

Frederick R. Warren-Boulton, Ph.D.  
Managing Director

**Navigant Economics**  
1200 19th Street, NW  
Suite 700  
Washington, DC 20036  
Direct: 202.973.2463

rick.warren.boulton@naviganteconomics.com

#### Professional History

- Principal, MICRA: Microeconomic Consulting and Research Associates, Inc., Washington, D.C.; 1991 – present.
- Visiting Lecturer of Public and International Affairs, Woodrow Wilson School of Public and International Affairs, Princeton University, Princeton, NJ; Spring Semester, 1991.
- Resident Scholar, American Enterprise Institute for Public Policy Research, Washington, D.C.; May 1989 - April 1990, Adjunct Scholar from May 1990.
- Senior Vice President, ICF Consulting Associates, Inc., Washington, D.C.; November 1989 - August 1991.
- Research Associate Professor of Psychology, The American University, Washington, D.C.; September 1983 - 1990.
- Deputy Assistant Attorney General for Economic Analysis, Antitrust Division, U.S. Department of Justice, Washington, D.C.; October 1985 - May 1989.
- Director, Economic Policy Office, Antitrust Division, U.S. Department of Justice, Washington, D.C.; September 1983 - September 1985.
- Research Associate, Center for the Study of American Business, Washington University in St. Louis; July 1978 - June 1985.
- Associate Professor, Department of Economics, Washington University in St. Louis; July 1978 - June 1985. Chairman, Graduate Committee, 1978 - 1980. Chairman, Undergraduate Committee, 1980 - 1983.
- Assistant Professor, Department of Economics, Washington University in St. Louis; September 1972 - June 1978.
- Assistant in Instruction, Woodrow Wilson School of Public and International Affairs, Princeton University, Princeton, N.J.; 1969 - 1971.

#### Education

- Ph.D., Economics, Princeton University
- M.A., Economics, Princeton University
- M.P.A., (Master of Public Affairs) Woodrow Wilson School of Public & International Affairs, Princeton University
- B.A., Economics, Yale University, *cum laude*

## Frederick R. Warren-Boulton, Ph.D.

Frederick Warren-Boulton has extensive academic, government, and private sector experience in antitrust and regulatory economics. He has testified and published extensively on these issues and is an internationally recognized expert in the economics of vertical restraints. As a consultant, Dr. Warren-Boulton provided economic analysis and expert economic testimony in numerous matters arising in a variety of industries. Prominent examples include his testimony for the Justice Department in *U.S. v. AT&T*, for the states and DOJ in *Microsoft*, for the FTC in *Staples*, and for Brunswick in *Concord Boat* and *NCA in Air Cargo*.

Before joining Navigant, Dr. Warren-Boulton was co-founder and Principal of MiCRA or Microeconomic Consulting & Associates, Inc.<sup>1</sup>

#### Publications

- » “US v. H&R Block: Market Definition in Court since the 2010 Merger Guidelines,” *The Antitrust Bulletin*, forthcoming, Fall 2014, with Marc Remer.
- » “Market Definition and the Price Effects of Mergers: Staples-Office Depot (1997),” in *The Antitrust Revolution: Economics, Competition and Policy*, John E. Kwoka and Lawrence J. White, eds.; Oxford University Press, Third Edition, 1999; Fourth Edition; Case 7, Fifth Edition, 2009; Sixth Edition, 2014, Case 6; with Serdar Dalkir.
- » “From Structure to Effects: the Economics of Merger Control,” *Global Competition Review*, June 2008 with R.S. Khemani and R. Duplantis.
- » “On Loss Aversion in Capuchin Monkeys,” *Journal of the Experimental Analysis of Behavior*, 89 (March 2008) with A. Silberberg, P. Roma, M. Huntsberry, T. Sakagami, A. Ruggiero and S. Suomi.

<sup>1</sup> Dr. Warren-Boulton presently continues as a Principal of MiCRA for purposes of winding down its business. Page 1

- » “The Contribution of the Merger Guidelines to the Analysis of Non-Horizontal Mergers,” 20<sup>th</sup> Anniversary of the 1982 Merger Guidelines: The Contribution of the Merger Guidelines to the Evolution of Antitrust Doctrine, May 21, 2002, on <http://www.usdoj.gov/atr/hmerger.htm#papers>.
- » “Optimizing in Choice When a Token Deposit is the Operant,” *Journal of the Experimental Analysis of Behavior*, 2002, with J. J. Widholm, A. Silberberg, S.R. Hursh, and A.A. Iman.
- » “Staples and Office Depot: An Event-Probability Case Study,” *Review of Industrial Organization*, 19: 469-481, 2001, with Serdar Dalkir.
- » “Unilateral Price Effects: Staples and Office Depot,” in *The M&A Lawyer*, June 1998, Vol. 2, No. 3, with Serdar Dalkir. Available in revised form as “How Do You Know an Office Superstore? Staples and Office Depot,” on <http://www.antitrust.org/cases/>.
- » “Resale Price Maintenance Reexamined: Monsanto v. Spray-Rite (1984),” in *The Antitrust Revolution: Economics, Competition and Policy*, John E. Kwoka and Lawrence J. White, eds.; Oxford University Press, Case 14, Second Edition, 1994; Third Edition, 1999.
- » “Exclusionary Behavior in the Market for Operating System Software: the Case of Microsoft,” in *Opening Networks to Competition: the Regulation and Pricing of Access*, David Gabel and David F. Weiman, eds.; Kluwer Academic Publishers, 1998, with Kenneth C. Baseman and Glenn A. Woroch.
- » “Riding the Wave: Exclusionary Practices in Markets for Microprocessors Used in IBM-Compatible Personal Computers,” Conference and Festschrift in Honor of Merton J. Peck, Yale University, September 30, 1994, and *International Journal of the Economics of Business* 2-2 (July 1995), pp. 241-262, with Robert W. Wilson.
- » “The Economics of Intellectual Property Protection for Software: The Proper Role for Copyright,” American Council on Interoperable Systems, Washington, D.C., June 1994, and *StandardView: ACM Perspectives on Standardization* 3-2 (June 1995), pp.68-78, with Kenneth C. Baseman and Glenn A. Woroch.
- » “Microsoft Plays Hardball: Use of Nonlinear Pricing and Technical Incompatibility to Exclude Rivals in the Market for Operating Software,” *The Antitrust Bulletin* 40-2 (Summer 1995), pp.265-315, with Kenneth C. Baseman and Glenn F. Woroch.
- » “Copyright Protection of Software Can Make Economic Sense,” *The Computer Lawyer*, 12 (February 1995), pp. 10, 18-28, with Kenneth C. Baseman and Glenn A. Woroch.
- » “Exclusionary Practices in High-Technology Industries,” *The St. Louis Bar Journal*, 16 (Summer 1994), pp. 28-34.

