitive local telecommunications service providers; testimony to the Australian Competition and Consumer Commission.
- Pacific Bell (SBC/AT&T): incentive regulation; pricing of new products and services; public benefits of broadband deployment; pricing of business communications services; methods of cost allocation for multi-use public networks; public benefits of LEC entry into long distance telephone services; implications of broadband deployment by local exchange telephone carriers for competition in market for video program distribution; service quality regulation; reciprocal compensation for interchanged Internet access traffic; review and modification of new regulatory framework; competition in broadband distribution services; effects of digital convergence and VOIP on market for telecommunication services; competitive effects of acquisition of Ameritech.
- US WEST (Qwest): incentive regulation; costing methodologies for unbundled network elements and wholesale pricing of local telephone service and pricing principles; local competition and interconnection policy; public benefits of LEC entry into long distance telephone services; reciprocal compensation for interchanged Internet access traffic.

- Ameritech (SBC/AT&T): price regulation; pricing of local exchange telephone services local competition policy; reciprocal compensation to competitive local exchange carriers; reciprocal compensation for interchanged Internet access traffic.
- Telstra: assessment of TSLRIC cost models for using in setting prices of Unconditioned Local Loop Service for DSL; testimony to the Australian Competition and Consumer Commission.
- GTE (Verizon): effects of WorldCom-MCI merger on competition in long distance services and Internet backbone services; pricing of local exchange telephone services.
- Bell Atlantic (Verizon): conversion from rate of return to price regulation; competitive implications of FCC telephone and cable price regulation; implications of wireless-wireline competition for regulation of local telephone pricing.
- NYNEX Mobile Services: FCC spectrum auction rules.
- BellSouth (AT&T): conversion from rate of return to price regulation; local competition and interconnection policy; competitive effects of WorldCom acquisition of MCI in Internet backbone services; competitive effects of WorldCom acquisition of Sprint long distance services and Internet backbone services.
- Southwestern Bell (AT&T): conversion from rate of return to price regulation; local competition and interconnection policy; reciprocal compensation for interchanged local traffic and Internet access services; provision of UNEs.
- US West New Ventures: effects of FCC resale policies on competition in mobile communications services.
- PCS PrimeCo: competitive dynamics in mobile communications; implications of industry consolidation for bidding processes in spectrum auctions.
- Bell Atlantic Mobile Services: implications of FCC spectrum auction rules for competitive bidding and competition in mobile communications services.
- United States Telephone Association: reform of FCC price cap regulation.
- RBOC's MFJ Task Force: public benefits of judicial relief from MFJ manufacturing restriction for research and development, technological innovation and adoption.
- AGT and Stentor Companies: Canadian local network interconnection and unbundling; emergence of competition in local telecommunications services; local competition policy.
- Iusacell: Mexican interconnection and local competition policy; antitrust case against TelMex regarding monopolization of mobile communications.
- GTE Wireless: economic benefits of federal pre-emption of state regulation of prices of mobile communications services.
- Sprint: public benefits of emerging technologies in telecommunications.

- UPS: implications of emerging information technologies for competitive dynamics in express package delivery services.
- Western Coal Traffic League: railroad pricing for bulk commodities.
- Southern Pacific Railway: competitive effects of railroad mergers; pricing of joint trackage rights; competitive access to essential intermodal facilities.
- Santa Fe Railroad: competitive effects of railroad mergers and competitive access to essential port facilities.
- American President Line: competitive effects of railroad mergers; competitive access to essential intermodal facilities.

### **Testimony presented to legislative bodies and national regulatory agencies**

Joint Economic Committee, US Congress; Commerce Committee, Judiciary Committee, US Senate; Commerce Committee, US House of Representatives; US Department of Justice; Interstate Commerce Commission; Federal Communications Commission; National Telecommunications and Information Administration; Canadian Radio-Television and Telecommunications Commission; Mexican Secretariat of Transportation and Telecommunications; Mexican Federal Telecommunications Commission; Ohio State Legislature; State Assembly of California; State Senate of California; Australian Competition and Consumer Commission.

### **Testimony presented to state public utility commissions**

Arizona; California; Colorado; Florida; Idaho; Illinois; Indiana; Iowa; Kansas; Kentucky; Minnesota; Montana; Nebraska; Nevada; New Mexico; Ohio; Oregon; Pennsylvania; Tennessee; Texas; Utah; Virginia; Washington; Washington, DC; West Virginia; Wisconsin; Wyoming

### **Expert testimony in antitrust, mergers, intellectual property, and commercial litigation**

Conducted economic analyses of market structure and competitive dynamics; costs, prices, and pricing practices; market entry and exit; mergers, acquisitions, and restructuring; causation and quantification of economic damages; and effects of technological innovation and adoption; offered testimony in arbitration, mediation, and state and federal courts. (*Client in italics*)

### **Telecommunications, network, and information services**

- *Nokia v. Apple*: analysis of effects of failure to comply with FRAND obligations related to 3G standards-essential patents on competition in the markets for wireless technology and mobile computing and communications devices (smartphones and tablet computers).

