

HIGHLY CONFIDENTIAL – ATTORNEYS’ EYES ONLY

United States District Court
Northern District of California

Case No. 4:20-cv-05640-YGR
 Case Title Epic Games, Inc. v. Apple, Inc.
 Exhibit No. DX-5548
 Date Entered
 Susan Y. Soong, Clerk
 By: _____ Deputy Clerk

APPENDIX A: CURRICULUM VITAE**Richard Schmalensee**

Howard W. Johnson Professor of Management, Emeritus
Dean Emeritus, MIT Sloan School of Management
Professor of Economics, Emeritus
Massachusetts Institute of Technology

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EDUCATION:

MASSACHUSETTS INSTITUTE OF TECHNOLOGY
 S.B., Economics, Politics and Science, 1965
 Ph.D., Economics, 1970

EMPLOYMENT:

MASSACHUSETTS INSTITUTE OF TECHNOLOGY
 2012- Howard W. Johnson Professor of Management, Emeritus, and
 Professor of Economics, Emeritus
 2007-12 Howard W. Johnson Professor of Management
 2001-07 John C Head III Dean, MIT Sloan School of Management
 1998-00 Dean, MIT Sloan School of Management (Interim, July-October 1998)
 1996-98 Deputy Dean, MIT Sloan School of Management
 1991-99 Director, MIT Center for Energy and Environmental Policy Research
 2008-12
 1988-99 Gordon Y Billard Professor of Management
 1986-12 Professor, Department of Economics
 1979-12 Professor, MIT Sloan School of Management
 1977-79 Associate Professor, MIT Sloan School of Management
 1970 Assistant Professor, MIT Sloan School of Management (Spring)
 1967-69 Instructor, MIT Sloan School of Management
 PRESIDENT'S COUNCIL OF ECONOMIC ADVISERS
 1989-91 Member
 1967 Junior Staff Economist (Summer)
 UNIVERSITY OF CALIFORNIA, SAN DIEGO
 1974-77 Associate Professor, Department of Economics
 1970-74 Assistant Professor, Department of Economics

VISITING APPOINTMENTS:

2008 Executive in Residence, Rady School of Management; U. of California, San Diego (Winter)
 2007 Distinguished Visiting Scholar, Tuck School of Business, Dartmouth College (Fall)
 1985-86 Visiting Professor, Harvard Business School
 1985 Visiting Professor, CORE, University of Louvain, Belgium (Spring)
 1980-81 Visiting Scholar, Department of Economics, Harvard University
 1973-74 Visiting Associate Professor and Research Fellow, Department of Economics,
 University of Louvain, Belgium

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EDITORIAL SERVICE:

Editor in Chief, 2005-08; Chairman, Editorial Advisory Board, 2008-: *Competition Policy International*
Editorial Board: *Journal of Economics and Management Strategy*, 1992-98
Associate Editor: *Journal of Economic Perspectives*, 1992-98
Associate Editor: *International Journal of Industrial Organization*, 1982-89
Board of Editors: *American Economic Review*, 1982-86
Founding Editor, 1978-89; Co-Editor, 1989-: MIT Press Series, *Regulation of Economic Activity*
Associate Editor, 1977-81; Board of Editors, 1981-89: *Journal of Industrial Economics*

PROFESSIONAL ASSOCIATIONS:

American Economic Association: Committee on Government Relations, 2009-12; Executive Committee, 1993-95; Budget Committee, 1993-95; Nominating Committee, 1987; Advisory Committee on Meetings Program, 1986, 1989, 1994
Econometric Society: Chair, Local Arrangements Committee, 1985 World Congress; Chair, Program Committee, 1980 North American Fall Meeting; Program Committee, 1980 World Congress
Second World Congress of Environmental Economists, Program Committee, 2002

CONSULTATION AND GOVERNMENT SERVICE (SELECTED):

Global Economics Group, Director, 2011-
National Climate Assessment Development & Advisory Committee, 2011-14
LECG, LLC: Director, 2004-2011
National Academies/National Research Council: Panel on Transportation and a Sustainable Environment, 1994-97; Committee on National Statistics, 1998-2001; Panel on Cost-of-Living Indexes, 1999-2001; Coordinating Committee on the Transition to Sustainability, 2000-2001; Committee on America’s Climate Choices, 2008-2011; Committee for a Study of Freight Rail Transportation and Regulation (Chair), 2014-15; Committee on the Social Cost of Carbon, 2015-16.
U.S. Environmental Protection Agency: Environmental Economics Advisory Committee, 1992-96, 1998; Clean Air Act Compliance Analysis Council, 1992-98, Chairman 1992-96
Antitrust Division, U.S. Department of Justice, consultant, 1991-92 (1992 Merger Guidelines)
NERA Economic Consulting: Special Consultant 1981-89, 1991-2004
Bureau of Economics, U.S. Federal Trade Commission: consultant, 1972-81 (Antitrust Policy)