- » “Monsanto v. Spray-Rite: Resale Price Maintenance Reexamined,” in *The Antitrust Revolution: The Role of Economics*, John E. Kwoka and Lawrence J. White, eds.; Scott, Foresman and Company, Glenview, Illinois, second edition, 1994.
- » “A Commentary on the 1992 U.S. Merger Guidelines,” *International Merger Law*, 22 (June 1992), pp. 14-19.
- » “The Use of Stock Market Returns in Antitrust Analysis of Mergers,” *Review of Industrial Organization*, 7-1 (1992), pp. 1-11, and *Economic Analysis Group Discussion Paper #88-1*, January 1988, with Robert H. McGuckin and Peter Waldstein.
- » “Implications of U.S. Experience with Horizontal Mergers and Takeovers for Canadian Competition Policy,” in *The Law and Economics of Competition Policy*, Frank Mathewson, Michael Trebilcock and Michael Walker, eds.; The Fraser Institute, Vancouver, B.C., 1990.
- » “Maricopa and Maximum-Price Agreements: Time for a New Legal Standard?” *Journal of Health Economics*, 7 (June 1988), pp. 185-190.
- » “Maximizing Present Value: A Model to Explain Why Moderate Response Rates Obtain on Variable-Interval Schedules,” *Journal of the Experimental Analysis of Behavior*, 49 (May 1988), pp. 331-338, with Alan Silberberg and Toshio Asano.
- » “Sources of the ‘Crisis’ in Liability Insurance: An Economic Analysis,” in *Yale Journal of Regulation*, 5 (Summer 1988), pp. 367-395; *Economic Analysis Group Discussion Paper #88-2*, February 1988; and *An Update on the Liability Crisis: Tort Policy Working Group*, U.S. Government Printing Office: 181-487:60075, March 1987, with Richard N. Clark and David D. Smith.
- » “State and Federal Regulation in the Market for Corporate Control,” *The Antitrust Bulletin*, 32 (Fall 1987), pp. 661-691, and *Economic Analysis Group Discussion Paper #86-4\**, January 1986, with Margaret E. Guerin-Calvert and Robert H. McGuckin.
- » “Income and Choice Between Different Goods,” *Journal of the Experimental Analysis of Behavior*, 48 (September 1987), pp. 263-275, with Alan Silberberg and David Shurtleff.
- » “Inferior-Good and Giffen-Good Effects in Monkey Choice Behavior,” *Journal of Experimental Psychology: Animal Behavior Processes*, 13 (1987), pp. 292-301, with Alan Silberberg and Toshio Asano.
- » “Efficiencies, Failing Firms, and Alternatives to Merger: A Policy Synthesis,” *The Antitrust Bulletin*, 31 (Summer 1986), pp. 431-450, and *Economic Analysis Group Discussion Paper #86-14*, August 1986, with John Kwoka.
- » *Oil Pipeline Deregulation: Report of the U.S. Department of Justice*, U.S. Government Printing Office: 1986, 491-510:40159, May 1986, with Charles J. Untiet.

- » “Merger Policy and Enforcement at the Antitrust Division: The Economist's View,” *Antitrust Law Journal*, 54 (Spring 1985), pp. 109-115.
- » “Reanalysis of the Equation for Simple Action,” *Journal of the Experimental Analysis of Behavior*, 43 (March 1985), pp. 265-277, with Alan Silberberg, Michael Gray and Randolph Ollom.
- » “Considering the Effects of Financial Incentive and Professional Ethics on ‘Appropriate’ Medical Care,” *Journal of Health Economics*, 3 (December 1984), pp. 223-237, with Robert Woodward.
- » *Deficits and Dollars: The Effects of Government Deficits in an International Economy*. Center for the Study of American Business, Contemporary Series 3, 1982.
- » “Physician Productivity, Remuneration Method, and Supplier-Induced Demand,” in *Issues in Physician Reimbursement*, N.T. Greenspan (ed.), HCFA, 1981, pp. 115-134, with Robert Woodward.
- » “Paying the Doctor: A Model of Work-Leisure Decisions under Alternative Remunerations,” *Proceedings of the American Statistical Association*, 1979, with Robert Woodward.
- » *Vertical Control of Markets: Business and Labor Practices*. Ballinger Publishing Company, Cambridge, Mass., 1978.
- » “Vertical Control by Labor Unions,” *American Economic Review*, 67 (June 1977), pp. 309-322. Reprinted as Publication Number 17, Center for the Study of American Business, November 1977.
- » “Vertical Control with Variable Proportions,” *Journal of Political Economy*, 82 (July - August 1974), pp. 783-802.
- » *Preliminary Survey of Jamaican Management Manpower: Resources and Requirements*. Jamaican Institute of Management, 1969.