- *HTC v. IPCom*: testimony regarding effects of supra-FRAND royalty rates for 3G-essential patents on competition in technology markets and global markets for mobile handsets.
- Confidential client: presentations to the Federal Trade Commission and the US Department of Justice regarding antitrust injury and harm to competition from monopolization and attempted monopolization in electronic information and related software services.
- *Qwest Communications*: analysis of inter-carrier rates for termination of international calling using Internet protocol; testimony to California Superior Court.
- *Bell Atlantic* merger with TCI/Liberty Media (relief from Modification of Final Judgment); define relevant market for delivery of transport of video programming; effects of proposed merger and satellite transport across exchanges and out-of-region on competition.
- *MovieFone v. Pacer/CATS*: define relevant markets for online advance sale of movie tickets and exhibition of feature-length films in theatres; assess competition in those markets and economic harm to MovieFone from Pacer/CATS failure to perform administrative services. Testimony to arbitration panel.
- *Pacific Bell*: resale of telecommunications equipment and services; provision of collocation facilities and unbundled network elements to independent providers of DSL services; provision of access to operational support systems for resale of local exchange telephone services.
- Interactive Network (INN) v. *Tele-Communications, Inc. (TCI)*: define relevant market for interactive television entertainment and information services; assess INN's service and technology in the context of that market and analyze the impact of these market forces and TCI's conduct on INN's business failure.
- *Mead Data Central v. West Publishing Co.*: define relevant market for electronic information services; analysis of monopolization claims and economic harm to Mead Data Central.
- *Southwestern Bell*: pricing of terminating access to competitive local exchange carriers.
- *San Jose Box Office v. Bay Area Seating Services (BASS) et al.*: define relevant market for advance sale of tickets to Bay Area entertainment events and attractions; effects of BASS ticketing practices on competition; plaintiff's damage claims.
- *AirTouch*: retail sale of mobile communications services through kiosks in warehouse and club stores; competition with other distribution channels.
- *IRS v. Northwestern Indiana Telephone Company*: IRS claim of excess cash retention by NITC; economic analysis of cash needs for funding investments in upgrading rural telephone infrastructure to provide broadband and advanced services.
- *GTE Wireless*: pricing of mobile communications services for resale.
- *Siemens Rolm*: class certification in the after-markets for parts and servicing of telecommunications equipment (PABXs).
- *Allied Signal*: online transaction services for the mass transit industry.

- *Imperial Bank v. ComData Corp.*: define relevant market for cash dispensing services at gaming establishments; effects of defendant's business practices on competition; economic harm to Imperial.
- *Integrated Business Systems (IBS) v. MCI*: define relevant market for development of application-specific software systems (the California Electronic Transmission Project); analyze effects of MCI's conduct and business practices on competition and economic harm to IBS.

### High-technology manufacturing and software

- *Oracle (Sun Microsystems) v. Micron Technology, Inc.*: economic analysis of competition in the DRAM industry and effects of alleged price-fixing on prices of DRAM products sold by Micron to Sun; expert report on damage causality; case settled.
- *Freescale v. ChipMOS Technologies*: economic analysis of reasonable royalties, patent misuse claims and damages; expert reports, deposition; trial pending.
- *MacDermid Printing Solutions v. Cortron*: analysis of antitrust, contract and trade secret claims and counterclaims and economic damages arising therefrom; expert report and deposition; trial pending.
- *SONY Ericsson v. LSI Corporation*: effects of failure to timely deliver chipsets to Sony Ericsson for use in for PC modems; economic basis of SEMC's damage claims; expert reports to New York Superior Court and deposition. Summary judgment for defendant.
- *CISCO Systems v. Alcatel*: define relevant market for North American SONET cross-connect systems (optical switching equipment); analyze Alcatel's monopoly power and anticompetitive conduct and its effects on competition and economic harm to CISCO; expert reports to U.S. District Court. Summary judgment for plaintiff.
- *SONY Computer Entertainment America v. Connectix*: define relevant market for video games and video game consoles; effects of copyright infringement (of SONY's PlayStation by Connectix's software emulator for PCs) on competition and innovation in video game consoles and game software; public policy objectives underlying the Copyright Act; irreparable injury and economic harm to SONY. Expert report and deposition. Preliminary injunction granted.
- *Ascend Communications*: effects of merger with Cascade Communications on competition in markets for carrier-class Internet access equipment. Expert report and presentations to U.S. Department of Justice.
- *Chemical Device Corp v. American Cyanamid Company*: define relevant market for chemical light sticks; effects of ACC's patent infringement on competition; and economic harm to CDC.
- *Advanced Fiber Communications v. RealTEK*: define relevant market for digital loop carriers systems (for local telephone services); effects of RealTEK's misappropriation of trade secrets on competition and economic harm to AFC. Expert report, deposition and testimony.

