

## KENNETH L. SIMONS

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### Employment

Associate Professor (tenured), Department of Economics, Rensselaer Polytechnic Institute, 2010-.

Joint (courtesy) appointment to Lally School of Management and Technology, 2010-.

Assistant Professor, Department of Economics, Rensselaer Polytechnic Institute, 2003-2010.

Senior Lecturer (equivalent to US Associate Professor; tenured), Department of Economics, Royal Holloway, University of London, 2001-2003.

Lecturer (equivalent to US Assistant Professor), Department of Economics, Royal Holloway, University of London, 1995-2000.

### Education

Ph.D., Dept. of Social & Decision Sciences, Carnegie Mellon University, 1995.

Dissertation: "Shakeouts: Firm Survival and Technological Change in New Manufacturing Industries."

Chair: Steven Klepper.

M.Sc., Industrial Organization Economics, Carnegie Mellon University, 1993.

B.S., Planning, Massachusetts Institute of Technology, 1990.

### Publications (Peer-Reviewed)

"A Sparser, Speedier Reshape," *Stata Journal*, vol. 16 no. 3, Third Quarter 2016, pp. 632-649.

"USA's National Innovation System." In V.K. Narayanan and Gina Colarelli O'Connor (eds.), *Wiley Encyclopedia of Management, vol. 13, Technology and Innovation Management*, Wiley, 2015, 32pp., with Judith Walls. (This is a revised version of "The U.S. National Innovation System," below, with content updates plus extensive data updates.)

"Light Emitting Diodes and the Lighting Revolution: The Emergence of a Solid-State Lighting Industry," *Research Policy*, vol. 43 no. 10, December 2014, pp. 1730-1746, with Susan Walsh Sanderson.

"Entrepreneurs Seeking Gains: Profit Motives and Risk Aversion in Inventors' Commercialization Decisions," *Journal of Economics and Management Strategy*, vol. 19 no. 4, Winter 2010, pp. 863-888, with Thomas Åstebro (lead article).

"Bodyshopping versus Offshoring among Indian Software and Information Technology Firms," *Information Technology and Management*, vol. 12 no. 1, March 2011, pp. 17-34, with Sumit K. Majumdar and Ashok K. Nag.

"Global Technology Development in Solid State Lighting Technologies." *International Journal of High Speed Electronics and Systems*, vol. 20 no. 2, June 2011, pp. 359-382, with Susan Walsh Sanderson.

"Dominance by Birthright: Entry of Prior Radio Producers and Competitive Ramifications in the U.S. Television Receiver Industry" (reprint of journal article), in Catherine A. Maritan and Margaret A. Peteraf, eds., *Competitive Strategy*, vol. 2, Edward Elgar, 2011, chapter 22.