### **Conference, Seminar, Working and Discussion Papers**

- » “Advanced Topics in Merger Analysis.” Canadian Bar Association, 2010 Fall Competition Law Conference, Gatineau QC, October 1, 2010.
- » “Upward Pricing Pressure in the Merger Guidelines” Canadian Bar Association Teleconference, March 10, 2010.
- » “Competition Issues in the Air Transport Sector in India.” National Conference, State of Competition in the Indian Economy (Competition Commission of India, World Bank, FIAS and DFID), New Delhi, India, June 12, 2009.
- » “Price-Fixing, Bid-Rigging, and Mergers; The Shift from Structure to Effects.” Minnesota Bar Association, October 13, 2009.

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- » “Demand-Side and Supply-Side Linkages in the Antitrust Analysis of Aftermarkets.” 57<sup>th</sup> Antitrust Law Spring Meeting, American Bar Association Section of Antitrust Law, “Aftermarkets and Tying: The Legacy of *Kodak*” Session, March 26, 2009
- » “Have Big Deal Contracts Prevented Entry by Small Publishers of Academic Journals?” International Industrial Organization Conference, Washington, DC, May 17, 2008, with S. Silberman, D. Haar and R. Lipstein.
- » “Collusion: Price-fixing and Bid-rigging.” (IFC/World Bank), Bangladesh, April 15, 2008.
- » “Open Access Policies, Net Neutrality and Incentives for Innovation in the Telecommunications Industry” 19<sup>th</sup> Annual Western Conference, Advanced Workshop in Regulation and Competition, Center for Research in Regulated Industries, Rutgers Business School, Rutgers University, June 29, 2006, with Michael Pelcovits.
- » Department of Justice/Federal Trade Commission Section 2 Hearings on Single Firm Conduct: Predatory Buying Panel. Washington, DC, June 22, 2006
- » “Market Share Discounts: Collusion and Exclusion.” International Industrial Organization Conference, Boston, April 9, 2006, with Daniel Haar.
- » “On Using Economists as Expert Witnesses.” 54<sup>th</sup> Antitrust Law Spring Meeting, American Bar Association Section of Antitrust Law, “Economic Experts Speak” Session, March 29, 2006
- » “Mergers Without Markets: Do Mergers Among Publishers Of Academic Journals Affect Prices?” MiCRA Working Paper No. 2, November 4, 2005, with Renee Duplantis, Daniel Haar, Steve Silberman and Hal Van Gieson, available at [www.micradc.com](http://www.micradc.com).
- » “Antitrust Issues in Agriculture,” National Agricultural Council Global Agrifood Forum 2005, Mexico City, June 10, 2005.
- » “The Economics of Vertical Restraints,” ABA Economics Committee, Economics for Lawyers, April 20, 2005. See [www.micradc.com](http://www.micradc.com)
- » “On Using an Economist as an Expert Witness.” DOJ / FTC Trial Strategy Program, Airlie House, January 29, 2004
- » Presentation at the ABA Session on *Dentsply*, November 4, 2003
- » Presentation at the ABA Antitrust Meetings in San Francisco, August 11, 2003

- » “The Contribution of the Merger Guidelines to the Analysis of Non-Horizontal Mergers,” 20<sup>th</sup> Anniversary of the 1982 Merger Guidelines: The Contribution of the Merger Guidelines to the Evolution of Antitrust Doctrine, May 21, 2002, on <http://www.usdoj.gov/atr/hmerger.htm#papers>.
- » “Congestion Pricing at Airports,” ACI-NA 11<sup>th</sup> Annual Conference, Salt Lake City, November 12, 2002; 2001 FAA Commercial Aviation Forecast Conference, Washington, D.C., March 14, 2001; ACI-NA 9<sup>th</sup> Annual Conference, New York City, October 3, 2000.
- » FTC Workshop: Competition Policy in the World of B2B Electronic Marketplaces, June 30, 2000.
- » FTC Workshop: Slotting Allowances, June 1, 2000.
- » “Consumers, Consolidation, and Concentration: Policy Issues,” at the ERS of the USDA conference, The American Consumer and the Changing Structure of Food System, May 4, 2000.
- » “Design and Implementation of Competition Law and Policy” and “Mergers, Acquisitions and Other Structural Arrangements.” Competition Law and Policy: Cross-country Approaches Experiences. World Bank Institute, Singapore Trade Development Board, and Organization for Economic Co-operation and Development May 14-May 20, 2000.
- » “The Case Against an Agrarian Antitrust Policy,” 2000 USDA Agriculture Outlook Forum. February 24, 2000.
- » “Is Structure Still Enough”, 25<sup>th</sup> Anniversary of the EPO/EAG, November 4, 1998
- » “Proving Damages in a Business Case,” Business Litigation Seminar, Business Law Section of the Florida Bar, November 20 (Tampa) - 21 (Miami), 1997.
- » “Basic Economics for Lawyers,” Section of Antitrust Law, American Bar Association, New York, N.Y., October 3-4, 1996.
- » “Vertical Control in the Entertainment Industry,” Chair’s Showcase Program: The Integration, Disintegration and Reintegration of the Entertainment Industry, American Bar Association, Section of Antitrust Law, 44<sup>th</sup> Annual Antitrust Spring Meeting, Washington D.C., March 28, 1996.
- » “Privatization and Regulation in the Restructuring of Electric Utilities in Eastern Europe,” IBRD Conference on the Privatization of Electric Utilities, Prague, The Czech Republic, September 1993.
- » “Implications of the United States Experience with Regulation and Antitrust for Competition Policy in Countries in Transition from Centrally Planned Economies to Market Economies,” IBRD/EDI/USAID Seminar on Microeconomics, Vienna, Austria, July 1993.

