

Paroma Sanyal

PRINCIPAL

Practice Co-Chair: Telecommunications, Media & Entertainment

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Dr. Sanyal is a telecommunications industry expert, specializing in telecommunications asset valuation, spectrum policy, auctions, broadband, cost modelling, competition, regulation, consumer protection, and telecom-related intellectual property matters.

She frequently advises clients on telecommunications asset valuation, regulatory issues in fixed and mobile broadband, spectrum auctions, spectrum value, and spectrum availability. Dr. Sanyal has consulted on numerous major Federal Communications Commission (FCC) spectrum and subsidy auctions and has helped clients navigate complex regulatory issues. She also regularly advises clients on telecom-related competition analyses and consults on false advertising cases and various telecom-related litigation matters. In addition to regulatory, policy, and valuation analyses, Dr. Sanyal's engagements have also focused on a range of issues within the intellectual property, FRAND, privacy regulation, data breach cases, and false advertising.

Prior to joining Brattle, she was the Chief Economist of the FCC's Wireless Telecommunications Bureau. There, Dr. Sanyal led the wireless agenda on economic analysis and policy and worked extensively on the Wireless Competition Reports; several high-profile telecom mergers; Universal Service Fund (USF)-related issues, such as the Mobility Fund; and the Fixed and Mobile Measuring Broadband America agenda.

Earlier in her career, Dr. Sanyal was an Assistant Professor at Brandeis University, where she held a joint position in the economics department and at the International Business School. She regularly speaks at academic and industry conferences and has published in peer-reviewed journals, such as the *Review of Economics and Statistics*, *The Energy Journal*, *Journal of Regulatory Economics*, *Quarterly Review of Economics and Finance*, *International Review of Economics and Finance*, and *Review of Development Economics*.

AREAS OF EXPERTISE

- Telecommunications, Media & Entertainment
- Technology and IP
- Antitrust & Competition
- Privacy and Consumer Protection

EDUCATION

- **University of California, Irvine (2001)**
PhD in Economics and Masters in Applied Mathematics
- **Delhi School of Economics (India) (1996)**
Masters in Economics

PROFESSIONAL EXPERIENCE

- **The Brattle Group (2018–Present)**
Senior Consultant (2018–2022), Principal (2023)
- **Telecommunications Policy Research Conference Board of Directors (2024–2025)**
- **Federal Communications Commission (2011–2018)**
Chief Economist, Wireless Telecommunications Bureau (2015–2018)
Deputy Division Chief, Spectrum and Competition Policy Division, Wireless Telecommunications Bureau (2014–2015)
Associate Division Chief, Spectrum and Competition Policy Division, Wireless Telecommunications Bureau (2013–2014)
Senior Economist, Office of Strategic Planning (2011–2013)
- **Data for Decisions (2010)**
Economist
- **Brandeis University (2001–2010)**
Assistant Professor, Department of Economics & International Business School
- **OECD (2005)**
Visiting Researcher, STI Group
- **The World Bank (2000)**
Consultant, Competition and Regulation Policy Research Group

- **California Council for Science and Technology (1998)**
Researcher, California Science and Technology Infrastructure Project
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SELECTED CONSULTING EXPERIENCE

CONSULTING PROJECTS

- Advised client on IPCTS cost allocation
- Estimated the value of the 800 MHz spectrum band for a utility
- Advised client on the value of satellite spectrum
- Estimated the loss faced by a mobile provider from delays in infrastructure permitting.
- Developed a benchmark report on dynamic spectrum sharing in relevant bands and automated frequency control in the 6 GHz band for the Kingdom of Saudi Arabia
- Estimated the benefits (healthcare costs, education, and income) of the Affordable Connectivity Program
- Evaluated the economic impact of streaming taxes
- Estimated the value of L-Band spectrum for alternative uses in Southeast Asia
- Evaluated the benefits of reconfiguring the Lower 900 MHz spectrum band to support a backup and complement to GPS
- Estimated the benefits to the US economy of deploying fiber to fiber-unserved households
- Advised client on cell phone unlocking regulation
- Estimated the value of the 4.9 GHz spectrum band
- Evaluated broadband deployment in the US
- Developed a cost model for GCI for 5G deployment in Alaska
- Estimated Value of broadcast station licenses
- Advised clients on the value of IP rights essential to video streaming technologies
- Valuing patents on dynamic sharing
- Supported New Zealand client on competition issues involving a spectrum sale
- Advised client on spectrum screens
- Evaluated the value of the TV licenses that were not sold in the US Incentive auction