- “The Strategic Benefits of Uniform Environmental Standards,” *Strategic Behavior and the Environment*, vol. 1 no. 1, January 2011, pp. 31-47, with Anthony G. Heyes.
- “Assessing the Effects of Mergers and Acquisitions on Firm Performance, Plant Productivity, and Workers: New Evidence from Matched Employer-Employee Data,” *Strategic Management Journal*, vol. 31 no. 8, August 2010, pp. 903-916, with Donald S. Siegel.
- “The U.S. National Innovation System.” In V.K. Narayanan and Gina Colarelli O’Connor (eds.), *Encyclopedia of Technology and Innovation*, Wiley, 2010, pp. 445-467, with Judith Walls.
- “Ownership Change, Productivity, and Human Capital: New Evidence from Matched Employer-Employee Data in Swedish Manufacturing,” in Timothy Dunne, J. Bradford Jensen, and Mark J. Roberts, eds., *Producer Dynamics: New Evidence from Micro Data*, University of Chicago Press for the National Bureau of Economic Research, 2009, pp. 397-442, with Donald S. Siegel and Tomas Lindstrom.
- “The U.S. National Innovation System: Potential Insights for Russia” (in Russian, by translation). In Danilin, I., and Klochikhin, E. (eds.), *Innovative Development: International Experience and Russia's Strategy*, Moscow: MGIMO-University Press, 2009, pp. 97-119. (“Национальная инновационная система США: выводы для России,” in И.В. Данилин and Е.А. Ключихин, *Инновационное развитие: международный опыт и стратегия России*.)
- “SSL Technology Development and Commercialization in the Global Context,” in Ian Ferguson, Christoph Hoelen, Jianzhong Jiao, and Tsunemasa Taguchi, eds., *Proceedings of SPIE: Ninth International Conference on Solid State Lighting*, SPIE, 2009, pp. 74220X-1-15, with Susan Walsh Sanderson.
- “Lighting Industry,” in Jeffrey T. Macher and David C. Mowery, eds. *Innovation in Global Industries - U.S. Firms Competing in a New World*, Washington, D.C.: National Academies Press, 2008, pp. 163-205, with Susan Walsh Sanderson, Judith Walls, and Yin-Yi Lai. This volume is a focus report of the National Academies.
- “Assessing the Effects of Ownership Change on Women and Minority Employees: Evidence from Matched Employer-Employee Data,” *International Journal of the Economics of Business*, vol. 14 no. 2, July 2007, pp. 161-178, with John Marsh and Donald S. Siegel.
- “Shakeouts, Innovation, and Industrial Strategy and Policy,” *Australian Economic Review*, vol. 40 no. 1, March 2007, pp. 106-112.
- “Political Instability and Growth in Dictatorships,” *Public Choice*, vol. 125 no. 3-4, December 2005, pp. 445-470, with Jody Overland and Michael Spagat.
- “Industry Shakeouts and Technological Change,” *International Journal of Industrial Organization*, vol. 23 no. 1-2, February 2005, pp. 23-43, with Steven Klepper.
- “Predictable Cross-Industry Heterogeneity in Industry Dynamics,” in Albert N. Link and F. M. Scherer, eds., *Essays in Honor of Edwin Mansfield: The Economics of R&D, Innovation and Technological Change*, Springer, 2005, pp. 275-279.
- “Dominance by Birthright: Entry of Prior Radio Producers and Competitive Ramifications in the U.S. Television Receiver Industry” (reprint of journal article), in Constance E. Helfat, ed., *The SMS Blackwell Handbook of Capability Management: Emergence, Development and Change*, Blackwell, 2003, with Steven Klepper, pp. 15-42.

- “Industry Life Cycles and Their Causes (Synopsis),” *Academy of Management Proceedings*, 2003, pp. BPS I1-I6.
- “IT and Competition (Synopsis),” *Academy of Management Proceedings*, 2003, pp. TIM E1-E6.
- “Salaries and Career Opportunities in the Banking Industry: Evidence from the Personnel Records of the Union Bank of Australia,” *Explorations in Economic History*, vol. 38 no. 2, April 2001, pp. 195-224, with Andrew Seltzer (lead article).
- “The Making of an Oligopoly: Firm Survival and Technological Change in the Evolution of the U.S. Tire Industry,” *Journal of Political Economy*, vol. 108 no. 4, August 2000, pp. 728-760, with Steven Klepper.
- “Dominance by Birthright: Entry of Prior Radio Producers and Competitive Ramifications in the U.S. Television Receiver Industry,” *Strategic Management Journal*, vol. 21 no. 10-11, October-November 2000, pp. 997-1016, with Steven Klepper.
- “Technological Extinctions of Industrial Firms: An Enquiry into their Nature and Causes” (reprint of journal article), in David B. Audretsch and Steven Klepper, eds., *Innovation, Evolution of Industry and Economic Growth*, Edward Elgar, 2000, pp. 61-142, with Steven Klepper.
- “International Dynamics of Product Market Competition,” in Tarek Khalil, Hussein El-Gammal, Louis A. Lefebvre, Yasser Hosni, and Hassan El-Laithy, eds., *Civilization, Modern Technology and Sustainable Development*, International Association for Management of Technology, 1999, pp. 787-796.
- “Technology Requirements for Population and Economic Growth,” in Tarek Khalil, Hussein El-Gammal, Louis A. Lefebvre, Yasser Hosni, and Hassan El-Laithy, eds., *Civilization, Modern Technology and Sustainable Development*, International Association for Management of Technology, 1999, pp. 797-803.
- “Technological Extinctions of Industrial Firms: An Inquiry into their Nature and Causes,” *Industrial and Corporate Change*, vol. 6 no. 2, March 1997, pp. 379-460, with Steven Klepper.
- “Innovation and Industry Shakeouts,” *Business and Economic History*, vol. 25 no. 1, Fall 1996, pp. 81-89, with Steven Klepper.
- “New Technologies in Simulation Games,” *System Dynamics Review*, vol. 9 no. 2, Summer 1993, pp. 135-152.
- “Software to Communicate Global Models,” in David Crookall and Kiyoshi Arai, eds., *Global Interdependence*, Springer-Verlag, 1992, pp. 57-65, with Peter J. Poole.
- “New Technologies in Simulation Games,” in David F. Anderson, George P. Richardson, and John D. Sterman, eds., *System Dynamics '90*, System Dynamics Society, 1990, pp. 1047-1059.

