

APPENDIX 1

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Employment

Stanford University, Stanford, CA 1997-present
Stanford Institute for Economic Policy Research
Deputy Director, 1999-present
Senior Fellow, 2012-present
Senior Research Scholar, 2004-2012, Research Scholar, 1997-2004
Public Policy Program
Co-Director, 2013-present
Deputy Director, 2006-2013
Professor of Economics, by courtesy, 2012-present
Lecturer in Economics and Public Policy, 1997- 2012

Federal Communications Commission, Washington, DC
Senior Economist for Transactions, 2011 (part-time while at Stanford)
Deputy Chief Economist, 1995-1997
Acting Chief Economist, Common Carrier Bureau, 1996
Senior Economist, Office of Plans and Policy, 1994-1995

Law and Economics Consulting Group, Berkeley, CA
Senior Economist, 1990-1994

Economists Incorporated, Washington, DC
Economist/Research Associate, 1986-1988

Education

Stanford University, M.A., Ph.D., in Economics, Specialized in the fields of Industrial Organization and Public Finance. 1986, 1994.

University of California, Berkeley, A.B. in Economics with Honors. 1984.

Papers and Publications

"An Economic Analysis of the Effects of FCC Regulation on Land Mobile Radio," unpublished Ph.D. dissertation, Stanford University. 1994.

"Competition in Local Telecommunications: Implications of Unbundling for Antitrust Policy" in Brock, G., (ed.) Toward a Competitive Telecommunication Industry: Selected Papers from the 1994 Telecommunications Policy Research Conference, LEA Associates, Mahwah, NJ. 1995 (with Harris, R. and Teece, D.).

"Competition and 'Local' Communications: Innovation, Entry and Integration," *Journal of Industrial and Corporate Change*. 1995 (with Teece, D.).

"Spectrum Flexibility will Promote Competition and the Public Interest," *IEEE Communications Magazine*, December, 1995 pp 2-5. (with Hundt, R.).

"Interconnecting Interoperable Systems: The Regulators' Perspective." *Information, Infrastructure and Policy*. 1995 (with Katz, M., and Anspacher, J.).

"Everything You Need To Know About Spectrum Auctions, But Didn't Think To Ask," *Washington Telecom News*, Vol. 4, No. 5. February 5, 1996 p-5. (with Hundt, R.).

The Internet and Telecommunications Policy: Selected Papers from the 1995 Telecommunications Policy Research Conference, LEA Associates, Mahwah, NJ. 1996 (ed. with Brock, G.).

"Introduction," in Brock, G., and Rosston, G., (ed.s) (1996) The Internet and Telecommunications Policy: Selected Papers from the 1995 Telecommunications Policy Research Conference, LEA Associates, Mahwah, NJ. 1996 (with Brock, G.).

"Competition and 'Local' Communications: Innovation, Entry and Integration," in Noam, E., (ed.) The End of Territoriality in Communications: Globalism and Localism, Elsevier. 1997 (with Teece, D.).

"Using Market-Based Spectrum Policy to Promote the Public Interest," FCC Staff Paper, 1997. Also published in *Federal Communications Law Journal*, Vol. 50, No. 1. 1997 (with Steinberg, J.).

"A New Spectrum Policy: Letting the Market Work" *Radio Communication Reports*, March 3, 1997, pp 59-64.

"The Telecommunications Act Trilogy," *Media Law and Policy*. Vol V, No. 2, Winter 1997, pp 1-12.

"Interconnection and Competition Policy," *Cable TV and New Media*. Vol XV, No. 3 May, 1997, pp 1-4.

"Pricing Principles to Advance Telephone Competition," *Cable TV and New Media*. Vol XV, No. 4 June, 1997, pp 1-3.

Interconnection and The Internet: Selected Papers from the 1996 Telecommunications Policy Research Conference, LEA Associates, Mahwah, NJ. 1997 (ed. with Waterman, D.).

“Introduction,” in Waterman, D., and Rosston, G., (ed.s) (1997) Interconnection and The Internet: Selected Papers from the 1996 Telecommunications Policy Research Conference, LEA Associates, Mahwah, NJ. 1997 (with Waterman, D.).

“Comment on the Value of New Services in Telecommunications” *Brookings Papers on Microeconomic Activity--Microeconomics*, 1997.

“Universal Service Reform: An Economist’s Perspective,” *Cable TV and New Media*. Vol XV No. 11, January, 1998, pp 1-4.