AWARDS AND OTHER PROFESSIONAL ACTIVITIES (SELECTED):

Asia School of Business, Board of Governors, 2015- (Co-Chair 2015-18)
Associate Scholar, Harvard Environmental Economics Program, 2013-
Director, National Bureau of Economic Research, 2013- (Executive Committee 2018-)
Chicago Booth IGM Economic Experts Panel, 2012-
Distinguished Fellow, Industrial Organization Society, 2012
John Kuszczek Memorial Lecture, Bank of Canada, 2011
Energy Board Member, Bipartisan Policy Center, 2011-13
Stackelberg Lecture, University of Milan, Bicocca, 2010
Keynote Speaker, World Congress of Environmental and Resource Economists, 2010
Director, Resources for the Future, 2009-18 (Chairman, 2014-18)
Master Class, Rafael del Pino Foundation, Madrid, 2009
Carpenter Lecture, Babson College, 2008
J.-J. Laffont Lecture, CRESSE Summer School, Greece, 2008
Member, National Commission on Energy Policy, 2006-2010
Director, International Data Group, 2004-2017
European Investment Bank Lecture, European University Institute, Florence, 2002
Director, MFS Investment Management, 2002-2004
Advisory Council, Tsinghua School of Economics and Management, 2001-07

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Fathauer Lecture in Political Economy, University of Arizona, 2000
Director, International Securities Exchange, 2000-2009
Member: International Academy of Management, 1998-
Fellow: American Academy of Arts and Sciences, 1995-
Edward A. Hewett Prize, American Association for the Advancement of Slavic Studies (with P.L. Joskow and N. Tsukanova), 1995
Revista de Análisis Económico Lecture, Econometric Society Latin American Meeting, 1994
Director, MIT Press, 1994-2007
Research Associate: National Bureau of Economic Research, 1992-2013
Director: Long Island Lighting Company, 1992-98
Donald Gilbert Memorial Lecture, University of Rochester, 1992
American Council for Capital Formation Center for Policy Research: Board of Directors, 1991-2010;
Environmental Policy Fellow, 1997-98
Fellow, Econometric Society, 1982-
Invited Speaker, Econometric Society World Congress, 1980

BOOKS WRITTEN:

The Economics of Advertising (Vol. 80, Contributions to Economic Analysis), Amsterdam: North-Holland, 1972.

Applied Microeconomics: Problems in Estimation, Forecasting and Decision-Making, San Francisco: Holden-Day, 1973.

An Introduction to Applied Macroeconomics (with E. Kuh), Amsterdam: North-Holland, 1973. Japanese edition, 1975.

The Control of Natural Monopolies, Lexington: D.C. Heath (Lexington Books), 1979.

Markets for Power: An Analysis of Electric Utility Deregulation (with P. L. Joskow), Cambridge: MIT Press, 1983.

Economics, 2nd Ed. (with S. Fischer and R. Dornbusch), New York: McGraw-Hill, 1988. Multiple foreign language editions.

Paying with Plastic: The Digital Revolution in Buying and Borrowing (with D.S. Evans), Cambridge: MIT Press, 1999. Second edition, 2005; Chinese edition, 2006; Korean edition, 2011.

Markets for Clean Air: The U.S. Acid Rain Program (with A.D. Ellerman, P.L. Joskow, J.P. Montero, and E.M. Bailey), Cambridge: Cambridge University Press, 2000.

Did Microsoft Harm Consumers? Two Opposing Views (with D.S. Evans; F.M. Fisher and D.L. Rubinfeld), Washington: AEI Press, 2000.

Invisible Engines: How Software Platforms Drive Innovation and Create Value (with D.S. Evans and A. Hagiu), Cambridge: MIT Press, 2006. Korean edition, 2008; Chinese edition, 2010.

Catalyst Code (with D.S. Evans), Boston: Harvard Business School Press, 2007. Korean edition, 2008; Polish edition, 2010; Chinese edition, 2011.

Matchmakers (with D.S. Evans), Boston: Harvard Business School Press, 2016. French and Korean editions 2017, Chinese and Japanese editions 2018, Vietnamese edition 2019.

Antitrust Analysis of Platform Markets: Why the Supreme Court Got It Right in American Express (with D.S. Evans), Boston: Competition Policy International, 2019.

REPORTS CHAIRED

The Future of the Electric Grid (with J.G. Kassakian), Cambridge: MIT Energy Initiative, 2011.

The Future of Solar Energy, Cambridge: MIT Energy Initiative, 2015.

Modernizing Freight Rail Regulation, Washington: Transportation Research Board, 2015.

BOOKS EDITED:

The Empirical Renaissance in Industrial Economics (ed., with T. F. Bresnahan), Oxford: Basil Blackwell, 1987.

Handbook of Industrial Organization, Vols. I & II (ed., with R. D. Willig), Amsterdam: North-Holland, 1989.