- » “The Economics of Punitive Damages.” Punitive Damages after TXO: American Bar Association Antitrust Section Meeting, New York, August, 1993.
- » “Regulatory Alternatives for FERC Following the Energy Policy Act of 1992,” The Federal Energy Bar Association Mid-Year Meeting, Washington, D.C., November 19, 1992.
- » “The Economics of Credit Card Interest Rate Caps,” Seminars at the Economic Analysis Group, U.S. Department of Justice, September 29, 1992; the Board of Governors of the Federal Reserve System, October 7, 1992; and the D.C. Bar Association, November 19, 1992.
- » “Straws in the Bottleneck: A Proposal for Efficient Network Interconnection,” presented at the Tenth Biennial Conference of the International Telecommunications Society, Cannes, France, June 1992; *Journal of Regulatory Economics* Editors' Conference, San Diego, October 1992, with John Woodbury and Glenn Woroch.
- » “Economic Principles of Penalties for Antitrust Violations, and the Role of the Economist in Corporate Sentencing,” Corporate Sentencing Under the Federal Sentencing Guidelines for An Antitrust Defendant, The Federal Bar Association, Antitrust and Trade Regulation Section, May 1992.
- » “The State of Antitrust in 1991: A Kindler, Gentler Antitrust?” The CATO Institute Conference, 1991, with Steve Calkins.
- » “Economic Analysis and Policy Implications of the Financial Interest and Syndication Rule,” Telecommunications Policy Research Conference, October 1990, with John Woodbury.
- » “The Design and Evaluation of Competitive Rules Joint Ventures for Mergers and Natural Monopolies,” American Enterprise Institute conference on Policy Approaches to the Deregulation of Network Industries, October 1990, and at the American Economic Association Meetings, December 1989, with John Woodbury.
- » “Regulation and the Partially Monopolized Network: Lessons from Telecommunications,” American Enterprise Institute conference on Policy Approaches to the Deregulation of Network Industries, October 1990, with Roger Noll.
- » “Price Regulation and Common Carrier Regulation,” AEI Conference on Oil Pipeline Deregulation, American Enterprise Institute.
- » “Regulation of New Crude-Oil Pipelines: Natural Monopoly and Information Externalities,” AEI Conference on Oil Pipeline Deregulation, American Enterprise Institute.
- » “Economic Theory as the Missing Link in the Merger Guidelines,” American Bar Association Antitrust Section Spring Meeting, March 1990.



- » “Testing the Structure-Competition Relationship on Cross-Sectional Firm Data,” *Economic Analysis Group Discussion Paper #88-6*, May 1988, and at the Southern Economic Association Meetings, November 1986, with Donald M. Brown.
- » “Deterring Criminal Antitrust Behavior: Sanctions versus Structure,” Stanford University Conference, June 1987.
- » “Deregulation of Electric Power Generation,” New Mexico State University Conference, September 1986, and Edison Electric Institute, April 1987.
- » “Do Successful Tender Offers Benefit Bondholders?” Southern Economic Association Meetings, November 1986, with Catherine Benham, Donald M. Brown and Susan E. Woodward.
- » “Professional Ethics and Financial Incentives: ‘Appropriate’ Medical Care,” *Washington University Department of Economics Working Paper #40*, May 1982, with Robert Woodward.
- » “Hospital Care Expenditure Inflation: Crisis or Consumption?” *Washington University Department of Economics Working Paper #43*, December 1982, with Robert Woodward and Walter Chien.
- » “Transfer Pricing within U.S. Corporations,” Sixth U.S.-Soviet Economic Symposium; Alma-Ata, Kazakhstan, U.S.S.R., May - June, 1981.
- » “The Impact of Automobile Mileage Standards,” Western Economic Association Meetings, 1979, with Michael Smirlock.
- » “The Effect of Factor-Augmenting Technical Change on Factory Demand, and the Response by Factor Suppliers,” Western Economic Association Meetings, October 1977.
- » “Vertical Integration in Telecommunications,” Telecommunications Policy Research Conference, April 1974.