“Alternative Paths to Broadband Deployment,” *IEEE Communications Magazine*, July, 1998 pp 2-4. (with Hundt, R.).

“The High Cost of Universal Service,” *CCH Power and Telecom Law*, January-February 1999 (with Wimmer, B.).

“Effects of Unbundling Proposals on Cable Investment Incentives,” *The Party Line, Newsletter of the Communications Industry Committee, American Bar Association Section of Antitrust Law*, March 1999 (with Owen, B.)

“The ABC’s of Universal Service: Arbitrage, Big Bucks and Competition,” *Hastings Law Journal*, Vol. 50, No. 6, August 1999 (with Wimmer, B.).

“An Insiders' View of FCC Spectrum Auctions,” *Journal of Regulatory Economics*, Vol 17, No. 3, 253-289, 2000 (with Kwerel, E.).

“Winners and Losers from the Universal Service Subsidy Battle,” in Vogelsang, I. and Compaine, B. (ed.s) The Internet Upheaval: Raising Questions, Seeking Answers in Communications Policy, Cambridge, MA: MIT Press, 2000 (with Wimmer, B.).

“The Telecommunications Sector” in Kessides, I. (ed.) Hungary: A Regulatory and Structural Review of Selected Infrastructure Sectors, World Bank Technical Paper No. 474, Washington, DC, June 2000.

“The ‘State’ of Universal Service,” *Information, Economics and Policy*, Vol. 12, No. 3. 261-283, September 2000 (with Wimmer, B.).

“From C to Shining C: Competition and Cross-Subsidy in Communications,” in Compaine, B. and Greenstein, S. (ed.s) Communications Policy in Transition: The Internet and Beyond. Selected Papers from the 2000 Telecommunications Policy Research Conference, Cambridge, MA: MIT Press, 2001 (with Wimmer, B.).

“Universal Service, Competition and Economic Growth: The Case of the Hidden Subsidy,” April 2001 in Dossani, R. (ed.) Reforms in the Telecommunications Sector in India, Greenwood Press (with Wimmer, B.).

“The Digital Divide: Definitions, Measurement, and Policy Issues,” in Bridging the Digital Divide, California Council on Science and Technology, May 2001 (with Noll, R., Older-Aguilar, D. and Ross, R.).

“The Long and Winding Road: The FCC Paves the Path with Good Intentions,” *Telecommunications Policy*, Vol. 27, No. 7. 501-515, August 2003.

“Spectrum Allocation and the Internet,” Cyber Policy and Economics in an Internet Age, Lehr W. and Pupillo, L. (ed.s) , Kluwer Academic Publishers, New York, 2002. (with Owen, B.).

“The Economics of the Supreme Court's Decision On Forward Looking Costs,” *Review of Network Economics*, September, 2002 Vol. 1, No. 2, September 2002 (with Noll, R.)

“Local Broadband Access: Primum Non Nocere or Primum Processi? A Property Rights Approach,” in Net Neutrality or Net Neutering: Should Broadband Internet Services be Regulated, Lenard, T. and May, R. (ed.s) Springer: New York, 2006 (with Owen, B.)

“A Losing Battle for All Sides: The Sad State of Spectrum Management” *Federal Communications Law Journal*, Vol. 56 No. 2, March 2004.

Review of *The Second Information Revolution*. by Gerald W. Brock, *Journal of Economic Literature*, Vol. XLII, June, 2004 pp 1157-1158

“Local Telephone Rate Structures Before and After the Act,” *Information, Economics and Policy* , Vol. 17, No. 1. pp 13-34, January 2005 (with Wimmer, B.).

“Communications Policy for 2006 and Beyond” *Federal Communications Law Journal*, Vol. 58 No. 1, 2006 (with Hundt, R.).

“The Effect of Private Interests on Regulated Retail and Wholesale Prices,” *Journal of Law and Economics*, Vol. 51, No 3. August 2008 (with Savage, S. and Wimmer, B).

“The Rise and Fall of Third-party High-speed Access,” *Information, Economics and Policy* Vol. 21 No. 1 February 2009 pp 21-33.

“Low-Income Demand for Local Telephone Service: Effects of Lifeline and Linkup,” Stanford Institute for Economic Policy Research Discussion Paper No. 07-32 (with Ackerberg, D., Riordan, M. and Wimmer, B.)