### **Working Papers and Work in Progress**

- “Engine of Dominance: Competence-Enhancing Process Innovation.”
- “The (In)Frequency of Schumpeterian Creative Destruction” (previously titled “Two Roads to Riches? The (In)Frequency of Strongly Disruptive Technological Change”)
- “Product Market Characteristics and the Industry Life Cycle.”

- “On the Theory of Product Market Characteristics and the Industry Life Cycle.”
- “Evaluating the Effects of Mergers and Acquisitions on Employees: Evidence from Matched Employer-Employee Data,” with Donald Siegel.
- “The Stayer Advantage in Evolving Industries,” with Murad Mithani and Susan Walsh Sanderson.
- “Information Technology and Dynamics of Industry Structure: The UK IT Consulting Industry as a Contemporary Specimen.”
- “Pricing Strategies in Residential Telephony,” with Sumit Majumdar.
- “Technology Benchmarks for Sustained Economic Growth.”
- “Technology Requirements for Population and Economic Growth.”
- “News Media as a Channel of Environmental Information Disclosure: Evidence from an EGARCH Approach,” with Ran Zhang (primary author) and David I. Stern.
- “The Cross-Border Impact of Demand-Pull Policies on R&D Activities: A Firm-Level Analysis,” with Yu-li Ko.
- “Adoption of Energy-Efficient Light Bulbs with Multidimensional Product Information Diffusion: Text-Mining Analysis of Amazon Product Webpages,” with Yu-li Ko.

### **Other Unpublished Working Papers**

- “Innovation and Industry Shakeouts—Long Version,” with Steven Klepper, 1996.
- “SIMGAME User Manual,” “SIMGAME Development Manual,” and “SIMGAME Code,” System Dynamics Group, MIT Sloan School of Management, working papers D-4115, D-4116, and D-4117, 1989.

### **Other Publications**

- “Making Global Models Accessible: The Earth Systems Project,” *The Earth Simulation Newsletter*, vol. 1 no. 1 (Spring), 1994, pp. 3-5.