- Supported a client in their universal funding advocacy at the Federal Communications Commission (FCC)
- Assessed customer behavior in pre-paid markets and the effect of certain regulations
- Assessed preliminary damages for a potential patent infringement case related to base station technology
- Supported expert on damages in telecom-related patent infringement cases
- Advised clients on FRAND rates for Wi-Fi 6 patents
- Advised clients on FRAND rates for telecom and telecom-adjacent technology
- Advised clients on wireless cost modelling
- Developed a robust sampling strategy for testing wireless speeds for client
- Advised clients on various spectrum valuation issues, including shared versus exclusive use
- Advised clients on valuation of Rights of Ways and easements
- Assessed cost allocation issues for pole replacement
- Worked with expert on data breach litigation
- Assessed the service quality standards for fixed IP-based networks
- Assessed discriminatory practices in broadband provision
- Estimated value of 1.3 GHz spectrum
- Advised bidder in FCC 3.45 GHz auction
- Advised broadband provider on Federal Trade Commission (FTC) consumer protection/false-advertising investigation
- Advised bidder in FCC RDOF auction
- Reviewed the FCC's Order on Inmate Calling Services and filed comments
- Advised bidder in the Rural Digital Opportunity Fund Reverse Auction
- Advised NCTA on sharing the 5.9 GHz band and FCC ExParte Presentation
- Advised Intelsat on a cost allocation issue in the C-Band and FCC ExParte Presentation
- Advised bidder in FCC CBRS spectrum license auction
- Advised bidder in FCC C-Band spectrum license auction
- Estimated value of 900 MHz spectrum licenses for several clients
- Estimated Value of 600 MHz, 2.4 GHz, 3.5 GHz licenses

- Estimated the value created from an accelerated clearing of the C-Band spectrum (US and Canada)
- Analyzed value of repurposing lower mid-band spectrum
- Analyzed impact of 5G on mobile spectrum values
- Assessed benefits of fiber-based broadband in rural areas
- Universal Service Fund related project on the choice of appropriate auction weights
- Providing expert analysis and support for setting up the 4G spectrum auctions in Afghanistan
- Consulted on a radio-licensing case
- Evaluated the impact of network effects on customer growth and asset value for a social-networking platform case
- Evaluated potential impact in an insurance matter and supporting the expert with quantitative analysis
- International arbitration cases on telecom

EXPERT DESIGNATION

- In Re: Prepaid Wireless Group, LLC (Debtor) T-Mobile (Creditor), In the United District Bankruptcy Court for the District of Maryland (Greenbelt Division), Case Number 24-18852.
- ALASDAIR TURNER, individually and on behalf of all others similarly situated, Plaintiffs, vs. APPLE, INC., a California corporation, Defendant, United States District Court, For the Northern District of California, San Jose Division, Case No. 5:20-cv-7495.

LITIGATION RELATED WORK

Expert work

- In Re: Prepaid Wireless Group, LLC (Debtor) T-Mobile (Creditor), In the United District Bankruptcy Court for the District of Maryland (Greenbelt Division), Case Number 24-18852.
 - Opening Report, September 18, 2025.
 - Amended Opening Report, October 10, 2025.
 - Supplemental Report, October 11, 2025.
- ALASDAIR TURNER, individually and on behalf of all others similarly situated, Plaintiffs, vs. APPLE, INC., a California corporation, Defendant, United States District Court, For the Northern District of California, San Jose Division, Case No. 5:20-cv-7495.
 - Opening Report, November 22, 2024.

Supported internal and external experts on litigation cases:

- Headwater Research LLC, Plaintiff, vs. AT&T Inc., AT&T Services, Inc., AT&T Mobility, LLC and AT&T Corp., Defendant, United States District Court, Eastern District of Texas, Marshall Division, Case No. 2:23-cv-00397
“Expert Reports of Dr. Coleman Bazelon,”
 - Report (January 29, 2025)
 - Supplemental Report (February 13, 2025)
 - Second Supplemental Report (March 19, 2025)
 - Third Supplemental Report (July 3, 2025)
- Headwater Research LLC, Plaintiff, vs. T-Mobile US, Inc., T-Mobile USA, Inc., and Sprint Corp., Defendant, United States District Court, Eastern District of Texas, Marshall Division, Case No. 2:23-cv-00377
“Expert Reports of Dr. Coleman Bazelon,”
 - Report (January 29, 2025)
 - Supplemental Report (February 13, 2025)
 - Second Supplemental Report (March 19, 2025)
- Headwater Research LLC, Plaintiff, vs Verizon Communications Inc., Cellco Partnership, d/b/a Verizon Wireless, Verizon Corporate Services Group Inc., Defendant, United States District Court, Eastern District of Texas, Marshall Division, Case No. 2:23-cv-00352
“Expert Reports of Dr. Coleman Bazelon,”
 - Report (January 29, 2025)
 - Supplemental Report (February 13, 2025)
 - Second Supplemental Report (March 19, 2025)
- Finesse Wireless LLC, Plaintiffs, vs. AT&T Mobility LLC, Defendant, and Nokia of America Corporation, Intervenor, United States District Court, Eastern District of Texas, Marshall Division, Case No. 2:21-CV-00316-JRG
“Expert Reports of Dr. Coleman Bazelon,”
 - Report (August 23, 2022)