“An Antitrust Analysis of the Case for Wireless Net Neutrality,” (with Topper, M.) *Information, Economics and Policy* Vol. 22 No. 1, March 2010 pp 103-119.

“Household Demand for Broadband Internet Service in 2010,” *B. E. Journal of Economic Analysis & Policy: Advances*, Vol 10, No 1. August 2010. (with Savage, S. and Waldman, D.).

“The Path to Universal Broadband: Why We Should Grant Low-Income Subsidies and Use Experiments and Auctions to Determine the Specifics,” *The Economists’ Voice*, Vol 8, Iss. 1. 2011. (with Wallsten, S.).

“Using Spectrum Auctions to Enhance Competition in Wireless Services” *Journal of Law and Economics*, November 2011. (with Cramton, P., Kwerel, E. and Skrzypacz, A.).

“Economic Principles for *Ex Ante* Rules for Radio” *Journal on Telecommunications and High Technology Law* Vol 9. No 2. Spring 2011. (with Wallsten, S.).

“The Effect of Network Unbundling on Retail Prices: Evidence from the Telecommunications Act of 1996,” *Journal of Law and Economics*, Vol 56, No. 2. May 2013. (with Savage, S. and Wimmer, B).

“The Proposed Merger of AT&T and T-Mobile: Rethinking Possible (2011),” in Kwoka, J. and White, L (eds.) The Antitrust Revolution, Sixth Edition, Oxford University Press. (with DeGraba, P.)

“Articulating A Modern Approach to FCC Competition Policy,” *Federal Communications Law Journal*, Vol 66, No. 1. December 2013. (with Hundt, R.).

“Increasing Wireless Value: Technology, Spectrum, and Incentives,” forthcoming, *Journal on Telecommunications and High Technology Law*.

“The Broadband Stimulus: A Rural Boondoggle and Missed Opportunity,” *I/S Journal: A Journal of Law and Policy for the Information Society*. Vol 9, No. 3 Winter 2014. (with Wallsten, S.).

“Technological and Regulatory Change in the Communications Industry,” forthcoming in Payson, S. (ed.) Public Economics in the United States: How the Federal Government Analyzes and Influences the Economy, ABC-LIO Press.

Policy Briefs and Opinion Pieces

“On the Record: Former FCC Economist Backs Universal Service Alternative,” *Telecommunications Reports*, Vol. 63, No. 51. December 22, 1997, pp 51-53.

“The Future of Wireless,” Stanford Institute for Economic Policy Research *Policy Brief*, May 2001.

“Politics Lands Bush in High Price Lane,” *Los Angeles Times*, June 15, 2001.

"Antitrust Implications of EchoStar-DirecTV Proposed Merger," Stanford Institute for Economic Policy Research *Policy Brief*, November 2001.

"Supreme Court Decision Regarding the FCC Implementation of the Telecommunications Act of 1996," Stanford Institute for Economic Policy Research *Policy Brief*, May 2002 (with Noll, R.).

"The FCC Spectrum Policy Task Force Report: A Very Small Step,"

"The FCC and Local Competition," Stanford Institute for Economic Policy Research *Policy Brief*, April 2003.

"Why Airwaves Should be Deregulated," *CNET.com*, February 11, 2004 (with T. Hazlett).

"Broadband Users, Watch your Wallets," *CNET.com*, April 27, 2004.

"The Next Phase of the Electronic Highway: Universal Broadband -- Big bucks beyond the vision" *San Francisco Chronicle*, April 30, 2004.

"Cheap Net Phones Face the Threat of a Tax Hangup," *San Jose Mercury News*, June 17, 2004. (with Hahn, R. and Wallsten, S.)

"Judging the Google IPO," *CNET.com* August 17, 2004.

"For Whom the Bridge Tolls" *San Francisco Chronicle*, August 27, 2004.

"Writing the Right Ending to the MCI Saga," *CNET.com* April 5, 2005.

"Traffic Congestion, Congestion Pricing and the Price of Using California's Freeways," Stanford Institute for Economic Policy Research *Policy Brief*, April 2005 (with Flamm, B.).

"Humpty-Dumpty? Competitive Effects of the AT&T – BellSouth Merger," Stanford Institute for Economic Policy Research *Policy Brief*, March 2006.

"Free Internet access in S.F. not the best deal for consumers," *San Jose Mercury News*, March 12, 2006.