### **Computer Software**

- Stata routines: sreshape - sparse and speedy data reshaping; rcheck - check sensitivity to alternative model specifications; dfbeta3 - compute DFBETAs even after regress with robust/clustered SEs; dummychk - check dummy (indicator) variables to ensure they are okay; onetone - check one-to-one correspondence between values of variables; globdist - distance between latitude & longitude coordinates; circnum - count data points in a geographic radius of each point; exlocs - create data points for extra geographic locations; strlist - list in compact form; sthaz - smoothed hazard (transition/failure) rate plots; hazplot - smoothed hazard (transition/failure) rate plots, alternative; reencode - encode/decode and replace variable(s); hammersley - Hammersley sequences for non-random high-efficiency sampling (to access these routine use Stata Help --> Search... and search net resources).
- “Longitudinal Industry Data Analyzer,” software to analyze longitudinal data on populations of industrial firms, available on request, 1994.
- “Beyond the Limits,” including documentation, educational materials, and critical commentary, Laboratory for Interactive Learning, Hood House, University of New

Hampshire, Durham, NH 03824, or internet <http://www.sun.rhbnc.ac.uk/~uhss021>, with assistance from Jennifer Newbury and Aaron Young, 1997 (1992).

“The Gaia Hypothesis and Daisyworld,” internet <http://www.sun.rhbnc.ac.uk/~uhss021>, with assistance from Michelle Bell, Peter J. Poole, Kevin Rathbun, Erik Trimble, and Aaron Young, 1993 (1990).

“B & B Enterprises,” available from John D. Sterman, Sloan School of Management, MIT E52-562, Cambridge, MA 02139, with Erik Beinhocker, Mark Paich, and John D. Sterman, 1991.

## Grants

Rensselaer Knowledge and Innovation Program, “Rapid Water Disinfection using Phosphorene Nanofilms and Visible Light,” (Jan.-Dec.) 2017. With Nikhil Koratkar, Vincent Meunier, and Sufei Shi. \$100,000.

RPI HASS Flash Grant Program, “Understanding Technological Turmoil,” 2015-2016. \$4,988.

National Science Foundation, “Technology Disruptions in Industries: Assessing Their Frequency, Processes, and Impact,” award number 0965310, 2010-2014. \$382,041.

National Science Foundation, “Smart Lighting Engineering Research Center,” 2008-2013, renewed by NSF to 2016. K.L. Simons is a faculty member associated with the Center, which is funded at \$18.5 million, and has received research support as one of its Investigators. Support received including overhead, with Susan Sanderson (equal co-PIs): year 1 (2009) \$72,800; year 2 (2009-2010) \$66,300; year 3 (2010-2011) approx. \$66,300; year 4 (2011-2012) \$71,789; year 5 (2012-2013) \$49,000; year 6 (2013-2014) approx. \$50,000. Total: \$376,189.

U.S. Department of Energy, “Solid State Lighting Global Technology Analysis,” 2008-2009. With Susan Sanderson (equal co-PIs). \$57,512.

RPI Office of Entrepreneurship. “Analyzing Entrepreneurship in Information Technology Consultancies,” 2008-2009. \$2,400.

RPI Office of Entrepreneurship Curriculum Development Support Grant, “Technology and Industry Dynamics: Educational Tools on Technology Entrepreneurship,” 2008 (grant period April, 2008 through May 15, 2010). \$10,000 (consisting of \$7159 for year 1 plus renewal and extension for year 2).

Ewing Marion Kauffman Foundation, “The Frequency and Nature of Technological Disruptions,” 2007-2010. \$49,063.

National Academies, Board on Science Technology and Economic Policy, Project on the Globalization of Innovation: Implications for the Competitiveness and Workforce Needs of US Industry, 2007. With Susan Sanderson (equal co-PIs). \$5,000.

RPI Faculty Mobile Computing grant, 2005. \$2,000 (approx. value).

Royal Economic Society, “Data Collection on UK Automobile Tires,” 2002-2003. £600.

Economic and Social Research Council, “Network of Industrial Economists,” grant R451265069, 2001-2003. £12,354.92.

United Nations University, WIDER, “Information Technology, Employment, and the Future of Work: Firm and Industrial Structure,” 2000-2001. \$5,000.

(Runner-up, Leverhulme Foundation, 1997, £1,037,121 grant.)

Royal Holloway College Research Strategy Fund, “Industry Competitive Dynamics,” 1997-2000. £2,000 + £2,500 matched grant.