- Supplemental Report (December 12, 2022)
- VTX COMMUNICATIONS, LLC. et al. , vs. AT&T Inc. et al., CIVIL ACTION NO.: 7:19-CV-00269.
 - “Expert Reports of Dr. Coleman Bazelon,”
 - Report (May 11, 2022)
 - Reply Report (August 17, 2022)
 - Supplemental Report (April 12, 2023)
- “Expert Report of Coleman Bazelon, Ph.D.,” United States of America v. Daryl Bank, et al., Defendants, United States District Court for the Eastern District of Virginia, Criminal Case No. 2:19-CR-47, November 1, 2021.
- “Rebuttal Expert Report of Nicolas Christin,” In Re: Marriott International Inc.’ Customer Data Security Breach Litigation, October 12, 2021.
- “Expert Reports of Benjamin Sacks and Coleman Bazelon,” Global Telecom Holding S.A.E., Claimant vs Government of Canada, Respondent; International Centre for Settlement of Investment Disputes, ICSID Case No. ARB 16/16, Second Report, February 1, 2019.

FEDERAL COMMUNICATIONS COMMISSION & OTHER REGULATORY FILINGS

- “The Economic Case for Supporting Operational Expenses for Wireless Rural Infrastructure,” Prepared for The Competitive Carriers Association, August 11, 2025.
- “Comments on the Federal Communications Commission’s “Further Notice of Proposed Rulemaking,” in the FCC’s proceeding, “Incarcerated People’s Communications Services; Implementation of the Martha WrightReed Act, WC Docket No. 23-62; Rules for Interstate Inmate Calling Services, WC Docket No. 12-375,” with Coleman Bazelon, L. Shea Peretz, Natalie Selfe, and Preetul Sen, October 21, 2024
- “Public Benefits of Reconfiguring the Lower 900 MHz Band to Support a Backup and Complement to GPS,” with Coleman Bazelon, Prepared for NextNav, Inc., filed in response to the FCC’s docket WTB 24-240, “WTB and OET Seek Comment on NextNav Petition for Rulemaking,”
 - Original Report (October 21, 2024)
 - Brattle Supplemental Report (March 27, 2025)
 - Brattle Second Supplemental Report (July 17, 2025)
- “Alaska 5G Cost Model (2025 – 2034),” with Sarah Mather and Natalie Selfe, Prepared for GCI, Submission of Confidential Information in WC Docket No. 23-328, October 15, 2024.

- “An Examination of the Impacts of Symmetric Device Locking Periods,” with Yong Paek and Coleman Bazelon, Prepared for Verizon, in response to the FCC’s WT Docket No. 24-186, “Promoting Consumer Choice and Wireless Competition Through Handset Unlocking Requirements and Policies,” September 9, 2024
- “Response to the FCC’s Implementation of the Martha Wright-Reed Act,” in the FCC’s proceeding “Incarcerated People’s Communications Services; Implementation of the Martha Wright-Reed Act, WC Docket No. 23-62; Rules for Interstate Inmate Calling Services, WC Docket No. 12-375,” with Coleman Bazelon, L. Shea Peretz, Natalie Selfe, and Preetul Sen, July 12, 2024
- “Proposed Rate Methodology for IP CTS,” with Coleman Bazelon, Prepared for Hamilton Relay, Inc., filed in response to the FCC’s proceeding, “Internet Protocol Captioned Telephone Service Compensation; Telecommunications Relay Services and Speech-to-Speech Services for Individuals with Hearing and Speech Disabilities; Misuse of Internet Protocol (IP) Captioned Telephone Service, CG Docket Nos. 22-408, 03-123, 13-24,” June 6, 2024
- “Observations on the Video Data in the 2023 MDC,” Brattle Report filed in the FCC’s proceeding, “Incarcerated People’s Communications Services; Implementation of the Martha Wright Reed Act, WC Docket No. 23-62; Rules for Interstate Inmate Calling Services, WC Docket No. 12-375,” with Coleman Bazelon, L. Shea Peretz, Natalie Selfe, and Preetul Sen, May 23, 2024
- “Valuing the 4.9 GHz Band,” with Coleman Bazelon, Prepared for The Coalition for Emergency Response and Critical Infrastructure, filed in response to the FCC’s proceeding “Amendment of Part 90 of the Commission’s Rules,” WP Docket No. 07-100, May 22, 2024
- “IPCS Model Carrier Approach, Industry Comments and the 2023 MDC Data,” Notice of ExParte in the FCC’s proceeding, “Incarcerated People’s Communications Services; Implementation of the Martha Wright Reed Act, WC Docket No. 23-62; Rules for Interstate Inmate Calling Services, WC Docket No. 12-375,” with Coleman Bazelon, L. Shea Peretz, Natalie Selfe, and Preetul Sen, May 7, 2024
- “The Economics of Universal Service Fund Reform,” with Coleman Bazelon and Yong Paek, Prepared for Incompas, First published August 24, 2023. Submitted in response to FCC’s proceeding, “Safeguarding and Securing the Open Internet, WC Docket No. 23-32,” April 16, 2024