- *Sun Microsystems*: effects of Microsoft acquisition of WebTV on competition in the markets for servers, server operating systems, and Internet device operating systems (Java, WCE). Presentations to U.S. Department of Justice.
- *Qualcomm v. Motorola*: effects of Motorola's failure to abide by licensing agreement on competition in the relevant market for wireless local loop equipment and economic damages to Qualcomm. Expert report on damages.
- *LMP (Luminoptics) Corporation v. Universal Corporation*: define relevant market definition for electronic ballasts for lighting of commercial and industrial buildings; effects of Universal's abuse of market power and collusion to suppress technology on innovation and adoption and economic harm to Luminoptics.
- *Bio-Rad (Digilab) v. Nicolet Instrument Corp.*: define relevant markets for EPI gauges and spectrometric equipment used in semiconductor fabrication lines to test the EPI layers of silicon wafers prior to fabrication into chips; effects of Nicolet's intentional patent infringement on competition in that market; economic harm and damages to Bio-Rad.
- *Sega v. Nintendo*: assess Nintendo's attempted monopolization of the relevant markets for video game development and video game players by using intellectual property protection and other anti-competitive conduct to restrain competition and maintain its dominant position in the industry.
- *Brooktree v. Advanced Micro Devices*: define relevant market for semiconductors; effects of defendant's alleged infringement of three patents and two mask-works on competition; assess plaintiff's damage claims.
- *Bio-Rad v. Pharmacia*: effects of patent infringement on competition in relevant market for separations equipment and supplies for production of monoclonal antibodies for diagnostic and therapeutic use; effects on competition from Pharmacia's intentional infringement of Bio-Rad's patents for high pressure liquid chromatography; economic harm to Bio-Rad.
- *Intel v. Chips and Technologies*: define relevant market for digital-analog converters; effects of video RAMDAC chip patent infringement on competition (case settled).
- *Convergent v. NaviSite*: analysis of applications software markets and impact of NaviSite's post-merger conduct on earnout provisions of its acquisition of Convergent.
- *Jantronics Systems v. Pioneer New Media Systems*: define relevant market for secondary computer storage products (optical disk drives); analyze effects of Pioneer's distributor policies and business practices on competition; evaluation of plaintiff's damage claims.

### Entertainment, publishing, and advertising

- Confidential client: presented to the US Department of Justice regarding potential anti-competitive practices in the distribution and exhibition of first-release motion pictures.
- Universal Studios: motion picture production and distribution rights.

- UA Theatres; Fox-Festival Theatres; Syufy Theatres; Act One Theatres (four separate cases): define relevant product and geographic markets for theatrical exhibition of first-run movies; effects of clearances on competition in those markets.
- *Sherwood Productions v. MGM/UA Entertainment Co.*: define relevant market for feature-length films; economic effects of defendant's bundling of films for sale to television broadcasters on economic returns to rights holders of individual film (*War Games*).
- Iwerks Entertainment/Showscan Entertainment: define relevant market for simulators and amusement park rides; competitive effects of proposed merger between Iwerks and Showscan in that market.
- *Harry Toscano v. PGA Tour*: define relevant market for televised sports entertainment programming; analyze effects of the eligibility requirements of the Senior PGA Tour on competition in that market.
- Fox Films: premium cable television distribution of feature-length films.
- United Artists: effects of merger of premium cable movie channels on fees paid to film production companies.
- *PC Communications v. P World*: define relevant market for PC magazines and magazine advertising; economic analysis of attempted monopolization in those markets.
- *Yellow Pages Cost Consultants v. GTE Directories Corporation*: define relevant market for directory advertising; effects of sales practices and pricing policies on competition; economic harm to YPCC.

### Price-fixing and bid-rigging

- *PG&E v. Howard P. Foley Co. et al.*: impact of bid-rigging in electrical systems installation, nuclear power plant; economic harm to PG&E.
- Shell Oil et al.: *Class* certification, price fixing of fabricated pipe and fittings for oil refineries, power plants, pulp mills and other continuous flow production facilities.
- *Master Plumbing Contractors et al. v. Ferguson Enterprises et al* (class action): class certification; damage analysis of price-fixing in plumbing fixtures industry.
- *County of Santa Clara v. Howard Electric et al*: bid-rigging in electrical contractor services; economic damages to Santa Clara County.
- *Attorney General, State of California*: evaluate horizontal price-fixing of infant formula; economic harm to consumers (settled prior to testimony).
- Popcorn antitrust litigation: *class* certification in wholesale market for popcorn.
- Citric acid class action: *class* certification, price-fixing in market for citric acid.
- Specialty steel pipe: *class* certification, price-fixing of specialty steel pipe.