Japan Environment Agency (subcontract of a larger project with Peter J. Poole), “A Comparison of Sustainable Development Models,” 1991. \$2,000.

MIT School of Engineering; MIT Departments of Urban Studies and Planning, Civil Engineering, and Political Science; MIT Center for Global Change Studies; and MIT Undergraduate Research Opportunities Program, “Earth Systems Project,” 1989-1990. With Peter J. Poole (Kenneth L. Simons is lead PI). \$7,500.

TRW Corporation, Undergraduate research grant, 1988. \$3,000.

### **Professional Activities**

National Academy of Sciences, participant in project on Competitiveness and Workforce Needs of United States Industry, 2006 (evaluation of technological competitiveness of US industries and the international location of R&D).

Council on Competitiveness, National Innovation Initiative working group member, 2004 (on-site participant in Atlanta meetings, February 26-27, 2004; New York City working group meeting April 28, 2004; Rensselaer meetings September 7-8, 2004).

Alfred P. Sloan Industry Studies Program Affiliate, 2003-2011; Industry Studies member. Chairman, Network of Industrial Economists – April 2001 to July 2003. The Network organizes 2-4 conferences annually, and is the UK’s leading organization for industrial economists.

Conferences organized:

- Challenges of Asian Technological Development, NIE Conference, LSE, 31 May 2003 (organized with Sumit Majumdar and Gautam Sen)
- Competition Policy and Regulation, NIE Conference, University of East Anglia, 16 December 2002 (local organizers Morten Hviid and Catherine Waddams)
- Network of Industrial Economists Annual (main) Conference, Royal Holloway, 5-6 April 2002
- Multinational Firms and FDI, NIE Conference, Birmingham University, 14 December 2001 (local organizer Nigel Driffield)
- Network of Industrial Economists Annual (main) Conference, Royal Holloway, 4-5 April 2001
- Finance-Industry-Government Forum, Royal Holloway central London site, Autumn 2000 (periodic sessions)

Associate Editor, International Journal of Industrial Organization (2004-2008).

Editorial Board Member, International Journal of Technology Marketing (2004-).

Refereeing: American Economic Review, Economic and Social Research Council, Economic Modelling, European Economic Review, Industrial and Corporate Change, International Economic Review, International Journal of Industrial Organization, International Journal of the Economics of Business, International Journal of Technology Marketing, Israel Science Foundation, Journal of Business Strategies, Journal of Business Venturing, Journal of Corporate Finance, Journal of Economic Behavior and Organization, Journal of Economics and Management Strategy, Journal of Evolutionary Economics, Journal of Industrial Economics, Journal of Management Studies, Journal of Political Economy, Journal of Productivity Analysis, Management

Science, Organization Science, Research Policy, Review of Industrial Organization, Small Business Economics, Smithsonian Institution, Socio-Economic Review, Strategic Management Journal, Swiss National Science Foundation, System Dynamics Review, Technovation, U.S. National Science Foundation.