Management: Inventing and Delivering Its Future (ed., with T.A. Kochan), Cambridge: MIT Press, 2003.
Chinese and Korean editions, 2004.

Harnessing Renewable Energy in Electric Power Systems (ed., with B. Moselle and J. Padilla), Washington/London: RFF Press, 2010.

The Causes and Effects of Deregulation. (2 Vols., ed., with P.W. MacAvoy), Cheltenham, UK: Edward Elgar, 2014.

JOURNAL ARTICLES:

"Regulation and the Durability of Goods." *Bell Journal of Economics and Management Science*, 1 (Spring 1970): 54-64.

"Consumer's Surplus and Producer's Goods." *American Economic Review*, 61 (September 1971): 682-687.

"A Note on Monopolistic Competition and Excess Capacity." *Journal of Political Economy*, 80 (May/June 1972): 586-591.

"Option Demand and Consumer's Surplus: Valuing Price Changes Under Uncertainty." *American Economic Review*, 62 (December 1972): 813-824.

"A Note on the Theory of Vertical Integration." *Journal of Political Economy*, 81 (March/April 1973): 442-449.

"Brand Loyalty and Barriers to Entry." *Southern Economic Journal*, 40 (April 1974): 579-588.

"Market Structure, Durability, and Maintenance Effort." *Review of Economic Studies*, 41 (April 1974): 277-287.

"Estimating the Costs and Benefits of Utility Regulation." *Quarterly Review of Economics and Business*, 14 (Summer 1974): 51-64.

"Consumer Behavior versus Economic Theory." *Recherches Economiques de Louvain*, 40 (September 1974): 261-276.

"Alternative Models of Bandit Selection." *Journal of Economic Theory*, 10 (June 1975): 333-342.

"An Experimental Study of Expectation Formation." *Econometrica*, 44 (January 1976): 17-41.

"Another Look at the Social Valuation of Input Price Changes." *American Economic Review*, 66 (March 1976): 239-243.

"Resource Exploitation Theory and the Behavior of the Oil Cartel." *European Economic Review*, 7 (April 1976): 257-279.

"Advertising and Profitability: Further Implications of the Null Hypothesis." *Journal of Industrial Economics*, 25 (September 1976): 45-54.

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- "A Model of Promotional Competition in Oligopoly." *Review of Economic Studies*, 43 (October 1976): 493-507.
- "Is More Competition Necessarily Good?" *Industrial Organization Review*, 4 (1976): 120-121.
- "Public Investment Criteria, Insurance Markets, and Income Taxes." *Journal of Public Economics*, 6 (November 1976): 425-445.
- "Valuing Changes in Regulated Firms' Input Prices." *Southern Economic Journal*, 43 (January 1977): 1346-1351.
- "Using the H Index of Concentration with Published Data." *Review of Economics and Statistics*, 59 (May 1977): 186-193.
- "Comparative Static Properties of Regulated Airline Oligopolies." *Bell Journal of Economics*, 8 (Autumn 1977): 565-576.
- "Nonconvexity and Optimal Exhaustion of Renewable Resources" (with T. R. Lewis). *International Economic Review*, 18 (October 1977): 535-552.
- "Common Stock Volatility Expectations Implied by Option Premia" (with R. R. Trippi). *Journal of Finance*, 33 (March 1978): 129-147.
- "A Note on Economies of Scale and Natural Monopoly in the Distribution of Public Utility Services." *Bell Journal of Economics*, 9 (Spring 1978): 270-276.
- "A Model of Advertising and Product Quality." *Journal of Political Economy*, 87 (June 1978): 485-504.
- "Life-Cycle Costing for Consumers of Energy-Conserving Devices" (with S. S. Penner and M. R. Brambley). *Energy*, 3 (July/August 1978): 415-419.
- "Entry Deterrence in the Ready-to-Eat Breakfast Cereal Industry." *Bell Journal of Economics*, 9 (Autumn 1978): 305-327. Reprinted in *Market Strategy and Structure* (J.M.A. Gee and G. Norman, eds.), London: Harvester Wheatsheaf, 1992, pp. 84-111.
- "Market Structure, Durability, and Quality: A Selective Survey." *Economic Inquiry*, 17 (April 1979): 177-198.
- "On the Use of Economic Models in Antitrust: The ReaLemon Case." *University of Pennsylvania Law Review*, 127 (April 1979): 994-1050. Reprinted in *Antitrust Law and Economics* (O. E. Williamson, ed.), Houston: Dame, 1980, pp. 97-153.
- "Nonconvexity and Optimal Harvesting Strategies for Renewable Resources" (with T. R. Lewis). *Canadian Journal of Economics*, 12 (November 1979): 677-691.
- "Appropriate Government Policy Toward Commercialization of New Energy Supply Technologies." *Energy Journal*, 1 (April 1980): 1-40.
- "Advertising and Aggregate Consumption: An Analysis of Causality" (with R. Ashley and C. W. J. Granger). *Econometrica*, 48 (July 1980): 1149-1168.
- "On Oligopolistic Markets for Nonrenewable Natural Resources" (with T. R. Lewis). *Quarterly Journal of Economics*, 95 (November 1980): 475-491.
- "Qualitative Asymptotic Synthesis in Simple Optimal Control Problems." *Economic Letters*, 5 (1980): 349-352.
- "Output and Welfare Implications of Monopolistic Third-Degree Price Discrimination." *American Economic Review*, 71 (March 1981): 242-247.
- "Risk and Return on Long-Lived Tangible Assets." *Journal of Financial Economics*, 9 (June 1981): 185-205.