- *Northwestern Fruit Co. et al v. Levy & Zentner et al* (Cantaloupe Cooling Antitrust Litigation): class certification, price-fixing; economic damages from fixed prices.

### Distribution services

- *Albertson's/American Stores*: define relevant product and geographic markets for grocery retailing; effects of proposed merger on competition.
- *Ernest Hahn Development Inc. v. Hugh B. Coddling*: define relevant market for leasing of retail space in regional shopping centers; effects on competition of Coddling's attempted monopolization.
- *Parnelli Jones, Inc. v. Firestone Tire & Rubber Company*: define relevant geographic markets for retailing of automobile replacement tires; effects of defendant's alleged tying practices on competition; economic harm to Parnelli.
- *J.M. Sahlein v. Yamaha International*: effects of consolidating dealer network (and terminating dealers) on the relevant market for wholesale and retail distribution of musical instruments; analysis of plaintiff's alleged damages.
- *Goody Products, Inc.*: define relevant market for wholesale distribution of personal care products; effects of Goody's business practices and contractual relations on competition.
- *Coast Distributing Co. v. Fleetwood Enterprises*: define relevant market for retailing of after-market accessories for recreational vehicles; evaluate plaintiff's Robinson-Patman resale price maintenance claims; effects on competition; assess plaintiff's damage claims.
- *Golden West Cellular Corp. v. Los Angeles Cellular Telephone Company et al.*: define relevant market for retail sales of mobile communications handsets and services; effects of alleged unfair competition (pricing below cost) on competition; assess plaintiff's damage claims.
- *Attorney General, State of California*: effects of vertical price-fixing and other vertical restraints in retail sale of video game consoles and games.
- *Attorney General, State of California*: define relevant product and geographic markets for grocery chain retailing; effects of proposed merger of Alpha Beta and Lucky Grocery Stores on competition and consumers; economic rationale for preliminary injunction; recommendations for store divestitures.
- *Attorney General, State of California*: define relevant product and geographic markets for grocery chain retailing; effects of proposed merger of Vons Stores and Safeway Stores on competition and consumers; economic rationale for preliminary injunction; recommendations for store divestitures.
- *Attorney General, State of California v. B.F. Goodrich*: impact of resale price maintenance on competition in the relevant market for retailing of automobile replacement tires; economic damages.

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## Healthcare and insurance services

- *Allstate v. California Vision Service Plan*: define relevant markets for optometric vision care services, vision and optical care plans, optical goods, and ophthalmic services; effects of CVSP business practices on competition in those markets; assess plaintiff's damage claims.
- *National Vision Services v. Arizona Vision Services*: define relevant product and geographic market for vision care benefit plans; effects of AVS business practices on competition.
- *Workman's Compensation Insurance Policy Holders v. Insurers*: class certification; effects of price-fixing conspiracy in workers' compensation insurance; economic damages.
- *Attorney General, State of California*: economic harm and damages to California due to alleged fraudulent conduct (bid-tilting in acquisition of Executive Life Insurance Co.)

## Transportation services

- *Western Parcel Express v. United Parcel Services (UPS)*: define relevant product and geographic market for express package delivery services; assess whether UPS has market power; effects of UPS's business and pricing practices on competition.
- *Upland v. Kaiser Steel*: contract motor carriers in steel manufacturing and distribution.
- *Litton Industries & Pinney Dock v. Penn Central et al*: define relevant product and geographic market for transportation of iron ore in the Great Lakes region; effects of Penn Central's attempt to monopolize that market on inland waterway carriage and dock services; economic harm to Litton and Pinney Dock.
- *UPS excess value insurance litigation (MDL)*: define relevant markets for time-definite package delivery services and complementary market for excess value shipping insurance; assess competition in those markets and whether UPS had monopoly power (settled prior to testimony).
- *Florida East Coast Railway v. CSX Transportation*: define relevant market for freight transport services in southeastern US; assess effects of vertical foreclosure, "gateway" conditions, joint rates and pricing of through-train services and vertical restrictions on competition; economic harm to FEC; economic rationale for imposing traffic conditions and pricing limitations on CSX.
- *Blue & Gold/Red & White*: define relevant market for water transport services in Bay Area; effects of proposed merger on competition.
- *Charley's Taxi Radio Dispatch Corp. v. SIDA of Hawaii, Inc.*: define relevant geographic and product market for airport ground transportation services; effects of the exclusive contract between state of Hawaii and SIDA on competition; economic damages to Charley's Taxi.
- *APL Land Transport Services and Santa Fe Railway*: effects of Union Pacific-C&NW merger on competition in relevant markets for surface freight transportation; economic rationale for imposing traffic conditions on merged entity.