"Quit fooling with wireless-spectrum auction," *CNET.com*, January 23, 2008

"Testimony of Gregory L. Rosston" at the Federal Communications Commission En Banc Hearing on Broadband Network Management Practices, Stanford University, April 17, 2008

"Saving the digital transition," *CNET.com*, January 24, 2009 (with Scott Wallsten).

“Using Procurement Auctions to Allocate Broadband Stimulus Grants” Stanford Institute for Economic Policy Research *Policy Brief*, May 2009 (with Paul Milgrom and Andrzej Skrzypacz)

“Fixing Detroit’s Bailout Blues” CBSNews.com, May 29, 2009

“The National Broadband Plan,” Stanford Institute for Economic Policy Research *Policy Brief*, February, 2010.

“Household Demand for Broadband Internet Service,” *Communications of the ACM*, February, 2011 Vol. 54, No. 2. (with Scott Savage and Donald Waldman).

“Competitive Implications of the Proposed Acquisition of T-Mobile by AT&T Mobility” Stanford Institute for Economic Policy Research *Policy Brief*, March 2011 (with Roger Noll).

“Economic and Business Dimensions: Incentive Auctions,” *Communications of the ACM*, February 2012, Vol. 55, No. 2.

Other Activities

Editorial/Committees

President’s Council of Advisors on Science and Technology Working Group on Spectrum, 2011-2012.

Department of Commerce Spectrum Management Advisory Committee, Co-Chair, 2011-2014

Department of Commerce Spectrum Management Advisory Committee, Member, 2010-2014

Telecommunications Policy Research Conference Board, 2009-2012

Member, Obama Presidential Transition Team, 2008

Co-chair, Obama for President, Economy, Globalization, and Trade Committee, 2008

Associate Editor, *Information, Economics and Policy*, 2008-present

Referee for various academic journals.

Telecommunications Policy Research Conference, Program Committee 2002-2004.

Bay Area Economic Profile Academic Review Panel, 2003-2004.

National Research Council Committee on *Wireless Technology Prospects and Policy*, 2003-2011

Testimony and Submissions

FCC Economist Panel on the Economics of Interconnection, May, 1996.

FCC Economist Panel on the Economics of RBOC Entry under §271, July, 1996.

FCC Economist Panel on Competitive Bidding for USF, March, 1997.

Consultant for the World Bank on Telecommunications Policy in Hungary, 1998.

FCC Academic Expert Panel on “A New FCC for the 21st Century,” June 1999.

FCC Academic Expert Panel on AT&T—MediaOne Merger, February, 2000.

Principal co-author of 37 Concerned Economists submission on “Promoting Efficient use of

Spectrum Through Elimination of Barriers to the Development of Secondary Markets,”
February 2001

FCC Panel on Wireless Competition, February 2002.

FCC Workshop on Spectrum Policy, July 2002.

San Francisco Telecom Commission on Cable Competition, January 2003.

U.S. Senate Commerce Committee on Spectrum Policy, March 2003.

California State Senate Committee on Banking, Commerce and International Trade on the
Economic Effects of Media Consolidation, March 2003.

San Francisco City Board of Supervisors Land Use Committee on Cable Competition, July
2004.

GAO Panel on Spectrum Allocation and Assignment, August, 2005.

Comments and Reply Comments (with Paul Milgrom) on Auction Rules for Advanced
Wireless Services, February 2006

FTC Panel on Network Neutrality, February 2007.

FCC *En Banc* Hearing on Network Management, April 2008.

Principal co-author of 71 Concerned Economists submission on “Using Procurement
Auctions to Allocate Broadband Stimulus Grants” Submitted to the National
Telecommunications Information Agency (NTIA) and Rural Utilities Service (RUS), April,
2009

FCC Broadband Task Force, Workshop on “Benchmarks” September 2009

U.S. House Commerce Subcommittee on Communications, Technology and the Internet,
Universal Service hearings, November 2009

FCC Video Relay Service Reform Workshop, December, 2009

FCC Roundtable on Experiments for Universal Service, 2010

Principal co-author of Letter from 112 Economists to President Obama on Spectrum
Auctions and Repurposing Spectrum, April, 2011

FCC Universal Service Reform Workshop, April, 2011

Other

Stanford Federal Credit Union, Advisory Board, 2012-present

Sustainable Conservation, Advisory Board, 2007-present

Nepalese Youth Opportunity Fund, Board, 2012-present, Advisory Board, 2007-2012

Boards and Advisory Boards for private companies

Awards

Chairman's Distinguished Service Award, FCC, 1997.