## **Other Papers**

- » Brief of Amici Curiae of Economics Professors and Scholars in Support of Petitioner, Supreme Court of the United States, *Leegin Creative Leather Products, Inc. v. PSKS Inc. (d.b.a. Kay’s Closet...Kay’s Shoes)*, No. 06-480, January 2007.
- » Brief of Amici Curiae of Economics Professors in Support of Respondent, Supreme Court of the United States, *Verizon Communications, Inc. v. Law Offices of Curtis v. Trinko, LLP*, No. 02-682, July 25, 2003.
- » Brief Amici Curiae of Economics Professors and Scholars in Support of Respondent, Supreme Court of the United States, *Lotus Development Corp. v. Borland International, Inc.*, No. 94-2003, December 1995.



- » “Implementing Competitive Rules Joint Ventures for Railroads,” IBRD (World Bank), April, 1995.
- » “Critical Loss and Critical Elasticity: Their Derivation and Use in Market Definition for Mergers,” November 1994.
- » “When Nominally Monopolistically-Competitive Firms are Really Perfectly Competitive: Going First-Class on the Paris Metro,” July 1986.
- » “Mandatory Energy Performance Standards and Residential Energy Demand,” 1981, with Alan Rockwood and Richard Adams.
- » “The Effects of Endogenous Quality Change on Demand and Costs,” October 1977.

### **Testimony, Commissioned Studies, and Government Consulting**

- » FTC: FTC v. Ardagh Group S.A. and Saint-Gobain Containers, United States District Court for the District of Columbia, 1:13-cv-01021 (RMC). Expert Report August 28, 2013. Deposition, September 13, 2013.
- » Reed Construction Data, Inc.: Reed Construction Data, Inc. v. The McGraw-Hill Companies, Inc. et al., United States District Court, Southern District of New York, Case No. 09-cv-8578 (JPO). Expert Liability Report and Expert Damages Report, September 7, 2012. Liability deposition, February 6, 2013. Damages deposition, March 12, 2013, Supplemental Report Deposition, June 19, 2013.
- » Graco: Graco Inc. and Graco Minnesota Inc. v. PMC Global, Inc. et al., United States District Court, District of New Jersey. Case No. : 08-CIV-1304 (FLW) (JJH). Reply Report, February 1, 2011. Deposition May 17, 2011. Second Reply Report, August 29, 2012. Deposition, October 2, 2012.
- » NCA: In Re: Air Cargo Shipping Services Antitrust Litigation, United States District Court Eastern District of New York, 06-MD-1775 (JG) (VVP). Declaration, May 25, 2012, Deposition, July 20, 2012.
- » Novell: In Re: Microsoft Corp. Antitrust Litigation, United States District Court, District of Maryland, MDL Docket No. 1332. Expert Report, May 1, 2009. Rebuttal Report, July 27, 2009. Deposition, August 13, 2009. Trial testimony, November 16-17, 2011.

- » U.S. Department of Justice, Antitrust Division: Expert witness in U.S. v. H&R Block, Inc.; 2SS Holdings, Inc.; and TA IX L.P., United States District Court for the District of Columbia, Civil Action No. 11-00948. Expert Report, July 25, 2011. Expert Reply Report, August 18, 2011. Deposition, August 31, 2011. Trial Testimony September 8, 9 & 20, 2011. See Memorandum Opinion, Judge Beryl A. Howell, November 10, 2011.
- » State of New York: State of New York, by Attorney General Andrew M. Cuomo v. Intel Corporation, United States District Court for the District of Delaware. Expert Report, July 25, 2011. Deposition, October 4-6, 2011.
- » Mylan Pharmaceuticals, Inc: Schering Corporation and MSP Singapore Corporation LLC v. Mylan Pharmaceuticals Inc., United States District Court for the District of New Jersey, Civil Action No. 2:09-cv-06383 and 2:10-cv-3085. Expert Report, August 16, 2011.
- » Western Coal Traffic League: Verified Statement on Competition in the Railroad Industry before the Surface Transportation Board, STB Ex Parte 705, April 12, 2011 (with Kenneth C. Baseman).
- » Ethypharm: Ethypharm S.A. France v. Abbott Laboratories, United States District Court for the District of Delaware, Case No. 08-126-SLR; Expert Report January 31, 2011. Reply Report March 28, 2011. Deposition May 3, 2011
- » Neon: Neon Enterprise Software, LLC v. International Business Machines Corporation, United States District Court, Western District of Texas, Case No. A09CA896JN; Expert Report, February 10, 2011.
- » Commonwealth of Pennsylvania: Commonwealth of Pennsylvania v. TAP Pharmaceutical Products, Inc., et al., Commonwealth Court of Pennsylvania, Case No. 212 MD 2004;
  - a) Commonwealth of Pennsylvania v. Bristol-Myers Squibb Company, et al.; Expert Report July 20, 2010. Supplemental Report August 9, 2010. Testimony August 25, 2010. See <http://www.leagle.com/xmlResult.aspx?page=124&xmlDoc=In%20PACO%2020110831460.xml&docbase=CSLWAR3-2007-CURR&SizeDisp=7> See also Opinion re Post-Trial Motions of the Commonwealth of Pennsylvania and Bristol-Myers Squibb Company Defendants, Filed: August 31, 2011
  - b) Commonwealth of Pennsylvania v. Johnson & Johnson Services Inc., et al.; Supplemental Report September 30, 2010. Testimony November 3, 2010. See Opinion re Post-Trial Motions of the Commonwealth of Pennsylvania and Johnson & Johnson Defendants, Filed: August 31, 2011
  - c) Commonwealth of Pennsylvania v. Pfizer Inc., et al.; Supplemental Report, February 11, 2011.