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- *Southern Pacific*: effects of merger of Union Pacific, Missouri Pacific, and Western Pacific railroads on competition; economic support for traffic conditions to reduce economic harm to SP.
  - *Pennsylvania Power & Light v. Consolidated Rail*: estimate stand-alone costs of coal transport services; address reasonableness of maximum rates.
  - *Utility Fuels v. Burlington Northern Railroad*: estimate stand-alone costs of coal transport services; address reasonableness of maximum rates.
  - *Union Electric v. Burlington Northern Railroad*: estimate stand-alone costs of coal transport services; address reasonableness of maximum rates.
  - *Coal Exporters Association v. Baltimore & Ohio Railroad et al*: define relevant market for coal transport; assess market dominance; use of stand-alone cost for determining maximum rate reasonableness.
  - *Trailer Train v. Board of Equalization, State of California*: effects of deregulation and intermodal competition on reasonableness of alternative methods of asset valuation for taxation purposes.

### Other business litigation

- *Brunton Co. and Silva Production AB v. Johnson Worldwide Associates*: define relevant market; effects of JWA-Suunto joint venture on competition in the North American market for land compasses.
- *Humboldt Bay Municipal Water v. Louisiana Pacific Corp.*: define relevant product and geographic market for water; effects of LP contracts and restraint of trade on Humboldt.
- *Armco v. ACS*: evaluate monopolization claims and allegations of the defendant's counter claims regarding structure and competition in corrugated steel pipe industry.
- *The Mooring Co. v. Blackmon Mooring Steamatic Catastrophe Inc.*: define relevant product and geographic market for emergency catastrophic recovery services; effects of defendant alleged conduct and attempted monopolization on competition; economic harms to Mooring.
- *Noll Manufacturing Co. and General Metalcraft*: define relevant product and geographic market for furnace pipe and fittings; effects of proposed merger on competition.
- *Trinity Industries Inc. v. Transit America, Inc.*: define relevant market for rail equipment; effects of alleged patent infringement on competition.
- *Six-Pac v. Monsanto*: define relevant market for after-market truck tops and competition with SUVs; effects of Monsanto's alleged plastic product failures on Six-Pac; assess plaintiff's damage claims.

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## Selected publications, reports, and presentations

### Telecommunications economics and policy

"The Communications Industry: A Look at the Future," American Bar Association, Section of Public Utility Law: San Francisco, 1982.

"The Future of Telecommunications Regulation," invited presentation, En Banc Hearing, California Public Utilities Commission: San Francisco, 1984.

"The Economic Consequences of Deregulation," invited address, Emerging Issues Program, Conference of National State Legislative Leaders: Los Angeles, September 1986.

"Price Cap Regulation and Economic Forecasting," National Forecasting Conference, Bell Communications Research: New York, 1988.

"The Strategic Implications of Telecommunications Deregulation in Europe," invited presentation, Strategic Management Society: Amsterdam, 1988.

"A Comparison of US and Japanese Policies toward Information Technologies," invited address, International Public Economics Association: Tokyo, 1988.

"Information Technologies, Public Policy, and Regional Economic Development," invited address, Conference on Regional Development in Japan, Hokkaido University: Sapporo, 1988.

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

"California Telecommunications Policy for the Twenty-First Century," report to the California Economic Development Corporation (Vision: California 2010 Project), 1988. Presented to En Banc Hearing of the California Public Utilities Commission: San Francisco, 1989.

"Price Cap Regulation and Economic Forecasting," invited presentation, the National Forecasting Conference, Bell Communications Research: San Francisco, May 1989.

"The Future of Telecommunications," invited speaker, Annual Meeting of the United States Telephone Association: San Francisco, October 1989.

"Telecommunications as a Strategic Industry," presented to the New York University Club; published in "Vital Speeches of the Day," April 1989; reprinted in *Powernomics: Economics and Strategy after the Cold War*, C. Prestowitz, R. Morse and A. Tonelson (eds.); Madison Books, 1990.

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“Telecommunications Policies in Japan: Lessons for the US,” presented to Advanced Workshop in Regulation and Public Utility Economics: Monterey, CA, July 1988; presented to Telecommunications Policy Research Conference: Annapolis, October 1988; published in *California Management Review* 31(3), Spring 1989.

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“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; published in *Research in Corporate Social Performance and Policy*, James E. Post (ed.), JAI Press: New York, 1992.