- “Economic Analysis of Dense Air and One New Zealand’s Spectrum Acquisition,” with Yong Paek and Coleman Bazelon, Prepared for Dense Air in relation to the Statement of Issues issued by the Commerce Commission dated February 2, 2024, March 4, 2024
- “Updated IPCS Cost Model,” Brattle Report filed in the FCC’s proceeding, “Incarcerated People’s Communications Services; Implementation of the Martha Wright Reed Act, WC Docket No. 23-62; Rules for Interstate Inmate Calling Services, WC Docket No. 12-375,” with Coleman Bazelon, L. Shea Peretz, Natalie Selfe, and Preetul Sen, February 9, 2024
- “Competitiveness in Canadian Wireline Broadband Markets: Response to Dr. Chen’s Third Report,” with Renée Duplantis, Coleman Bazelon and Yong Paek, Prepared for Rogers Communications Inc. in relation to Telecom Notice of Consultation CRTC 2023-56, Reply Comments, November 20, 2023
- “Economics of the FCC’s Spectrum Screen: Relevance and Proposed Modifications,” with Coleman Bazelon and William Zarakas, Prepared for DISH Network, in response to FCC’s Public Notice, DA 23-891, WT Docket No. 23-319, RM-11966, Brattle Reply Comments, November 8, 2023
- “Competitiveness in Canadian Wireline Broadband Markets,” with Renée Duplantis, Coleman Bazelon and Yong Paek, Prepared for Rogers Communications Inc. in relation to Telecom Notice of Consultation CRTC 2023-56, Comments, June 22, 2023
- “Comments on “FCC Seeks Comments on its Expanded Authority to Ensure Just and Reasonable Rates and Charges for Incarcerated People’s Communications Services,” with Coleman Bazelon, Notice of Proposed Rulemaking, Docket No. 23-62, 12-375, Brattle Report, May 8, 2023
- “Out of Sync: Outdated Financial and Operational Reporting for Competitive VoIP Providers,” with Coleman Bazelon. Prepared for the California Cable and Telecommunications Association, Reply of the California Cable and Telecommunications Association to Responses to California Public Utility Commission’s Rulemaking 22-03-006, December 21, 2022
- “The Economics of Pole Replacement and Efficient Cost Allocation,” with Coleman Bazelon and Yong Paek, In the Matter of Accelerating Wireline Broadband Deployment by Removing Barriers to Infrastructure Investment, WC Docket No. 17-84. Prepared for Crown Castle Fiber LLC, June 27, 2022
- “Fixed IP-Based Networks and Service Quality,” with Coleman Bazelon, Prepared for the California Cable and Telecommunications Association, Reply of the California Cable and

Telecommunications Association to Responses to Petition of the Public Advocates Office Rulemaking to Amend General Order 133-D to Establish Minimum Service Quality Standards for All Essential Communications Services, California Public Utility Commission, November 15, 2021