### **Invited Conference Presentations**

1. "Engine of Dominance: Competence-Enhancing Process Innovation," International Schumpeter Society Conference, Montreal, Canada, 5-8 July, 2016.
2. "Engine of Dominance: Competence-Enhancing Process Innovation," Industry Studies Conference, Minneapolis, Minnesota, 24-26 May, 2016.
3. "The Cross-Border Impact of Demand-Pull Policies on R&D Activities: A Firm-Level Analysis," Industry Studies Conference, Minneapolis, Minnesota, 24-26 May, 2016, with Yu-li Ko.
4. "Adoption of Energy-Efficient Light Bulbs with Multidimensional Product Information Diffusion: Text-Mining Analysis of Amazon Product Webpages," Industry Studies Conference, Minneapolis, Minnesota, 24-26 May, 2016, with Yu-li Ko.
5. "Shakeouts and Industry-Technology Evolution," International Conference on Entrepreneurship, Innovation, and Industry Evolution: Celebrating the Scholarship of Steven Klepper, 1949-2013, Pittsburgh, 17 October 2014.
6. "Industry Evolution and Government Intervention: The Case of the Photovoltaic Cell and Module Industry," Industry Studies Conference, Portland, Oregon, 27-29 May 2014.
7. "Light Emitting Diodes and the Lighting Revolution: The Emergence of a Solid-State Lighting Industry," Industry Studies Conference, Portland, Oregon, 27-29 May 2014.
8. "Disrupting Obdurate Technologies," Smart Lighting Engineering Research Center Industry-Academia Day, Troy, NY, 12-13 February 2014 (student presenter was research assistant Benjamin Brucato).
9. "LED Light Qualities and Adoption: Designers' Perspectives," Smart Lighting Engineering Research Center Industry-Academia Day, Troy, NY, 27-28 February 2013.
10. "Technology Disruptions in Industries: Frequency and Nature," NSF SciSIP Principal Investigator's Conference, National Academy of Sciences, Washington, D.C., 20-21 September 2012.
11. "The (In)Frequency of Schumpeterian Creative Destruction," Industry Studies Conference, Pittsburgh, 29-31 May 2012.
12. "Stayer Advantage in an Emerging Market: The Liquid Crystal Display Industry's Cross-National Fiasco," Industry Studies Conference, Pittsburgh, 29-31 May 2012.
13. "The Coming Shakeout in Solid State Lighting," Smart Lighting Engineering Research Center Industry-Academia Day, Troy, NY, 13-14 February 2012.
14. "Routes of Firm Entry into LED Lighting," Smart Lighting Engineering Research Center Industry-Academia Day, Troy, NY, 13-14 February 2012 (student presenter was research assistant KwangWook Gang).
15. "Product Market Characteristics and the Industry Life Cycle," CIRPÉE-IVEY Conference on Macroeconomics and Entrepreneurship, Montreal, Canada, 6-7 May 2011.

16. "Routes of Firm Entry into LED Lighting: Technology Convergence," Smart Lighting Engineering Research Center Industry-Academia Day, Boston, 8 February 2011 (student presenter was research assistant KwangWook Gang).
17. "Global LED Industry Overview," Smart Lighting Engineering Research Center Industry-Academia Day, Boston, 8 February 2011 (student presenter was research assistant Pamela Harper).
18. "The (In)Frequency and Nature of Disruptive Technological Change," International Workshop on Understanding the Emergence of New Industries: Between Path Dependency and Path Plasticity, Turin, Italy, 7-8 October 2010. *Keynote address.*
19. "Innovation, Technology and Entrepreneurship," Senior Scholar participant, Entrepreneurship Doctoral Consortium, Academy of Management meetings, Montreal, 6-10 August 2010.
20. "Firm Survival and Dynamics of Competition in the Display Industry," NSF Smart Lighting Engineering Research Center Industry-Academia Day, Boston, 5 February 2010. *Winner of best presentation prize, first place* (student presenter was coauthor Murad Mithani).
21. "Technology Development and Commercialization of Solid State Lighting in the Global Context," Smart Lighting Engineering Research Center Industry-Academia Day, Boston, 5 February 2010 (student presenter was research assistant William Maio).
22. "Two Roads to Riches? The (In)Frequency of Strongly Disruptive Technological Change," Roundtable on Engineering Entrepreneurship Research, Atlanta, 13-15 November 2009.
23. "Two Roads to Riches? The (In)Frequency of Disruptive Technological Change," Academy of Management meetings, Chicago, 7-11 August 2009. *Honored as a best paper.*
24. "Entrepreneurs Seeking Gains: Profit Motives and Risk Aversion in Inventors' Commercialization Decisions," Academy of Management meetings, Chicago, 7-11 August 2009.
25. "SSL Technology Development and Commercialization in the Global Context," SPIE Optics+Photonics 2009, San Diego, 5 August 2009. *Invited anchor presentation.*
26. "Disruptive Technological Change: Frequency and Processes," Industry Studies Conference, Chicago, 29 May 2009.
27. "Entrepreneurial Entry and Information Technology Shocks: The Unvarying Experience of IT Consultancies," International Industrial Organization Conference, Boston, 4 April 2009.
28. "Solid State Lighting Technology Development and Commercialization in the Global Context," 2009 DOE Solid-State Lighting Workshop, San Francisco, 3 February 2009. *Plenary address to 400-person audience.*
29. "The U.S. National Innovation System: Ideas for Russia," International Conference on Innovative Development: World Experience and Russia's Strategy, Moscow, Russia, 24 October 2008.
30. "Evaluating the Effects of Mergers and Acquisitions on Employees: Evidence from Matched Employer-Employee Data," Conference on Financial Intermediaries Markets at the Cross-roads: Economics and Legal Perspectives on Financial Stability, Liquidity and Corporate Control, Amsterdam, Netherlands, 27 September 2008.