University of California, Brad King Award for Young Alumni Service, 1994.

National Performance Review Hammer Award for Reinventing Government, 1994.

APPENDIX 2

MICHAEL D. TOPPER
Senior Vice President

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ACADEMIC BACKGROUND

- | | | |
|------|---|---------------------------|
| 1991 | Stanford University
<i>Ph.D., Economics, 1991; M.A., Economics, 1989</i>
Specialized in labor economics, public finance, industrial organization and econometrics. | Stanford, California |
| 1982 | Stanford University
<i>M.S., Engineering-Economic Systems</i> | Stanford, California |
| 1981 | University of Virginia
<i>B.S., Systems Engineering, with Highest Distinction</i>
Member, Tau Beta Pi | Charlottesville, Virginia |

PROFESSIONAL EXPERIENCE

- | | | |
|----------------|--|------------------------|
| 1994 – Present | Cornerstone Research, Inc.
<i>Senior Vice President (Partner)</i>
<i>Head, Menlo Park Office</i>
<i>Co-Head, Antitrust & Competition Practice</i>
<i>Member, Executive Committee</i>
<i>Member, Board of Directors</i>
Manage and conduct economic analysis for complex business litigation, regulatory and public policy matters, with specialization in antitrust, intellectual property, product misrepresentation, class certification and breach of contract.
Industry expertise includes telecommunications, media, Internet, information technology, energy, transportation, and financial services.
Expertise includes econometrics, analysis of large datasets and consumer survey design and analysis.
Services to clients include expert testimony, identifying experts, outlining economic and financial issues, researching and analyzing data, managing project teams, supporting experts in the preparation of expert reports and testimony, and analyzing opposing expert reports and testimony. | Menlo Park, California |
|----------------|--|------------------------|

Selected Antitrust and Competition Experience

DOJ, FTC, FCC and EC regulatory review of mergers, acquisitions and joint ventures, including Comcast – NBC Universal, Google – ITA Software, Google – DoubleClick, InBev – Anheuser Busch, Cingular – AT&T Wireless, and EchoStar – DirecTV.

PROFESSIONAL EXPERIENCE (CONT.)

Allegations of price fixing and collusion in various industries, including airlines, automobiles, chemicals, gasoline, media, consumer products and industrial products. Analysis includes responding to DOJ investigations, class certification, liability and damages.

Allegations of monopolization and attempted monopolization in various industries, including telecommunications, food products, consumer products, and industrial products. Analysis includes class certification, liability and damages.

Matters involving allegations of unfair competition and unfair trade practices.

Regulatory matters, including matters before the Federal Communications Commission related to network neutrality, special access, wireless competition, and spectrum policy, and matters before the Copyright Royalty Board.

Selected IP Experience

Patent infringement matters, including work on patent validity, damages, patent misuse and antitrust counterclaims.

Copyright infringement matters, including matters involving digital media, computer software, and store design.

Trademark infringement matters, including matters involving information technology, Internet domain names, and consumer products.

Analysis of licensing practices, licensing terms and royalty rates in various industries.

Other Selected Case Experience

Allegations of product liability, product misrepresentation and fraud in various industries, including automobiles, computer hardware, computer software, and home products. Analysis includes class certification, liability and damages.

Breach of contract, breach of fiduciary duty, and false advertising matters.

Allegations of discrimination, breach of contract, and other causes of action in the mortgage lending industry.

Economic analysis of industry practices on behalf of defendant in False Claims Act case.

Economic analysis of settlement allocations in environmental litigation.

Analysis of terms and conditions in merger agreements.

- 1993 – 2003 **Stanford University** Stanford, California
Lecturer in Economics
Taught courses in microeconomics and antitrust policy for the Department of Economics.
- 1991 – 1994 **College of William and Mary** Williamsburg, Virginia
Assistant Professor of Economics
Conducted academic research on the economics of education and training programs. Developed new courses in labor and development economics. Helped launch the new graduate program in public policy. Taught core courses in economics and statistics. Supervised graduate and undergraduate students.

PROFESSIONAL EXPERIENCE (CONT.)