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- "Monopolistic Two-Part Pricing Arrangements." *Bell Journal of Economics*, 12 (Autumn 1981): 445-466.
- "Economies of Scale and Barriers to Entry." *Journal of Political Economy*, 89 (December 1981): 1228-1238.
- "Commodity Bundling by Single-Product Monopolies." *Journal of Law and Economics*, 25 (April 1982): 67-71.
- "Antitrust and the New Industrial Economics." *American Economic Review*, 72 (May 1982): 24-28.
- "Cartel Deception in Markets for Nonrenewable Resources" (with T. R. Lewis). *Bell Journal of Economics*, 13 (Spring 1982): 263-271.
- "Another Look at Market Power." *Harvard Law Review*, 95 (June 1982): 1789-1816.
- "Product Differentiation Advantages of Pioneering Brands." *American Economic Review*, 72 (June 1982): 349-365. ("Errata," *AER*, 73 (March 1983): 250).
- "George Stigler's Contributions to Economics." *Scandinavian Journal of Economics*, 85 (March 1983): 77-86.
- "Advertising and Entry Deterrence: An Exploratory Model." *Journal of Political Economy*, 91 (August 1983): 636-653.
- "The Impact of Scale and Media Mix on Advertising Agency Costs" (with A. J. Silk and R. Bojanek). *Journal of Business*, 56 (October 1983): 453-475.
- "Gaussian Demand and Commodity Bundling." *Journal of Business*, 57 (January 1984): S211-S230.
- "Estimating Effective Concentration in Deregulated Wholesale Electricity Markets" (with B. W. Golub). *RAND Journal of Economics*, 15 (Spring 1984): 12-26.
- "Imperfect Information and the Equitability of Competitive Prices." *Quarterly Journal of Economics*, 99 (August 1984): 441-460.
- "Adversary Hydro Relicensing Applications: Using Economic Efficiency Criteria" (with P. L. Joskow). *Public Utilities Fortnightly*, 114 (20 December 1984): 22-28.
- "Econometric Diagnosis of Competitive Localization." *International Journal of Industrial Organization*, 3 (March 1985): 57-70.
- "Do Markets Differ Much?" *American Economic Review*, 75 (June 1985): 341-351.
- "Estimated Parameters as Independent Variables: An Application to the Costs of Electric Generating Units" (with P. L. Joskow). *Journal of Econometrics*, 31 (April 1986): 275-305.
- "Incentive Regulation for Electric Utilities" (with P. L. Joskow). *Yale Journal on Regulation*, 4 (Fall 1986): 1-49.
- "The Empirical Renaissance in Industrial Economics: An Overview" (with T. F. Bresnahan). *Journal of Industrial Economics*, 35 (June 1987): 371-378.
- "Collusion versus Differential Efficiency: Testing Alternative Hypotheses." *Journal of Industrial Economics*, 35 (June 1987): 399-425.
- "Ease of Entry: Has the Concept Been Too Readily Applied?" *Antitrust Law Journal*, 56 (1987): 41-51.
- "The Performance of Coal-Burning Electric Generating Units in the United States: 1960-1980" (with P. L. Joskow). *Journal of Applied Econometrics*, 2 (April 1987): 85-109.
- "Horizontal Merger Policy: Problems and Changes." *Journal of Economic Perspectives*, 1 (Fall 1987): 41-54.