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## Antitrust and competition policy

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“Market Definition in the Merger Guidelines: Implications for Antitrust Enforcement” (with Thomas M. Jorde), *California Law Review* 71(3), March 1983. Reprinted in *Antitrust Policy in Transition: The Convergence in Law and Economics*, Fox and Halverson (eds.), American Bar Association, 1984.

Invited Testimony, “The Taxpayer Antitrust Enforcement Act of 1983 (Illinois Brick),” Hearing before the Committee on the Judiciary, US Senate, 1984.

“Antitrust Market Definition: An Integrated Approach” (with Thomas M. Jorde), *California Law Review* 72(1), January 1984. Reprinted, *Corporate Counsel’s Annual*, Matthew Bender, 1985. Reprinted, *Antitrust Anthology*, A.I. Gavil (ed.), Anderson Publishing, 1995.

“Horizontal Merger Policy: Promoting Competition and American Competitiveness” (with Lawrence A. Sullivan), *Antitrust Bulletin*, Winter 1986.

“The Effects of Deregulation on Competition and Competition Policy in Banking” (with Lee Burke), Working Paper, National Center on Financial Services, Boalt Hall School of Law: Berkeley, 1987.

“The Implications of Line-of-Business Regulation for Diversification Strategy and Enterprise Structure,” presented to Strategic Management Society: Boston, October 1987.

“Deregulation and Interstate Bank Entry in California” (with Lee Burke), California Policy Seminar Research Report: Berkeley, 1991.

“Market Definition and Market Power in the Sports and Entertainment Industries,” invited presentation, Antitrust Section, American Bar Association Annual Proceedings: San Francisco, 1992.

## Regulatory and public policy

“Economic Analysis of Regulatory Impact: Selected Boards, Bureaus and Commissions,” report to Regulatory Review Task Force, California Department of Consumer Affairs, 1978.

“Suppliers of Last Resort: Economics of Self-Supply in Common Carrier Industries” (with Robert A. Meyer), *Quarterly Review of Economics and Business* 19(4), Winter 1980.

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“Regulation: A Long Term Perspective,” *Business Environment/Public Policy: The Field and Its Future*, Edwin M. Epstein and Lee E. Preston (eds.), AACSB: St. Louis, 1982.

“The Value of Economic Theory in Management Education,” *American Economic Review*, May 1984.

“Public Regulation of Market Activity: Institutional Typologies of Market Failures” (with James M. Carman), *Journal of Macromarketing*, Spring 1983.

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“Strategic Lessons from Deregulated Industries,” Strategic Management Society: San Francisco, 1989.

“The Political Economy of Regulation” (with James M. Carman), *Business and Society*, S.P. Sethi and C. Falbe (eds.), Lexington Books: Lexington, 1987; republished in *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.

“Structural Adjustment through Industry Deregulation: The US Experience in Telecommunications and Transportation,” Pacific Economic Cooperation Conference on Structural Adjustment, Kyoto, Japan; *PECC Conference Proceedings*, 1991.

“Obtaining Competitive Intelligence and Creating Competitive Advantage through the Public Policy Process” (with Steve Harris), Society for Competitive Intelligence: Los Angeles, 1993.

“Developing Codes of Conduct: An Analysis of Parties and Positions,” report prepared for Edison Electric Institute: Washington, DC; 1999.

“Toward Regulatory Symmetry: Lessons for Telecom Policy from Transportation and Financial Services Deregulation,” White Paper, submitted to Federal Communications Commission and several state regulatory agencies: 2000.

### **Technological innovation and policy**

“New Technologies for the Local Loop: An Economic and Regulatory Assessment,” Report to the Office of Technology Assessment, US Congress, 1985.

“Crossroads of Information Technology,” Board on Telecommunications and Computer Applications, National Academy of Engineering: Washington, DC; October 1989.

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“Strategies for Innovation: An Overview” (with David C. Mowery), *California Management Review* 32(3), Spring 1990, Co-Editor of Special Issue, “Strategies for Innovation.”

“Divestiture and Regulatory Policies: Implications for Research, Development and Innovation in the US Telecommunications Industry,” presented to Telecommunications Policy Research Conference, September 1988; published in *Telecommunications Policy*, April 1990.

“R&D Expenditures by the Bell Operating Companies: A Comparative Assessment,” presented to Twenty-Third Annual Conference, Michigan State University Institute of Public Utilities: Williamsburg, 1991; published in *MSU Public Utility Conference Proceedings*: East Lansing, 1993.

“Telecommuting and the Emerging Digital Network: Challenges and Opportunities,” presented to TRIP '92: Reston, Virginia, 1992.

“The Implications of Telecommunications Infrastructure Investment for R&D, Innovation and Competitiveness,” invited testimony, Subcommittee on Communications, United States Senate: Washington, DC; February 1992.