- Summer 1986 **Rand Corporation** Santa Monica, California
Summer Research Intern, Telecommunications Policy Group
Developed models for estimating the demand for telecommunications services.
- Summer 1985 **International Institute for Applied Systems Analysis (IIASA)** Vienna, Austria
Summer Research Intern, Systems Modeling Group
Programming and analysis for dynamic simulation models.
- 1981 – 1984 **Bell Laboratories/Bell Communications Research** Holmdel, New Jersey
Systems Engineer
Conducted cost/benefit, technical feasibility and economic cost analyses for advanced switching services based on caller ID.

PUBLICATIONS

- “Google-ITA: Creating a New Flight Search Competitor (2011),” With Stanley Watt and Jingming Marshall Yan, In John E. Kwoka and Lawrence J. White, *The Antitrust Revolution: Economics, Competition and Policy (Sixth Edition)*, Oxford University Press, 2013.
- “An Antitrust Analysis of the Case for Wireless Network Neutrality,” with Gregory L. Rosston, *Information Economics and Policy*, 22 (1), pp. 103-119, 2010.
- “3G Standards Policy: Government Shouldn’t Intervene in Debate,” *Wireless Week*, December 21, 1998.
- “Student Loans, Debt Burdens, and Choice of Major,” *New Directions for Higher Education*, 85, pp. 115–124, 1994.
- “The Impact of the Demographic Transition on Government Spending,” with John Shoven and David Wise, In David Wise, ed., *Economics of Aging*, University of Chicago Press, 1994.
- “The Cost of Capital in Canada, the U.S. and Japan,” with John Shoven, In John Shoven and John Whalley, eds. *Canada-U.S. Tax Policy Issues*, University of Chicago Press, 1992.

WORKING PAPERS

- “Economic White Paper on National Third Generation Wireless Standards,” with Joseph Farrell, *Mimeo*, November, 1998.

CONFERENCE PARTICIPATION, PANEL PARTICIPATION AND INVITED TALKS

- “Modernization of Antitrust Law,” Stanford University Conference, May 29–30, 2008, Panelist/Discussant.
- “Third Generation Wireless Standards Policy,” Presentations in Washington D.C., December 1998.
- “Higher Education and the American Worker,” Christopher Wren Society, Williamsburg, VA, April 1993.
- “The Impact of the Demographic Transition on Government Spending on Individuals,” with John Shoven and David Wise, NBER Conference on the Economics of Aging, July 1992.

CONFERENCE PARTICIPATION, PANEL PARTICIPATION AND INVITED TALKS (CONT.)

“Ethnic Differences in Schooling Attainment in Malaysia—A Difference in Differences Approach,”
Paper presented at Southeast Asian Educators Workshop, Stanford University, July 1991.

“The Cost of Capital in Canada, the U.S. and Japan,” with John Shoven, NBER Conference on
Canada–U.S. Tax Comparisons, July 1990.

EXPERT TESTIMONY

*In the Matter of Applications of Comcast Corporation, General Electric Company and NBC
Universal, Inc. For Consent to Assign Licenses or Transfer Control of Licensees*, Federal
Communications Commission, MB Docket No. 10-56, Expert Report on behalf of Comcast
Corporation and General Electric Company, with Gregory L. Rosston, July 2010.

In the Matter of Preserving the Open Internet, Federal Communications Commission, GN Docket 09-
191, Reply Declaration on behalf of Verizon and Verizon Wireless, April 2010.

In the Matter of Special Access Rates for Price Cap Local Exchange Carrier, Federal
Communications Commission, WC Docket No. 05-25, RM 10593, Reply Declaration on behalf of
Verizon, February 2010.

In the Matter of Special Access Rates for Price Cap Local Exchange Carrier, Federal
Communications Commission, WC Docket No. 05-25, RM 10593, Declaration on behalf of Verizon,
January 2010.

In the Matter of Preserving the Open Internet, Federal Communications Commission, GN Docket 09-
191, Declaration on behalf of Verizon and Verizon Wireless, January 2010.

In the Matter of Distribution of the 2004 and 2005 Cable Royalty Funds, Copyright Royalty Board,
Docket No. 2007-3 CRB CD 2004-2005. Filed Testimony on behalf of National Association of
Broadcasters, December 2009.

Mobile Wireless Competition Notice of Inquiry, Federal Communications Commission, WT Docket
No. 09-66, Declaration on behalf of Verizon Wireless, September 2009.