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- "Competitive Advantage and Collusive Optima." *International Journal of Industrial Organization*, 5 (December 1987): 351-367.
- "Industrial Economics: An Overview." *Economic Journal*, 98 (September 1988): 643-681. Reprinted in *Surveys in Economics*, Vol. 2 (A.J. Oswald, Editor), Oxford: Basil Blackwell, 1991, pp. 51-89.
- "Perceptual Maps and the Optimal Location of New Products: An Integrative Essay" (with J.-F. Thisse). *International Journal of Research in Marketing*, 5 (1988): 225-249.
- "Intra-Industry Profitability Differences in U.S. Manufacturing: 1953-1983." *Journal of Industrial Economics*, 37 (June 1989): 337-357.
- "An Expository Note on Depreciation and Profitability under Rate-of-Return Regulation." *Journal of Regulatory Economics*, 1 (September 1989): 293-298.
- "Good Regulatory Regimes." *RAND Journal of Economics*, 20 (Autumn 1989): 417-436.
- "Continuity and Change in the Economics Industry." *Economic Journal*, 101 (January 1991): 115-121. Reprinted in *The Future of Economics* (J.D. Hey, ed.), Oxford: Basil Blackwell, 1992, pp. 115-121.
- "Sunk Cost and Market Structure: A Review Article." *Journal of Industrial Economics*, 40 (June 1992): 125-134.
- "Comparing Greenhouse Gases for Policy Purposes." *Energy Journal*, 14 (1993): 245-255.
- "Symposium on Global Climate Change." *Journal of Economic Perspectives*, 7 (Fall 1993): 3-10.
- "Competition Policy in Russia During and After Privatization" (with P.L. Joskow and N. Tsukanova). *Brookings Papers on Economic Activity, Microeconomics*, 1994: 301-374. [Awarded the 1995 Edward A. Hewett Prize by the American Association for the Advancement of Slavic Studies.]
- "Economic Aspects of Payment Card Systems and Antitrust Policy Toward Joint Ventures" (with D.S. Evans). *Antitrust Law Journal*, 63 (Spring 1995): 861-901.
- "The Benefits of Releasing the Bell Companies from the Interexchange Restrictions" (with P.S. Brandon). *Managerial and Decision Economics*, 16 (July-August 1995): 349-364.
- "Privatization in Russia: What Should Be a Firm?" (with P.L. Joskow). *International Journal of the Economics of Business*, 2 (1995): 297-327. Reprinted in *Transaction Cost Economics: Recent Developments* (C. Menard, ed.), Brookfield, VT: Edward Elgar, 1997, pp. 86-126.
- "What Have We Learned About Privatization and Regulatory Reform?" *Revista de Análisis Económico*, 10 (November 1995): 21-39. (Remarks in Roundtable Discussion, pp. 303-312.)
- "Is There a Role for Benefit-Cost Analysis in Environmental Health and Safety Regulation?" (with K.J. Arrow, M.L. Cropper, G.C. Eads, R.W. Hahn, L.B. Lave, R.G. Noll, P.R. Portney, M. Russell, V.K. Smith, and R.N. Stavins). *Science*, 272 (12 April 1996): 221-222. Reprinted in *Economics of the Environment: Selected Readings*, 4th Ed. (R.N. Stavins, ed.), New York: Norton, 1999, pp. 319-324.
- "World Carbon Dioxide Emissions: 1950-2050" (with T.M. Stoker and R.A. Judson). *Review of Economics and Statistics*, 80 (February 1998): 15-27.
- "The Political Economy of Market-Based Environmental Policy: The US Acid Rain Policy" (with P.L. Joskow). *Journal of Law and Economics*, 41 (April 1998): 37-83. Reprinted in *Economics of the Environment: Selected Readings*, 4th Ed. (R.N. Stavins, ed.), New York: Norton, 1999, pp. 603-645.
- "Some Economic Principles for Guiding Antitrust Policy Towards Joint Ventures" (with H. Chang and D.S. Evans). *Columbia Business Law Review*, 1998 (1998): 223-329.
- "An Analysis of the Welfare Effects of Long-Distance Market Entry by an Integrated Access and Long-Distance Provider" (with P.J. Hinton, J.D. Zona, and W.E. Taylor). *Journal of Regulatory Economics*, 13 (March 1998): 183-196.