31. "Two Roads to Riches? The (In)Frequency of Disruptive Technological Change," International Industrial Organization Conference, Washington, D.C., 18 May 2008.
32. "Bodyshopping versus Offshoring: Determinants of Outsourcing Behavior by Indian Software and Information Technology Firms," International Industrial Organization Conference, Washington, D.C., 17 May 2008.
33. "Solid State Lighting," Alfred P. Sloan Foundation Industry Studies Conference, Boston, 2 May 2008.
34. "Entrepreneurs Seeking Gains: Profit Motives and Risk Aversion in Inventors' Commercialization Decisions," Seventh Annual Roundtable on Engineering Entrepreneurship Research, Atlanta, 10 November 2007.
35. "Two Roads to Riches? The (In)Frequency of Disruptive Technological Change," WUN Entrepreneurship and Global Impact Conference, Chicago, 6 October 2007.
36. "Two Roads to Riches? The (In)Frequency of Disruptive Technological Change," Atlanta Competitive Advantage Conference, Atlanta, 16 June 2007.
37. "Data Compilation and Display," FIVE Project Conference on Firm and Industry Evolution and Entrepreneurship, Hanover, NH, 12 May 2007.
38. "Innovation Challenges in the Lighting Industry," Alfred P. Sloan Foundation Industry Studies Conference, Boston, 26 April 2007.
39. "Ownership Change, Productivity, and Human Capital: New Evidence from Matched Employer-Employee Data in Swedish Manufacturing," International Industrial Organization Conference, Savannah, Georgia, 14 April 2007.
40. "The Transition to Solid State Lighting: Policy Implications," The National Academies Board on Science, Technology, and Economic Policy Symposium on Globalization of Innovation: Industry Trends and Professional Workforce Implications, Washington D.C., 21 April 2006.
41. "On the Theory of Product Market Characteristics and the Industry Life Cycle," International Industrial Organization Conference, Boston, 9 April 2006.
42. "Entrepreneurs Seeking Gains: Rational Motives in the Commercialization Decisions of Inventors," International Industrial Organization Conference, Boston, 8 April 2006.
43. "Technology Benchmarks for Sustained Economic Growth," Technological Change and the Environment Workshop, Dartmouth College, Hanover, N.H., 25 March 2006.
44. "Assessing the Effects of Ownership Change on Careers: New Evidence from Matched Employer-Employee Data," Wharton Conference on Careers and Career Transitions: New Evidence for a New Economy, Philadelphia, 25 June 2005.
45. "Ownership Change, Productivity, and Human Capital: New Evidence from Matched Employer-Employee Data in Swedish Manufacturing," NBER-CRIW Conference on Producer Dynamics, Washington, D.C., 9 April 2005.
46. "Ownership Change, Productivity, R&D and Human Capital: New Evidence from Matched Employer-Employee Data in Swedish Manufacturing," NBER-CRIW Pre-Conference on Producer Dynamics, Boston, 23 July 2004.
47. "Industry Dynamics and Competition and Industrial Policy," Economics Network for Competition and Regulation Annual Conference, Amsterdam, 15 April 2004.
48. "Product Market Characteristics and the Industry Life Cycle," MIT-University at Albany System Dynamics PhD Colloquium, Albany, 3 October 2003. *Faculty keynote.*