- “Declaration of Coleman Bazelon and Paroma Sanyal,” Public Utilities Commission of the State of California, Order Instituting Rulemaking Regarding Broadband Infrastructure Deployment and to Support Service Providers in the State of California, Rulemaking 20-09-001, July 26, 2021
- “Understanding Broadband Deployment: A Case Study of Los Angeles County,” with Coleman Bazelon, Public Utilities Commission of the State of California, Rulemaking 20-09-001, July 2, 2021
- “Exclusive Use of Public Rights of Way, Unfair Competitive Practices, and Fair and Reasonable Compensation,” FCC, May 12, 2021
- “Valuing the 12 GHz Spectrum Band with Flexible Use Rights,” with Coleman Bazelon, FCC, May 7, 2021
- Further Comments on “Rates for Interstate Inmate Calling Services,” Report and Order on Remand and Fourth Further Notice of Proposed Rulemaking, with Coleman Bazelon and Andrea Helfant, FCC, WC Docket Nos. 12-375, March 25, 2021
- “Valuing an Accelerated Clearing of the C- Band Spectrum in Canada,” with Coleman Bazelon and Renee M. Duplantis, Canada, February 2021
- Reply Comments on “Rates for Interstate Inmate Calling Services,” Report and Order on Remand and Fourth Further Notice of Proposed Rulemaking, with Coleman Bazelon and Andrea Helfant, FCC, WC Docket Nos. 12-375, January 15, 2021
- Comments on “Rates for Interstate Inmate Calling Services,” Report and Order on Remand and Fourth Further Notice of Proposed Rulemaking, with Coleman Bazelon and Andrea Helfant, FCC, WC Docket Nos. 12-375, November 23, 2020
- “Allocating Costs for Hosted Payloads on the C-Band Satellites,” Paroma Sanyal, FCC, GN Docket Nos. 18-122, 20-173, August 6, 2020
- “Benefits and Costs of Greater Connectedness,” with Coleman Bazelon, FCC, IB Docket No. 11-109, 12-340, June 1, 2020
- “The Economics of Unlicensed and Dedicated Use Spectrum in the 5.9 GHz Band,” with Coleman Bazelon, FCC, ET Docket No. 19-138, April 27, 2020

- “Value Creation from an Accelerated Clearing of the C-Band Spectrum,” with Coleman Bazelon, FCC, WTB 18-122, January 16, 2020 *(Due to a 1-year cooling-off period my name does not appear on these papers)*
- “Public Interest Benefits of Expanding Fiber Networks,” FCC, WC Docket Nos. 19-126, WC Docket Nos. 10-90, WC Docket Nos. 19-195, October 21, 2019
- “Advancing 5G Deployment: Shared Flexible Use of the 1675 – 1680 MHz Band,” FCC, WTB Docket Nos. 19-116, ETRN Docket Nos. 11-681, July 22, 2019
- “Choosing an Appropriate Geographic Licensing Size,” FCC, WTB Docket No. 19-116, ETRN Docket No. 11-681, June 21, 2019

CLIENT REPORTS AND WHITEPAPERS

- “Market Failure in the Wireless Communications Infrastructure Service Industry,” with Coleman Bazelon, Yong Paek and Angela Gunn, Prepared for NATE, July 2025.
- “Assessing Wi-Fi Exhaustion and Shortfalls in Wi-Fi Capacity,” with Coleman Bazelon and Preetul Sen. Prepared for WifiForward, April 30, 2025.
- “The Cost of Wireless Infrastructure Siting Delays: Reduced Future Spectrum Auction Receipts,” with Coleman Bazelon, Prepared for the Wireless Infrastructure Association, February 27, 2025.
- “The Economic Impact of Streaming Taxes,” with Yong Paek and Coleman Bazelon, Prepared for Streaming Innovation Alliance, February 26, 2025.
- “Paying for Itself: How the Affordable Connectivity Program Delivers More Than It Costs,” with Coleman Bazelon and Yong Paek, Prepared for TruConnect, February 19, 2025.
- “Economic Benefits of Fiber Deployment,” with Coleman Bazelon, Yong Paek and Dan Beemon, Prepared for the Fiber Broadband Association and Frontier Communications, November 20, 2024
- “Unacceptable Interference: Economic Analysis Does Not Support Degrading Protections for GSO Networks,” with Coleman Bazelon, Prepared for Viasat Inc., October 26, 2023
- “Principles of Spectrum Sharing: Understanding the Value of Shared Spectrum,” with Coleman Bazelon and Yong Paek, Prepared for Spectrum for the Future and Charter Communications, LLC, September 18, 2023