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- “An Interim Evaluation of Sulfur Dioxide Emissions Trading” (with P.L. Joskow, A.D. Ellerman, J.-P. Montero, and E.M Bailey). *Journal of Economic Perspectives*, 12 (Summer 1998): 53-68.
- Reprinted in *Economics of the Environment: Selected Readings*, 4th Ed. (R.N. Stavins, ed.), New York: Norton, 1999, pp. 455-471.
- “The Market for Sulfur Dioxide Emissions” (with P.L. Joskow and E.M Bailey). *American Economic Review*, 88 (September 1998): 669-685.
- “Household Gasoline Demand in the United States” (with T.M. Stoker). *Econometrica*, 67 (May 1999): 645-662.
- “Economic Development and the Structure of the Demand for Commercial Energy” (with R.A. Judson and T.M. Stoker). *Energy Journal*, 20 (1999): 29-57.
- “Bill Baxter in the Antitrust Arena: An Economist’s Appreciation.” *Stanford Law Review*, 51 (May 1999): 1317-1332.
- “Antitrust Issues in Schumpeterian Industries.” *American Economic Review*, 90 (May 2000): 192-196.
- “An Analysis of the Government’s Economic Case in *U.S. v. Microsoft*” (with D.S. Evans and A.L. Nichols). *Antitrust Bulletin*, 46 (Summer 2001), pp. 163-251. Reprinted in *Microsoft, Antitrust and the New Economy: Selected Essays* (D.S. Evans, ed.), Boston: Kluwer: 2002.
- “Payment Systems and Interchange Fees,” *Journal of Industrial Economics*, 50 (June 2002): 103-122.
- “Sunk Costs and Antitrust Barriers to Entry,” *American Economic Review*, 94 (May 2004): 471-475.
- “A Survey of the Economic Role of Software Platforms in Computer-Based Industries,” *CESifo Economic Studies*, 51 (2005): 189-224. (Reprinted, with minor changes, as “Software Platforms.” In *Industrial Organization and the Digital Economy* (G. Illig and M. Peitz, eds.). Cambridge: MIT Press, 2006, pp. 31-70.)
- “United States v. Microsoft: Did Consumers Win?” (with D.S. Evans and A.L. Nichols). *Journal of Competition Law and Economics*, 1 (September 2005): 497-539
- “The Industrial Organization of Markets with Two-Sided Platforms” (with D.S. Evans), *Competition Policy International*, 3 (Spring 2007): 151-179. Also in W.D. Collins, ed., *Issues in Competition Law and Policy*, Chicago: American Bar Association, 2008, pp. 667-693.
- “Pricing Patents for Licensing in Standard-Setting Organizations: Making Sense of *FRAND* Commitments” (with A. Layne-Farrar and A.J. Padilla), *Antitrust Law Journal*, 74 (2007): 671-706.
- “Standard-Setting, Innovation Specialists, and Competition Policy,” *Journal of Industrial Economics*, 57 (September 2009): 526-52.
- “Failure to Launch: Critical Mass in Platform Businesses” (with D.S. Evans), *Review of Network Economics*, 9 (December 2010), Issue 4, Article 1 (26 pages).
- “Jeffrey Rohlfs’ 1974 Model of Facebook: An Introduction,” *Competition Policy International*, 7 (Spring 2011): 301-12.
- “Why is Platform Pricing Generally Highly Skewed?” *Review of Network Economics*, 10 (December 2011), Issue 4, Article 1, 11 pages.
- “Evaluating Policies to Increase the Generation of Electricity from Renewable Energy,” *Review of Environmental Economics and Policy*, 6 (Winter 2012): 45-64.
- “On a level with Dentists? Reflections on the Evolution of Industrial Organization.” *Review of Industrial Organization*, 41 (November 2012): 157-79.

- “From ‘Green Growth’ to Sound Policies: An Overview,” *Energy Economics*, 34 (Supplement 1, November 2012): S2-S6.
- “The SO₂ Allowance Trading System: The Ironic History of a Grand Policy Experiment,” (with R.N. Stavins), *Journal of Economic Perspectives*, 27 (Winter 2013): 103-22.
- “An Instant Classic: Rochet & Tirole, Platform Competition in Two-Sided Markets,” *CPI Journal*, 10:2 (Autumn 2014): 175-180.
- “Pricing the Razor: A Note on Two-Part Tariffs,” *International Journal of Industrial Organization*, 42 (September 2015): 19-22.
- “The Future of Solar Energy: A Personal Assessment,” *Energy Economics*, 52: Supplement 1(December 2015): S142-S148.
- “The Performance of U.S. Wind and Solar Generators,” *Energy Journal*, 37:1 (January 2016): 123-151.
- “The Staggers Act at 35: Railroad Economics and Regulation” (with W.W. Wilson), *Review of Industrial Organization*, 49:2 (2016): 127-131.
- “Modernizing U.S. Freight Rail Regulation” (with W.W. Wilson), *Review of Industrial Organization*, 49:2 (2016): 135-159.
- “Socialism for Red States in the Electric Utility Industry,” *Journal of Competition Law and Economics*, 12:3 (September 2016), 477-494.
- “Reforming the U.S. Coal Leasing Program” (with K. Gillingham et al), *Science*, 354: 3616 (December 2, 2016), 1096-1098.
- “Lessons Learned from Three Decades of Experience with Cap-and-Trade” (with R. Stavins), *Review of Environmental Economics and Policy*, 11: 1(Winter 2017): 59-79.
- “The Design of Environmental Markets: What Have We Learned from Experience with Cap and Trade?” (with R. Stavins), *Oxford Review of Economic Policy*, 33:4 (Winter 2017): 572-588.
- “Applying the Rule of Reason to Two-Sided Platform Businesses” (with D.S. Evans), *University of Miami Business Law Review*, 26: 1 (April 2018), 15 pp. Available at <https://repository.law.miami.edu/umblr/vol26/iss2/3>.
- “Puzzles and Surprises in Employment and Productivity in U.S. Manufacturing After the Great Recession,” *International Productivity Monitor*, No. 35 (Fall 2018): 1-23.
- “Policy Evolution under the Clean Air Act” (with R.N. Stavins), *Journal of Economic Perspectives*, 33:4 (Fall 2019): 27-50.
- “Competitive Energy Storage and the Duck Curve,” *Energy Journal*, forthcoming.