- » L-3: L-3 Communications Integrated Systems, LP v. Lockheed Martin Corporation, United States District Court for the Northern District of Texas, Dallas Division, Civil Action Number 3:07-CV-0341-B, Expert Report, September 21, 2009. Deposition, November 10, 2009.
- » AT&T: In Re: Universal Service Fund Telephone Billing Practice Litigation, United States District Court, District of Kansas, Case No. 02-md-1468-JWL, Expert Report and Deposition, July-August 2008. Trial testimony, November 2008.
- » Entergy: Entergy Arkansas, Inc. and Entergy Services, Inc. v. Union Pacific Railroad Company and Missouri & Northern Arkansas Railroad Company, Inc., Surface Transportation Board, Docket No. 42104, Verified Statement (with John Kwoka), July 2008; Rebuttal Statement (with John Kwoka), September 2008.
- » Joe Comes, et.al: Joe Comes, Riley Paint, Inc., an Iowa Corporation; Skeffington's Formal Wear of Iowa, an Iowa Corporation; and Patricia Anne Larson v. Microsoft Corporation, a Washington Corporation, Iowa District Court for Polk County, Case No. CL82311. Expert Report, June 2, 2006; Deposition July 28, 2006; Rebuttal Report September 29, 2006; Deposition November 2, 2006.
- » Secure Data in Motion, Inc.: PostX Corporation v. Secure Data in Motion, Inc. et al., United States District Court, Northern District of California, Case Nos. C02-04483 SI and C03-0521. Expert Report, Deposition, and Declaration, April-July, 2005, Testimony March, 2006.
- » MAN Roland, Inc.: MAN Roland Inc. and MAN Roland Druckmaschinen AG v. Heidelberg Web Systems, Inc. and Heidelberger Druckmaschinen AG, United States District Court for the District of New Hampshire, Civil Action No. C-03-513-SM. Expert Report. Deposition, December 13, 2005.
- » 21<sup>st</sup> Services: Coventry First LLC v. 21<sup>st</sup> Services, United States District Court for the Eastern District of Pennsylvania, Civil Action No. 04-05239-PBT. Expert Report November 11, 2005. Deposition, December 1, 2005.
- » State of Alaska: (a) Testimony before the Alaska State legislature on the acquisition of ARCO by BP, January 19, 2000. (b) "Competitive Effects of Producer Ownership Of The Proposed Alaska Natural Gas Pipeline," March 23, 2005.
- » Attorneys General of the Commonwealth of Pennsylvania and other States: Fatemah Azizian, et al. v. Federated Department Stores, Inc., et al., Declaration September 10, 2004.
- » Oldcastle, Inc.: The State of Utah v. Oldcastle Inc and Oldcastle Materials, Inc. U.S. District Court, District of Utah Central Division. Civil No. 2 02 CV-5165. Testimony

- » Material Technologies, Inc.: Material Technologies, Inc. and Net Shape LLC v. Carpenter Technology Corporation and Vallourec, SA. United States District Court for the District of New Jersey, Civil Action No. 01-CV-2965 (SRC). Expert Report, April 14, 2003, and deposition.
- » Six West Retail Acquisition Inc.: Six West Retail Acquisition, Inc. v. Sony Theater Management Corporation et. al., U.S. District Court, Southern District on New York, 97 Civ. 5499 (LAP) (JCF). Expert Report, December 23, 2002; Rebuttal Report, February 19, 2003, Deposition, February 25, 2003.
- » In Re. Microsoft Corp. Antitrust Litigation: U.S. District Court, District of Maryland, MDL Docket No. 1332, Liability Report, August 26, 2002, Rebuttal Report, November 4, 2002, Deposition, February 20-21, 2003.
- » Brown & Williamson Tobacco Corporation: Declaration and deposition of Frederick R. Warren-Boulton, in R.J. Reynolds Tobacco Company v. Philip Morris, Inc., Lorillard Tobacco Company v. Philip Morris, Inc., Brown & Williamson Tobacco Corp., v. Philip Morris, Inc., U.S. District Court, Middle District of North Carolina. Civil Action Nos. 1:99CV185, 1:99CV207, and 1:99CV232.
- » Menasha Corporation: Expert and supplemental report and deposition in Menasha Corporation v. News America Marketing In-Store, et al., U.S. District Court, Northeastern District of Illinois Eastern Division, Civil Action No. 00C-1895.
- » European Consumers: In Support of Statement of Objections Allegations, Case No. IV/C-3/37.345 Microsoft, Expert Report and Presentation 2001.
- » Power Mosfet Technologies, L.L.C. Expert witness in Power Mosfet Technologies, L.L.C. v. Infineon Technologies Corp., et al., U.S. District Court, Eastern District of Texas, Marshall Division, Cause No. 2-99-CV00168-DF. Expert Report; Deposition August 11, 2001; Trial testimony August 29, 2001.
- » Southwest Recreational Industries: (a) Expert witness in Southwest Recreational Industries v. FieldTurf, Inc. Trial testimony November 28, 2000; (b) Southwest Recreational Industries, Inc. v. Field Turf, Inc. US District Court, Eastern District of Kentucky, Civil Action No. 00-12. Expert reports, May 4, 2001 and Nov. 1, 2002.
- » J. Paul Getty Trust: In Re. Auction Houses Antitrust Litigation, U.S. District Court, Southern District of New York. Civ. 0648 (LAK), Expert Report, Jan. 12, 2001.
- » Anthony D. Viazis: Expert witness in Anthony D. Viazis v. American Association of Orthodontists. U.S. District Court, Eastern District of Texas, Sherman Division. Civil Action No. 4:98-CV-245, Expert report (with David Eisenstadt), July 13, 2000. Trial testimony, November 9, 2000.
- » Ventana Medical Systems: Report and testimony, Department of Energy, March 8, 2000.