- “Economic Impact of Delaying the Deployment of Auction 108 2.5 GHz Licenses,” with Coleman Bazelon, Prepared for T-Mobile, June 22, 2023
- “How Much Licensed Spectrum is Needed to Meet Future Demands for Network Capacity?” with Coleman Bazelon, Prepared for CTIA, April 14, 2023
- “An Analysis of Licensing Rates for Wireless Technology in Automobiles,” Prepared for Unified Patents, LLC, with Coleman Bazelon, Douglas H. Frank, and Yong Paek, May 13, 2022
- Prepared a spectrum valuation report for Macquarie Capital, October 23, 2021
- Prepared a report for Verizon Communications on a telecommunications issue, with Coleman Bazelon, March 30, 2021
- Prepared a report evaluating various broadband speed claims for Frontier Communications, with Coleman Bazelon, January 4, 2021
- “Value Creation from an Accelerated Clearing of the C-Band Spectrum,” with Coleman Bazelon, prepared for the C-Band Alliance, January 16, 2020
- “Valuing the 900 MHz Spectrum Band in Ameren’s Service Territory,” with Augustin Ros and Ezra Frankel, prepared for Ameren, November 6, 2019
- “Spectrum Assignment for Advanced Mobile Broadband Services,” with Coleman Bazelon, policy/consultation paper for the Afghanistan Telecommunications Regulatory Authority (ATRA), Selected Chapters on Auctions, September 2019
- “Valuing the 1300 MHz – 1350 MHz Band,” with Coleman Bazelon, prepared for Raytheon, August 7, 2019
- “Mobile Broadband Spectrum: A Revaluation in a 5G World,” with Coleman Bazelon, prepared for CTIA, May 29, 2019
- Worked on reports/papers to be filed at the FCC *(due to a 1-year cooling-off period my name does not appear on these papers)*
- “The Public Interest Benefits of a Market-Based Solution for the C-Band,” with Coleman Bazelon, prepared for The C-Band Alliance, November 13, 2019
- “Cost Benefit Analysis: A Case Study of the 5.9 GHz Band,” with Coleman Bazelon, presented to the FCC, May 8, 2019

ARTICLES & PUBLICATIONS

PUBLISHED ARTICLES & BOOK CHAPTERS

- “The Theoretical and Empirical Relationship Between Spectrum Concentration and Downstream Service Quality,” with Yong Paek, Kai Liao, Preetul Sen and Coleman Bazelon, *Journal of Information Policy* (forthcoming).
- “Captive Audiences: A Case Study of Phone Rates for Incarcerated Persons,” with C. Bazelon, *Consumer Policy International* (April 2021)
- “Economics at the FCC 2016–2017: Auction Designs for Spectrum Repurposing and Universal Service Subsidies,” with E. Krewel et al., *Review of Industrial Organization* (2017)
- “Economics at the FCC 2015–2016: Competition, Merger Review, and Spectrum Management,” with O. Carare et al., *Review of Industrial Organization* (2016)
- “Product Market Competition and Upstream Innovation: Theory and Evidence from the US Electricity Market Restructuring,” with S. Ghosh, *Review of Economics and Statistics* (2012)
- “Incentivizing Managers to Build Innovative Firms,” with L. Bulan, *Annals of Finance*, Vol. 7(2), pp. 267–283 (2011)
- “Regulatory Risk, Competition and Capital Structure: Evidence from US Electric Utilities,” with L. Bulan, *Quarterly Review of Economics and Finance*, Vol. 51(3), pp. 248–268
- “Productivity, Ownership and Competition: An Analysis of Indian Banking in the Post-Reform Period,” with R. Shankar, *International Review of Economics and Finance*, Vol. 20(2), pp. 225–247 (2011)
- “Economic, Regulatory and Industry Effects on Capital Structure,” book chapter in *Capital Structure and Corporate Financing Decisions* (H. Kent Baker and Gerald S. Martin, eds.), Kolb Series in Finance, Wiley (2010)
- “A Few Bad Apples: An Analysis of CEO Performance Pay and Firm Productivity,” with L. Bulan, *Journal of Economics and Business*, Vol. 62(4), pp. 116–128 (2010)
- “Powering Progress: Restructuring, Competition and R&D in the U.S. Electric Utility Industry,” with L.R. Cohen, *The Energy Journal*, Vol. 30 (2), pp. 41–80 (2009)
- “The Effect of Deregulation on Environmental Research by Electric Utilities,” *Journal of Regulatory Economics*, Vol. 31 (3), pp. 335–353 (2007)
- “Labor Conflict and Foreign Investments: Some Endogeneity Issues,” with N. Menon, *Review of Development Economics*, Vol. 11(4), pp. 629–644 (2007)
- “Determinants of Productivity in Indian Banking: What has Changed in the Post-Reform Period?” with R. Shankar, *Journal of Macro Marketing Papers and Proceedings* (June 2007)

- “Peanut Butter Patents Versus the New Economy: Does the Increased Rate of Patenting Signal More Invention or Just More Lawyers?” with A.B. Jaffe, *Annales d’Economie et de Statistique* (special issue in the memory of Zvi Griliches) (2006)
- “Labor Conflicts and the Economics of Firm Geography: Evidence from India” with N. Menon, *Economic Development and Cultural Change*, Vol. 53(4), pp. 825–854 (2005)
- “A Retrospective on the Electricity Restructuring in California” (joint author), California Science and Technology Commission & California Energy Commission (2004), available at <http://www.ccst.us/publications/2004/EnergyReport.pdf>
- “Understanding Patents: The Role of R&D Funding Sources and the Patent Office,” *Economics of Innovation and New Technology*, Vol. 12(6), pp. 507–529 (2002)