FELLOWSHIP AND AWARDS

Center for Economic Policy Research, Stanford University
Visiting Scholar, 1993–1994

Department of Economics, Stanford University
Distinguished Teaching Award, 1989

Rand Corporation
Graduate Student Summer Fellowship, 1986

International Institute for Applied Systems Analysis
American Academy of Sciences Young Scientists' Summer Program Fellowship, 1985

Bell Laboratories
Graduate Fellowship, 1981–1982

EXHIBIT 6

REDACTED – FOR PUBLIC INSPECTION

**IMPLICATIONS OF THE COMCAST/TIME WARNER CABLE
TRANSACTION FOR BROADBAND COMPETITION**

Mark A. Israel

April 8, 2014

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I. INTRODUCTION

A. QUALIFICATIONS

1. I am Mark A. Israel. I am an Executive Vice President at Compass Lexecon, an economic consulting firm, as well as Managing Director of Compass Lexecon's Washington, D.C. office. From August 2000 to June 2006, I served as a full-time member of the faculty at Kellogg School of Management, Northwestern University. I received my Ph.D. in economics from Stanford University in 2001.
2. I specialize in the economics of industrial organization—which is the study of markets and competition, including the study of antitrust and regulatory issues—as well as applied econometrics. At Kellogg and Stanford, I taught graduate-level courses covering topics including business strategy, industrial organization economics, microeconomic theory, and econometrics. My research has been published in leading economics journals including the *American Economic Review*, the *Rand Journal of Economics*, the *Review of Industrial Organization*, the *Review of Network Economics*, and *Information Economics and Policy*.
3. I have been a consultant at Compass Lexecon since 2006. My consulting work has focused on the application of theoretical models and econometric methods to the analysis of mergers, antitrust issues including a wide variety of single-firm and multi-firm conduct, class certification, and damages estimation.
4. My academic and consulting work has involved a range of industries, including broadcast and cable television, wired and wireless telecommunications, broadband services, airlines, railroads, consumer beverages, financial markets, insurance,

pharmaceuticals, and publishing. I have authored expert reports, declarations, and affidavits that have been submitted to and cited by government agencies and federal courts on behalf of various clients. Among these, I have submitted declarations to the Federal Communications Commission (“Commission” or “FCC”) regarding competitive issues in broadband, video distribution, programming, and telecommunications and the Commission has cited to these declarations. I have also co-authored a peer-reviewed paper analyzing the evolution of peering and other Internet interconnection agreements.¹

B. BRIEF OVERVIEW OF PARTIES AND TRANSACTION

1. Parties

5. Comcast Corporation (“Comcast”) is a media and technology company with two primary businesses, Comcast Cable and NBCUniversal.² Comcast Cable offers video, broadband (or synonymously high-speed data (“HSD”)), and digital voice services in 39 states and the District of Columbia. Comcast owns and operates a large fiber-based network. It serves approximately 21.7 million video and 20.7 million broadband

¹ Stanley M. Besen and Mark A. Israel (2013), “The Evolution of Internet Interconnection from Hierarchy to ‘Mesh’: Implications for Government Regulation,” *Information Economics and Policy*, 25: 235-245 (hereinafter *Besen and Israel (2013)*.)

² See Description of Transaction, Public Interest Showing, and Related Demonstrations, § II, for further details on Comcast’s lines of business.

In 2011, Comcast formed a joint venture with General Electric consisting of NBCUniversal’s businesses and Comcast’s cable networks, regional sports networks, and certain digital properties. In 2013, Comcast acquired General Electric’s entire 49 percent common equity state in the NBCUniversal joint venture.

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customers, including both residential and business customers.³ NBCUniversal owns and operates a portfolio of news and entertainment cable television networks, broadcast television stations, digital media properties, a motion picture company, and theme parks.

6. Time Warner Cable (“TWC”) offers video, broadband, and digital voice services in 31 states.⁴ It serves approximately 11.4 million video and 11.6 million broadband customers, including both residential and business customers.⁵ In addition, TWC owns interests in certain regional sports networks (“RSNs”), local news channels, and two national programming networks.

2. Transaction

7. Comcast has entered into an agreement with TWC through which Comcast will acquire 100 percent of TWC’s equity in a stock-for-stock deal (the “proposed transaction”). The proposed transaction is a straightforward acquisition of TWC, and Comcast plans to retain both its own and TWC’s existing assets, subject to certain

³ 2013 Comcast Corp. SEC Form 10-K Annual Report (hereinafter *Comcast 2013 10-K*), 3.