“Promoting Advanced Communications Technologies: Toward a New Policy Regime in the United States,” presented to ISDN Users' Group: Los Angeles, 1993.

“Effects of Local Exchange Carrier Regulation on the Deployment and Adoption of New Technologies,” presented to Computer Science and Telecommunications Board: Washington, DC; 1993.

“The Information Society: Implications for Time, Space and Place,” Fisher Center for Real Estate and Urban Economics: Berkeley, 1996.

“The Information Society and the Drivers of Change,” presented to Global Networking '97, International Telecommunications Society: Calgary, 1997.

Deployment of Broadband Networks and the Effects of Advanced Telecommunications on Technological Innovation in the Information Economy,” White Paper, submitted to National Telecommunications Administration: Washington, DC, 2001.

“Dominance and Standard Setting: Current Issues in the High Tech Sector.” Global Competition Review Antitrust Law Leaders' Forum: Miami, February 2011.

“Competition in the Digital Economy: Implications for Public and Private Antitrust Enforcement,” presentation to 10<sup>th</sup> Annual Competition Law & Policy Forum: Langdon Hall, February 2011.

“Effects of Patent Abuse by Standards-Essential Patentees on Competition in Technology Markets,” Annual Conference on Economic Developments in European Competition Policy, Brussels, December 2011.

### Transportation economics and policy

“Empirical Analysis of Excess Capacity in the Rail Freight Industry,” presented to the Econometric Society: Atlantic City, 1976.

“Statistical Analysis of the FRA Waybill Sample,” prepared for Federal Railroad Administration, US Department of Transportation: Washington, DC; 1977.

“Economics of Traffic Density in the Rail Freight Industry,” *Bell Journal of Economics* 8(2), Autumn 1977.

“Restructuring the Railroads: Cost Savings for Branch Line Abandonments,” report prepared for Federal Railroad Administration, US Department of Transportation: Washington, DC; 1977.

Interrelationships of the Freight Transport System and Its Social, Political and Economic Environment,” report to the Committee on Transportation, National Academy of Engineering, 1977.

“Simple Analytics of Rail Costs and Disinvestment Criteria,” *Transportation Research Record* 687, 1978.

“Rationalizing the Physical Structure of the US Rail Industry,” Invited Testimony, Hearings before the Joint Economic Committee, US Congress, 1978.

“Economic Analysis of Railroad Branch Line Viability: Application of Response Surface Methods in a Simulation Model” (with Dan C. Boger), Institute of Management Sciences: Honolulu, 1979.

“Economic Analysis of Light Density Rail Lines,” *The Logistics and Transportation Review* 16(1), Winter 1980.

“Determinants of Railroad Profitability: An Econometric Study” (with Theodore E. Keeler), *Economic Regulation: Essays in Honor of James R. Nelson*, William G. Shepherd and Kenneth D. Boyer (eds.), Michigan State University Press: East Lansing, 1981.

“The Financial Performance and Prospects of Railroads in the South and Southwest” (with Curtis M. Grimm), *Texas Business Review*, November/December 1982.

“Potential Benefits of Rail Mergers: An Econometric Analysis of Network Effects on Service Quality” (with Clifford Winston), *Review of Economics and Statistics* 65(1), February 1983.

“Structural Economics of the US Rail Freight Industry: Concepts, Evidence and Merger Policy Implications” (with Curtis M. Grimm), *Transportation Research* 17A (4), July 1983.

“Vertical Foreclosure in the Rail Freight Industry: Economic Analysis and Public Policy Prescriptions” (with Curtis M. Grimm), *ICC Practitioners’ Journal*, July 1983.

“Revitalization of the US Freight Industry: An Organizational Perspective” (with Curtis M. Grimm), *International Railway Economics*, K. Button and D. Pitfield (eds.); Crower: London, 1985.

“The Effects of Railroad Mergers on Industry Productivity and Performance” (with Curtis M. Grimm), invited paper, Transportation Research Board, National Academy of Engineering, January 1986; *Transportation Research Record* 1029, 1986.

“A Qualitative Choice Analysis of Rail Routings: Implications for Vertical Foreclosure and Competition Policy” (with Curtis M. Grimm), *The Logistics and Transportation Review*, March 1988.

“Competitive Access Policies in the Rail Freight Industry, with Comparisons to Telecommunications” (with Curtis M. Grimm), presented to Columbia Institute for Tele-Informatics: New York; published in *Opening Networks to Competition: The Regulation and Pricing of Access*, 137–57; D. Gabel and D. Weiman (eds); Kluwer Academic Publishers: Boston, 1998.