CHAPTERS IN BOOKS:

- “Advertising and Economic Welfare.” In *Advertising and the Public Interest* (S. F. Divita, ed.), Chicago: American Marketing Association, 1974, pp. 82-97.
- “Promoting Competition in Tomorrow’s Markets for Solar Energy Systems.” In *The Solar Market: Proceedings of the Symposium on Competition in the Solar Energy Industry*, U.S. Federal Trade Commission, Washington, D.C.: U.S. Government Printing Office, 1978, pp. 119-135.
- “Cartel and Oligopoly Pricing of Nonreplenishable Natural Resources” (with T.R. Lewis). In *Dynamic Optimization and Mathematical Economics* (P. T. Liu, ed.), New York: Plenum, 1980, pp. 133-156.

- "The New Industrial Organization and the Economic Analysis of Modern Markets." In *Advances in Economic Theory* (W. Hildenbrand, ed.), Cambridge: Cambridge University Press, 1982, pp. 253-285.
- "Optimal Use of Renewable Resources with Nonconvexities in Production" (with T.R. Lewis). In *Essays in the Economics of Renewable Resources* (J. Mirman and D.F. Spulber, eds.), Amsterdam: North-Holland, 1982, pp. 95-111.
- "Advertising and Market Structure." In *New Developments in the Analysis of Market Structure* (J. E. Stiglitz and G. F. Mathewson, eds.), Cambridge: MIT Press, 1986, pp. 373-396.
- "Standards for Dominant Firm Conduct: What Can Economics Contribute?" In *The Economics of Market Dominance* (D. Hay and J. Vickers, eds.), Oxford: Basil Blackwell, 1987, pp. 61-88.
- "Advertising." In *The New Palgrave*, Vol. 1 (J. Eatwell, M. Milgate, and P. Newman, eds.), New York: Macmillan, 1987, pp. 34-36.
- "Industrial Organization." In *The New Palgrave*, Vol. 2 (J. Eatwell, M. Milgate, and P. Newman, eds.), New York: Macmillan, 1987, pp. 803-808.
- "George Stigler's Contributions to Microeconomics and Industrial Organization." In *The New Palgrave*, Vol. 4 (J. Eatwell, M. Milgate, and P. Newman, eds.), New York: Macmillan, 1987, pp. 499-500.
- "The Potential of Incentive Regulation." In *The Market for Energy* (D. Helm, J. Kay, and D. Thompson, eds.), Oxford: Clarendon Press, 1989, pp. 178-187.
- "Inter-Industry Studies of Structure and Performance." In *Handbook of Industrial Organization*, Vol. 2 (R. Schmalensee and R. D. Willig, eds.), Amsterdam: North-Holland, 1989, pp. 951-1009.
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APPENDIX B: EXPERT TESTIMONY

U.S. Federal Trade Commission, *In re Kellogg Company et al*, Docket No. 8883. (Deposition and hearing testimony: July 25 - August 12, 1977 for FTC staff on a range of issues.)

U.S. District Court for the Northern District of California, *In Re Data General Corporation*, MDL Docket No. 369-WHO, April 21, 1981. (Deposition and trial testimony on market power.)

U.S. Tax Court, *Ciba-Geigy Corporation v. Commissioner of the Internal Revenue Service*, Docket No. 2831-78. (Trial testimony for petitioner on reasonable patent royalties, October 1, 1983.)

U.S. Federal Communications Commission, *In the Matter of Long-Run Regulation of AT&T's Basic Domestic Interstate Services*, CC Docket No. 83-1147. (Statement on costs of asymmetric regulation submitted on behalf of AT&T, April 2, 1984.)

U.S. Federal Communications Commission, Third Computer Inquiry, CC Docket No. 85-229. (Paper entitled "The Regulatory Framework Proposed in Computer III" submitted on behalf of AT&T, November 13, 1985.)

U.S. District Court for the Central District of California, *USAIR, Inc., et al., vs. American Airlines, Inc., and United Air Lines, Inc.*, CV No. 84-8918 ER (Tx). Deposition regarding air passenger computer reservation systems antitrust litigation, December 15, 1987 and December 16, 1987.

Oregon Circuit Court for Douglas County, *Emerald People's Utility District v. Pacificorp*, Docket No. L87-1282. (Trial testimony for defendant on the economic effects of a dam condemnation, June 3, 1988.)

U.S. Senate, Committee on Banking, Housing, and Urban Affairs, September 21, 1989. (Confirmation hearing.)

U.S. House of Representatives, Committee on Energy and Commerce, Subcommittee on Energy and Power, October 11, 1989. (Administration testimony on the emissions allowance trading provisions of its acid rain proposal.)

U.S. Congress, Joint Economic Committee, February 8, 1990. (With Michael J. Boskin and John B. Taylor; Administration testimony on the 1990 *Economic Report of the President*.)