- » State of New York, et al., and U.S. Department of Justice: Expert witness in United States of America v. Microsoft Corporation, and State of New York ex rel. v. Microsoft Corporation. C.A. No. 98-1232 (TPJ) and CA. No. 98-1233 (TTPJ). Declaration May 15, 1998, Report September 3, 1998, Deposition September 26, 1998, Direct Testimony and Trial Testimony November 19 - December 1, 1998.
- » Brunswick Corporation: Expert witness in Concord Boat Co. et al. v. Brunswick Corporation. U.S. District Court, Eastern District of Arkansas, Western Division. Trial testimony June 11, 1998. Depositions February 2-4, 1998.
- » Bepco, Inc.: Deposition in Bepco, Inc. et al. v. Allied Signal, Inc. and Allied Signal Truck Brake System Company, U.S. District Court for the Middle District of North Carolina Winston-Salem Division. C.A. No. 6:96CV00274, November 25-26, 1998.
- » St. Louis Convention and Visitors Commission: Declaration in St. Louis Convention and Visitors Commission v. National Football League, et al.; U.S. District Court, Eastern District of Missouri, Eastern Division, C.A. No. 4:95CV02443 JCH, September 12, 1997.
- » AT&T: (a) Direct testimony and deposition in State of Indiana, Indiana Utility Regulatory Commission, Cause No. 397051994, April 1994; (b) Position paper on Docket No. 94-07-02: Development of the Assumptions, Tests, Analysis and Review to Govern Telecommunications Service Reclassifications in Light of the 8 Criteria Set Forth in Section 8 of Public Act 94-83. State Of Connecticut, Department of Public Utility Control, October 1994; (c) Comments on the Position Papers on Docket No. 94-07-02. State Of Connecticut, Department of Public Utility Control, November 1994; (d) Rebuttal Testimony in Kansas Corporation Commission Docket No. 190, 492-U, July 15, 1996; (e) Direct and Rebuttal Testimony in AT&T Communications of the Southwest Inc., Missouri Case No. TO-97-40; (f) Direct testimony in Southwestern Bell Telephone Company of Kansas' Compliance with Section 271 of the Federal Telecommunications of 1996, The State Corporation Commission of the State of Kansas. Docket No. 97-SWBT-411-GIT, May 12, 1998; (g) Application of Ernest G. Johnson, Director of the Public Utility Division Oklahoma Corporation Commission to Explore The Requirements of Section 271 of the Telecommunications Act of 1996, Cause No. PUD 970000064; (h) Declaration in Implementation of the Pay Telephone Reclassification and Compensation Provisions of the Telecommunications Act 1996, Federal Communications Commission, CC Docket No. 96-128, September 9, 1997; (i) Testimony in MGC Communications, Inc. v. AT&T Corporation, Federal Communications Commission: trial testimony June 28, 1999; (j) Testimony in Fibercomm, L.C., et al v. AT&T Communications of the Midwest, Inc., before the Iowa Utilities Board, December 20, 2000; (k) Affidavit, supplemental affidavit and deposition in AT&T Corporation v. Business Telecom, Inc., Federal Communication Commission. File No. EB-01-MD-002, January - March 2000; (l) Expert Report in Advantel, LLC, et al, v. AT&T Corp.

- » Federal Trade Commission: (a) Study on Vertical Distribution Arrangements, January 1, 1977 - August 1, 1978; (b) Expert witness in FTC v. Staples and Office Depot; U.S. District Court, District of Columbia, Trial Testimony, May 1997.
- » Leo One USA: Affidavit in Amendment of Part 25 of the Commission's Rules to Establish Rules and Policies Pertaining to the Second Processing Round of the Non-Voice, Non-Geostationary Mobile Satellite Service, FCC Docket No. 96-220, December 20, 1996.
- » Florida Panthers Hockey Club: Expert witness in Florida Panthers Hockey Club v. Miami Sports and Exhibition Authority and The City of Miami; U.S. District Court, Southern District of Florida Miami Division, Case No. 96-21 68-CIV. Trial Testimony, August, 1996.
- » ADM: "An Evaluation of: The Cost to U.S. Animal-Feed Manufactures of an Alleged Price-Fixing Conspiracy by Lysine Manufactures 1992-1995," Report, August 1996.
- » MCI: (a) Depreciation and Capital Recovery Issues, "Response to Professor Hausman," with K. Baseman and S. Woodward, FCC Docket No. 96-98, July 1996; (b) Direct testimony in Southwestern Bell Telephone Company of Kansas' Compliance with Section 271 of the Federal Telecommunications of 1996, The State Corporation Commission of the State of Kansas. Docket No. 97-SWBT-411-GIT, May 12, 1998; (c) Declaration in Application of BellSouth Corporation, BellSouth Telecommunications, Inc. and BellSouth Long Distance, Inc. for Provision of In-Region, InterLATA Services in South Carolina. FCC Docket No. 97-208, October 17, 1997 (with Kenneth C. Baseman); (d) Declaration and supplemental declaration in Joint Applications of MCI WorldCom, Inc. and Sprint Corporation for Consent to Transfer Control, CC Docket No. 99-333, March 2000 and June 2000.
- » K-2, Rossignol, Salomon, Tecnica, Skis Dynastar, Marker and The Ski Market: Expert witness in Sports Investment Co. vs. The Ski Market, Ltd., Inc., et al., U.S. District Court, District of Rhode Island, C.A. No. 95-097T. Deposition, December 1995.
- » U.S. Department of Justice, Antitrust Division: (a) Expert witness in U.S. v. AT&T, 1981; (b) Regulation of oil pipelines, August 1983; (c) Expert witness in United States of America v. Engelhard Corporation, Florid in Company, U.S. Borax Inc., U.S. Silica Inc. Case No. 6:96-CV-45 (WLS), Depositions, Trial Testimony August 1995 (d) Declaration in United States of America v. Dairy Farmer of America, Inc., et al.
- » City of Los Angeles: Declaration in Air Transport Association of America, et al., v. City of Los Angeles, City of Los Angeles Department of Airports and Los Angeles Board of Airport Commissioners, Docket No. 50176, March 1995, and Supplemental Declaration, April 1995.
- » The Bon-Ton Stores, Inc.: Declaration in The Bon-Ton Stores, Inc. v. The May Department Stores Company, McCurdy & Company, Inc., and Wilmorite, Inc., Civil Action No. 94-CV-6454L, November 1994.