⁴ See Description of Transaction, Public Interest Showing, and Related Demonstrations, § II, for further details on TWC’s lines of business.

⁵ 2013 Time Warner Cable Inc. SEC Form 10-K Annual Report (hereinafter *TWC 2013 10-K*), 38.

divestitures.⁶ In what follows, I refer to the newly created entity as “the combined firm” or, where the meaning is clear, simply as “Comcast.”

C. ASSIGNMENT AND SUMMARY OF CONCLUSIONS

1. Assignment

8. I have been asked by counsel for Comcast to evaluate the effects of the proposed transaction on competition in the provision of broadband services to residential and business customers. I have also been asked to assess the extent to which the proposed transaction will generate consumer benefits, again focused on the broadband segment. Combining my findings from these two assignments, I have been asked to assess, whether, on balance, the effect of the transaction in the broadband segment is expected to be pro-competitive, pro-consumer, and in the public interest.

9. For ease of exposition, I do not qualify all of my conclusions about competitive effects and benefits from the transaction with the words “broadband” or “broadband-related,” but unless otherwise explicitly noted, all conclusions should be taken as referring to effects on broadband-related services.

10. My ongoing investigation of the issues in this matter has included interviews with company personnel, and extensive analysis of data and documents from the two

⁶ Comcast Corporation, Press Release, “Time Warner Cable to Merge with Comcast Corporation to Create a World-Class Technology and Media Company,” February 13, 2014, *available at* <http://corporate.comcast.com/news-information/news-feed/time-warner-cable-to-merge-with-comcast-corporation>, *site visited* March 27, 2014.

transacting parties and a variety of third-party and public sources. The conclusions in this Declaration are based on this evidence and reflect the status of my investigation to date.

11. My assessment of the transaction is complementary to the assessment contained in the report of Drs. Gregory Rosston and Michael Topper, which I understand is primarily focused on the overall efficiencies and associated consumer and competitive benefits flowing from the transaction in various product markets, including a specific focus on competitive effects and consumer benefits in the *video segment*. I leave evaluation of issues primarily related to Comcast's traditional video business to Drs. Rosston and Topper.

2. Summary of conclusions

12. Based on my analysis of the transaction, I have reached the following primary conclusion: *Given (i) the lack of any valid competitive concerns and (ii) the substantial consumer benefits, the proposed transaction—as it relates to the provision of broadband services in particular—is pro-consumer, pro-competitive, and in the public interest.*

13. This primary conclusion is based on two main supporting conclusions:

- *The proposed transaction will not harm broadband competition.* Comcast and TWC do not compete with one another for broadband customers. The proposed transaction is neither a horizontal nor a vertical transaction in the broadband segment. As such, theories of competitive harm raised by opponents of the transaction are likely to depend—implicitly or explicitly—on the *size* of the combined firm. However, simple calculations of size do not substitute for rigorous competitive analysis. Neither the facts of this case nor economic theory provides a basis to conclude that greater size—based on a combination of firms

that do not compete in the same local markets—leads to greater bargaining power or competitive harm.

- *The increased scale created by combining the distinct regional footprints of two broadband providers will generate substantial pro-competitive consumer benefits.* In a rapidly advancing industry with large fixed costs (or at least costs that do not increase proportionally with output)—particularly an industry with many current or potential business customers that operate regionally or nationally—greater scale incentivizes greater investment and innovation. The ability to generate revenues from an investment across the combined Comcast and TWC footprints increases the net present value of investment opportunities and thus incentivizes the combined firm to make investments that would not otherwise have been sufficiently profitable. Although the cable industry has a long history of attempting to achieve such scale benefits via partnerships and collaborations, these attempts have frequently failed or stalled, and thus the proposed transaction helps to overcome collaboration problems that have hampered industry initiatives for years.

14. These primary and supporting conclusions are based on several detailed findings, developed in the remainder of this Declaration.

- *The transaction leads to no horizontal competitive concerns for residential or business broadband customers:*
 - The transaction will not reduce the number of broadband options available to residential or business customers. The broadband services sold by Comcast and TWC are not substitutes and, thus, horizontal competitive concerns do not arise for either residential or business customers of broadband services.
 - Attempts to define a national market for broadband services do not change the conclusion of no horizontal harm. Comcast and TWC are not substitutes for consumers regardless of how the market is defined and thus, unlike in many