CONFERENCE PUBLICATIONS AND WORKING PAPERS

- “Assessing Wi-Fi Exhaustion and Shortfalls in Wi-Fi Capacity,” with Coleman Bazelon and Preetul Sen, Telecommunications Policy Research Conference 53, Conference Presentation, September 19, 2025
- “Economic Benefits of Fiber Deployment,” with Coleman Bazelon, Yong Paek and Dan Beemon, Telecommunications Policy Research Conference 53, Conference Presentation, September 20, 2025
- “The Economics of Universal Service Fund Reform,” with Coleman Bazelon and Yong Paek, Telecommunications Policy Research Conference 52, Conference Presentation, September 21, 2024
- “Spectrum Concentration and Quality Competition in Mobile Communications,” with Yong Paek, Kai Liao, Preetul Sen and Coleman Bazelon, Telecommunications Policy Research Conference 52, Conference Presentation, September 20, 2024
- “Principles of Spectrum Sharing: A Case Study of the Lower 12 GHz Band,” with Coleman Bazelon, Yong Paek and Sarah Mather, Telecommunications Policy Research Conference 51, Conference Presentation, September 22, 2023
- “Product Bundling and Exploitative Pricing in Prison Telecommunications Contracts,” with Coleman Bazelon, Preetul Sen, Natalie Selfe and Ece Yegane, Telecommunications Policy Research Conference 51, Conference Presentation, September 22, 2023
- “Inmate Calling Services Cost Model: A Model Carrier Approach to Estimating the Communications Services Cost for the U.S. Incarcerated Population,” with Coleman Bazelon,

Preetul Sen, Natalie Selfe, L. Shea Peretz and Sarah Mather, Telecommunications Policy Research Conference 51, Conference Presentation, September 22, 2023

- “Forecasting Wireless Broadband Capacity Shortfalls,” with Coleman Bazelon, Ryan Taylor, L. Shea Peretz, Megan Sullivan, Natalie Selfe, and Peter Christenson, Telecommunications Policy Research Conference 51, Conference Presentation, September 22, 2023
- “What’s In a Label?” with Coleman Bazelon and Divya Goel, Telecommunications Policy Research Conference 50, Conference Presentation, September 17, 2022
- “The Anticompetitive Impacts of Exclusive Rights-of-Way and Unequal Subsidies in the Wireline Broadband Market,” with Coleman Bazelon, Yong Paek and Rui Yu, Telecommunications Policy Research Conference 50, Conference Presentation, September 17, 2022
- “Understanding Spectrum Prices in Recent Upper Mid-Band FCC Auctions,” with Coleman Bazelon, Yong Paek, Ryan Taylor and Austin Lajoie, Telecommunications Policy Research Conference 50, Conference Presentation, September 17, 2022
- “The Changing Dynamics of Wired and Wireless Networks,” with Coleman Bazelon and Ryan Tylor, Telecommunications Policy Research Conference 49, Conference Presentation, September 20, 2021
- “Novel-Infrastructure Bidders’ Impact on Cost-Based Subsidy Auctions,” with Jonathan Lee and Coleman Bazelon, Telecommunications Policy Research Conference 49, Conference Presentation, September 20, 2021
- “Network Value Drivers in a 5G World,” with Coleman Bazelon, Johnathan Lee, Ezra Frankel, and Ryan Taylor, Telecommunications Policy Research Conference 48, Conference Presentation, February 17, 2021
- “The Financial Structure of Startup Firms: The Role for Asset, Information, and Owner Characteristics,” with C. L. Mann, Federal Reserve Bank of Boston working paper (2011)
- “Is There Room for Growth? Debt, Growth Opportunities and the Deregulation of U.S. Electric Utilities,” with L. Bulan (2010)
- “Innovation, R&D and Managerial Compensation,” with L. Bulan (2010)
- “Financing Choices and Entrepreneurial Success,” with C. L. Mann (2010)
- “The Subsequent Financing of Small Startups: Initial Capital Structure, Entrepreneur and Firm Attributes,” with C. L. Mann (2010)

- “Directors, Outsiders and Efficiency: An Analysis of How Board Characteristics Influence Firm Productivity,” with L. Bulan and Z. Yan (2009)
- “What Drives Bank Performance? An Analysis for the Post-Reform Period in India,” (with R. Shankar) (2006)
- “R&D Choice in Restructured Industries: In-house v/s Collaborative Research in the US Electricity Industry,” with L. R. Cohen (2002)
- “Determinants of International Patenting Activity and IPR Regimes Shifts: A Cross-Country Analysis” (2002)
- “Making a Difference: How Women In Politics Affect Health and Education Outcome,” with S. Knack, World Bank Mimeo (2000)
- “Implication of Aggregate Trends in Support and Performance of R&D in California on Patent Activity,” with Linda Cohen (1999)