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- » Cyrix Corporation: Deposition in Cyrix Corporation v. Intel Corporation, December 1993.
- » Thermadyne Industries: Deposition in Thermadyne Industries, Inc. and Coyne Cylinder Co. v. K.C. Cylinder *et al.*, December 1993.
- » IBRD (World Bank): (a) Privatization and Regulation in the Restructuring of Electric Utilities in Eastern Europe, Prague, September 1993; (b) Implications of the United States Experience with Regulation and Antitrust for Competition Policy in Countries in Transition from Centrally Planned Economies to Market Economies, July 1993.
- » Credit Card Coalition: “The Economics of Credit Card Interest Rate Caps,” 1993, with Laurence H. Meyer.
- » Coalition to Preserve the Financial Interest and Syndication Rule: (a) Testimony before the Federal Communications Commission, December 7, 1990, in the matter of Evaluation of the Syndication and Financial Interest Rules, MM Docket No. 90-162; (b) Submitted reports: “Economic Analysis and Policy Implications of the Financial Interest and Syndication Rule,” June 14, 1990; “Reply Comments,” August 1, 1990; “Economic Analysis and Policy Implications of the Financial Interest and Syndication Rule,” January 24, 1991, with John Woodbury; (c) Declaration of Frederick R. Warren-Boulton, August 7, 1992, Exhibit 7, Comments of the Coalition to Preserve the Financial Interest and Syndication Rule on Proposed Modification of Network Consent Decrees. In United States of America v. CBS, Inc. Civil No. 74-3599-RJK, United States of America v. American Broadcasting Companies, Inc. Civil No. 74-3600-RJK, and United States of America v. National Broadcasting Company, Inc. Civil No. 74-3601-RJK.
- » California Public Utility Commission, Division of Ratepayer Advocacy: Proposed merger of Southern California Edison Company and San Diego Gas and Electric Company, July 1990.
- » Altai, Inc.: Expert witness in Computer Associates, Inc. v. Altai, Inc., April 1990.
- » NFL Players Association: Deposition in Marvin Powell v. National Football League, September 1989.
- » Consolidated Aluminum Corporation: Deposition in Indal, Inc. v. Consolidated Aluminum Corp., April 1983.
- » Battelle, Pacific Northwest Laboratories. Analyses of bidding for offshore oil leases and of the effects of Building Energy Performance Standards on energy demand, September 1979 -1981.
- » U.S. Senate Commerce Committee, Senator Danforth presiding: Testimony on corporate average fuel economy (CAFÉ) standards, November 15, 1979.
- » State of Missouri, Office of the Public Counsel: Expert witness on electric utility rate structures, 1978.



### **Fields Taught**

- » Graduate: Industrial Organization, Economic Development and Planning, Microeconomic Theory, International Trade, International Finance, Economic Theories of Behavior, Applied Microeconomics.
- » Undergraduate: Government and Business, Industrial Organization, International Trade, International Finance, Economic Development, Intermediate Microeconomic Theory, Intermediate Macroeconomic Theory, Introductory Microeconomic Theory, Introductory Macroeconomic Theory.

### **Grants**

- » National Science Foundation. Grant title: "Income Maximizing in Choice and Rate Effects," 1988 - 1991.
- » National Science Foundation. Grant title: "Application of Economic Theory to Operant Schedule Effects," 1985 - 1987.
- » National Science Foundation. Grant title: "Income and Choice," 1983 - 1985.

### **Professional Activities**

- » Referee, *American Economic Review*, *The Bell Journal of Economics/Rand Journal*, *Economic Inquiry*, *Industrial Organization Review*, *Journal of Industrial Economics*, *Journal of Law and Economics*, *Journal of Political Economy*, *Quarterly Journal of Economics*, *Southern Economic Journal*.
- » Member, Editorial Boards, *International Journal of the Economics of Business*, *Journal of Forensic Economics*.
- » Member, American Bar Association, American Economic Association.

### **Languages**

- » French, German

### **Citizenship**

- » United States, United Kingdom