U.S. Senate, Committee on Energy and Natural Resources, March 26, 1990. (Administration testimony on the world oil outlook.)

U.S. Senate, Committee on Energy and Natural Resources, Subcommittee on Energy Research and Development, May 8, 1990. (Administration testimony on the applicability of new source review to existing steam electric generating units, the "WPECo problem.")

U.S. Congress, Joint Economic Committee, February 12, 1991. (With Michael J. Boskin and John B. Taylor; Administration testimony on the 1991 *Economic Report of the President*.)

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U.S. Senate, Committee on Finance, Subcommittee on Social Security and Family Policy, March 4, 1991.
(Administration testimony on measuring the status of children.)

U.S. Senate, Committee on Energy and Natural Resources, March 18, 1991. (Administration testimony on the applicability of new source review to existing steam electric generating units, the "WPECo problem")

Massachusetts Department of Public Utilities, *Investigation into Environmental Externalities*, D.P.U. Docket No. 91-131. (Written testimony (October 4 and December 13, 1991), cross-examination (January 28, 1992) on environmental adders.)

U.S. District Court, *Visa U.S.A., Inc. v. SCFCILC, Inc. d/b/a Mountainwest Financial, Inc.*, (Deposition and trial testimony before a jury, October 1992, on denial of membership by a joint venture.)

Federal Communications Commission (ET Docket 92-1000) on behalf of BellSouth Corporation, "Assigning PCS Spectrum: An Economic Analysis of Eligibility Requirements and Licensing Mechanisms," (with William E. Taylor), filed November 9, 1992.

U.S. District Court for the Middle District of Florida, Orlando Division, *Florida Municipal Power Agency v. Florida Power and Light Company*, Case No. 92-35-CIV-PR-3A22 (Deposition testimony on standards for the pricing of electricity transmission services, March 2, 1993.)

Federal Communications Commission (Amendment of Part 90 of the commission's Rules to Adopt Regulations for Automatic Vehicle Monitoring Systems) PR docket No. 93-61 on behalf of PacTel Teletrac, "The Economics of Co-Channel Separation for Wideband Pulse Ranging Location Monitoring Systems," (with William E. Taylor), filed June 29, 1993.

Federal Communications Commission (CC Docket 94-1) on behalf of the United States Telephone Association: "Comments on the USTA Pricing Flexibility Proposal," filed as Attachment 4 to the *United States Telephone Association Comments*, May 9, 1994, "Reply Comments: Market Analysis and Pricing Flexibility for Interstate Access Services," filed as Attachment 3 to the *United States Telephone Association Reply Comments*, June 29, 1994 (with William E. Taylor).

Thompson Everett, Inc. v. National Cable Advertising, L.P., Cable Networks, Inc., and Cable Media Corporation, U.S. District Court (E.D. Va.). (Expert report (with Linda McLaughlin), March 11, 1994 and deposition testimony, March 24, 1994 on behalf of defendants concerning the competitive effect of exclusive cable advertising representation contracts and their impact on plaintiff.)

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U.S. District Court for the District of Columbia, *United States of America v. Western Electric Co., Inc. and American Telephone and Telegraph Company*, Civil Action No. 82-0192. (Statement on permitting RBOC entry into inter-LATA markets submitted on behalf of four RBOC's, July 6, 1994.)

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U.S. District Court (Southern District of New York), *Federal Trade Commission v. B.A.T. Industries P.L.C., et al*, 94 Civ 7849 (MP). Deposition and Trial (December 14, 1994) testimony on effects of a merger, for American Tobacco.

U.S. District Court (Southern District of New York), *Union Carbide Corporation v. Himont U.S.A., Inc., et al*, 95 Civ. 0134. Deposition (February 1, 1995) and trial (February 15-16, 1995) testimony for plaintiff on effects of injunctive relief.)

U.S. District Court (Northern District of Alabama, Southern Division), *Southtrust Corporation v. Plus System, Inc., Network, Inc., and Southeast Switch, Inc.* Civil Action No. CV-93-P-2291-S. Declaration filed December 10, 1994; telephone Deposition, April 18, 1995.

California Public Utilities Commission, (Investigation No. I.95-05-047), on behalf of Pacific Bell, "Incentive Regulation and Competition: Issues for the 1995 Inventive Regulation Review." (with William E. Taylor and Timothy J. Tardiff), filed September 18, 1995.

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New York Public Service Commission on behalf of New York Telephone Company, "Competitive Effects of Allowing NYNEX to Provide InterLATA Services Originating in New York State," public interest analysis of NYNEX's proposed entry into in-region long distance service, (with William E. Taylor and Harold Ware), filed February 18, 1997.

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Testimony on behalf of *Southwestern Bell* regarding its application to enter the long-distance telephone market in Oklahoma, February 13, 1998, and rebuttal, April 21, 1998.

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