PRESENTATIONS & SPEAKING ENGAGEMENTS

- Speaker at the Plenary Session – “USF Contribution Reform: How Do We Solve That Problem?” AnchorNETS 2025 (October 2025)
- Moderated a Panel of Spectrum, TPRC 53 (September 2025)
- “Economic Benefits of Fiber Deployment,” Fiber for Breakfast (November 2024), TPRC 53 (September 2025)
- Moderated a Panel of Spectrum, First Annual Brattle Telecom, Media and Entertainment Roundtable (June 2025)
- “The Economics of Universal Service Fund Reform,” TPRC 52 (September 2024)
- Panel on Data Bias, FCBA Women’s Summit (March 2024)
- INCOMPAS 2024 Policy Summit (March 2024)
- The Economics of Privacy Panel, TPRC 51 (September 2023)
- “Principles of Spectrum Sharing: A Case Study of the Lower 12 GHz Band,” TPRC 51 (September 2023)
- Hill Presentation on USF Issues (September 2023)
- FCC Presentation on USF Issues (September 2023)

- AEI Panel: “Beyond Bandwidth: Addressing Spectrum Capacity Challenges and Exploring Its Value,” (July 2023)
- ABA Panel on Gender Inclusive Competition (May 2023)
- ANA Panel on False Advertising (2023)
- R Street Spectrum Event, (November 2022)
- “What’s In A Label,” TPRC 50, (September 2022)
- Technology Policy Institute, Aspen (August 2022)
- ABA Spring Meetings – False Advertising, (April 2022)
- “The Changing Dynamics of Wired and Wireless Networks,” TPRC 49, (September 2021)
- “Network Value Drivers in a 5G World,” TPRC 48, (February 2021)
- US Telecom Roundtable (2019)
- “Spectrum Value in a 5G World,” TRPC, Washington, DC (September 2019)
- “Can 5G Technology Create New Opportunities for Competition,” Georgetown University (July 2019)
- Brownbag Presentations, Federal Communication Commission (2012–Present)
- University of Texas, Arlington, Dept. of Economics Seminar (December 2010)
- Wesleyan University, Department of Economics Seminar (October 2010)
- “US Energy Policy in Transition,” PURC, University of Florida, Gainesville (March 2010)
- Entrepreneurial and Innovation Conference, Cambridge, MA (June 2010)
- Kauffman Foundation Workshop, Atlanta (January 2010)
- Kauffman Foundation Seminar, Washington, DC (November 2009)
- Bentley College Research Seminar (November 2009)
- Northeastern University Research Seminar (September 2009)
- Indian School of Business, Hyderabad (June 2009)
- American Law and Economics Conference, San Diego (May 2009)
- Indian Institute of Management, Bangalore (December 2008)
- AEA Conference (January 2003, 2005, 2006)
- International Industrial Organization Conference (2003–2010)
- NBER Productivity Seminar Series, Cambridge (2001–2009)
- NBER Summer Institute, Productivity Potpourri (July 2004, 2007)
- Midwest Finance Association (2007, 2008)

- Florida Atlantic University, Boca Raton, Florida (December 2007)
- International Society of Marketing and Development Conference, Washington, DC (June, 2007)
- IMF MFD Seminar Series, Washington, DC (February 2006)
- MIT Innovation Seminar (November 2005)
- Econometric Society World Congress, London (August 2005)
- European Patent Office, Munich (May 2005)
- 24th Annual North American Conference of USAEE/IAEE, Washington, DC, (July 2004)
- NBER & CRIW Conference in Memory of Zvi Griliches, Paris (August 2003)
- Second World Congress of Environmental Economics, CA (June 2002)
- NBER Spring Productivity Conference, Cambridge (March 15, 2002)
- 5th Occasional California Workshop on Environmental and Resource Economics, UCSB (2000)
- R&D Investment and Economic Growth in the 20th Century Conference, UC Berkeley (March 1999)

SELECTED HONORS & AWARDS

2012	Excellence in Economic Analysis Award, Federal Communications Commission
2010	Kauffman Foundation Research Grant (with Catherine L. Mann)
2005–2007	Norman Grant, Brandeis University
2007	Best Paper Award in Corporate Finance, Midwest Finance Annual Meetings
2005	Schiff Award, Brandeis University
2000	UC Energy Institute Research Fellowship

LANGUAGES

- English, Bengali, Hindi