## Teaching

### Undergraduate courses, University of California, Berkeley:

- Political, Social, and Legal Environment of Business
- Telecommunications Economics and Policy
- Business and the Global Economy

### Graduate courses, University of California, Berkeley:

- Business and Public Policy (MBA Core Course)
- Microeconomic Analysis for Managerial Decisions (MBA Core Course)
- Industry Analysis and Competitive Strategy
- Telecommunications Economics, Policy and Strategy
- Antitrust Law (School of Law, with L. Sullivan and Thomas M. Jorde)
- PhD Course in Antitrust Economics (Department of Economics)

### The Executive Program, University of California, Berkeley:

- Industry Analysis and Competitive Strategy
- Competitive Strategies in Telecommunications and Information Services

- Strategies for Effective Public Policy Advocacy
- Managing Business-Government Relations

#### **Telecommunications executives, University of California, Berkeley:**

- Organized and taught one-week course in telecommunications economics, competition, corporate strategy, and public policy for executives from telecom users and service providers, equipment vendors, and public officials.

#### **Executive education, Center for Telecommunications Management, University of Southern California:**

- Taught half-day seminars in telecommunications economics, competition, corporate strategy, and public policy for executives of leading telecommunications service providers and suppliers, from North America, Europe, Asia, and Latin America.

#### **On-site executive education**

- Pacific Bell: organized and taught 10-week seminar for 300 mid-upper-level managers on emerging technologies and competitive strategies in telecommunications.
- Deutsche Telecom: organized and taught one-week course on US telecommunications industry developments and regulatory policies.
- California Public Utilities Commission: taught one-week course in telecommunications economics and public policy to Commission staff 10 times.
- Ministry of Post and Telecommunications, Japan: taught seminar series on US telecommunications industry developments and regulatory policies.

#### **Academic awards**

- Charles Slater Award for Outstanding Contributions to Macromarketing, 1987
- Schwabacher Prize for Outstanding University Service, 1983

#### **Walter A. Haas School of Business: Leadership and Service**

- Chair, Business and Public Policy Group (1983–1984, 1986–1993)
- Chair, Program in Business and Social Policy (1986–1990)
- Business School Building Program Committee (1986–1991)
- Business School Capital Campaign Committee (1989–1993)
- PhD Field Advisor, Business and Public Policy (1981–1987, 1989–1991)
- Policy and Planning Committee (1991–1993; Chair, 1992–1993)

- Member, Board of Directors, Washington Campus Program (1990–1993)
- Director, The Executive Program (1983–1985)
- Director, Executive Programs in Telecommunications (1989–1992)
- Chair, Executive Education Task Force (1991–1993)
- Member, Board of Directors, Berkeley Center for Executive Education

### **University of California, Berkeley: Leadership and Service**

- Executive Committee, Center for Research in Management (1989–1996)
- Advisory Board, Lester Center for Innovation and Entrepreneurship (1992–1996)
- Chancellor's Advisory Committee on Parking (1988–1989)
- Executive Committee, National Financial Services Center (1986–1988)
- Executive Committee, Institute of Transportation Studies (1981–1983)
- Director, Center for Transportation Policy Research (1980–1982)

### **University of California (system-wide) service**

- Working Group on Technology Transfer (1988–1990)
- Task Force on Telecommunications and Information Policy Research (1984–1985)

### **Service to professional journals and societies**

- Chair, Ninth Annual International Conference of the Strategic Management Society, San Francisco
- Associate Editor, California Management Review
- Associate Editor, Logistics and Transportation Review
- Editorial Advisory Board, Transportation Research
- Programming Chair, Antitrust Litigation Committee, American Bar Association (current)
- Participant in programs and meetings of *American Economic Association*, *Academy of Management*, *Strategic Management Society*, *International Telecommunications Society*, *Association of Public Policy Analysis and Management*, *Telecommunications Policy Research Conference*, *Western Communications Forum*, *Eastern Communication Forum*

- Reviewer/Referee for *Strategic Management Review*, *Journal of Economics; Industrial and Corporate Change*; *Journal of Asian Economics*; *Journal of Economics and Business*; *Journal of Public Policy Analysis and Management*; *Journal of Regulatory Economics*; *National Science Foundation*; *Quarterly Review of Economics and Business*; *Review of Economics and Statistics*; *Telecommunications Policy*; *Antitrust Law Journal*;

### **Government service**

- Member, Governor's Ad Hoc Committee, Golden State Quality Awards
- Member, Governor's Task Force on Telecommunications Infrastructure for California Schools and Libraries
- Pro bono consultation to California Department of Consumer Affairs, California Attorney General, National Association of State Attorneys General
- Advisor regarding effects of telecom policy on technological innovation and adoption, Office of Technology Assessment, United States Congress
- Grant Reviewer, Broadband Technologies Opportunities Program, National Telecommunications and Information Administration