49. "Industry Life Cycles and their Causes," Academy of Management meetings, Seattle, 1-6 August 2003. *Honored as a best paper, nominated for Carolyn Dexter award.*
50. "Information Technology and the Dynamics of Firm and Industrial Structure: The British IT Consulting Industry as a Contemporary Specimen," Academy of Management meetings, Seattle, 1-6 August 2003. *Honored as a best paper.*
51. "Product Market Characteristics and the Industry Life Cycle," International Industrial Organization Conference, Boston, 2003.
52. "Product Market Characteristics and the Industry Life Cycle," American Economic Association conference, Washington, D.C., 2003.
53. "Product Market Characteristics and the Industry Life Cycle," International Workshop on the Post-Entry Performance of Firms, Bologna, Italy, 2002.
54. "Information Technology and the Dynamics of Firm and Industrial Structure: The British IT Consulting Industry as a Contemporary Specimen," DRUID Conference, Copenhagen, 2002.
55. "Information Technology and the Dynamics of Firm and Industrial Structure: The British IT Consulting Industry as a Contemporary Specimen," CEPR Conference in Industrial Organization, Bergen, Norway, 2002.
56. "Pricing in UK Residential Telephony," Network of Industry Economists Annual Meeting, London, 2002.
57. "Product Market Characteristics and the Industry Life Cycle," International Schumpeter Society Conference, Gainesville, Florida, 2002.
58. "Information Technology and the Dynamics of Firm and Industrial Structure: The British IT Consulting Industry as a Contemporary Specimen," International Schumpeter Society Conference, Gainesville, Florida, 2002.
59. "Product Market Characteristics and the Industry Life Cycle," CEPR Workshop on Entry/Exit and Market Structure, London, 2002.
60. "Product Market Characteristics and the Industry Life Cycle," European Association for Research in Industrial Economics Conference, Dublin, Ireland, 2001.
61. "Information Technology and the Dynamics of Firm and Industrial Structure: The British IT Consulting Industry as a Contemporary Specimen," Network of Industry Economists Annual Meeting, London, 2001.
62. "Information Technology and the Dynamics of Firm and Industrial Structure: The British IT Consulting Industry as a Contemporary Specimen," The New Economy in a Global Perspective Project Meeting, United Nations University, Helsinki, 2001.
63. "Product Market Characteristics and the Industry Life Cycle," Network of Industrial Economists meeting on Industry Dynamics, Reading, England, 2000.
64. "Industry Shakeouts and Technological Change," European Association for Research in Industrial Economics Conference, Lausanne, Switzerland, 2000.
65. "Technology Benchmarks for Sustained Economic Growth," International System Dynamics Conference, Bergen, Norway, 2000. *Peer-reviewed plenary.*
66. "Dominance by Birthright: Entry of Prior Radio Producers and Competitive Ramifications in the U.S. Television Receiver Industry," International Schumpeter Society Conference, Manchester, England, 2000.
67. "Dominance by Birthright: Entry of Prior Radio Producers and Competitive Ramifications in the U.S. Television Receiver Industry," Network of Industry Economists Annual Meeting, Cambridge, England, 2000.

68. "Dominance by Birthright: Entry of Prior Radio Producers and Competitive Ramifications in the U.S. Television Receiver Industry," European Association for Research in Industrial Economics Conference, Torino, Italy, 1999.
69. "Industry Shakeouts and Technological Change," Portland International Conference on Management of Engineering and Technology, Portland Oregon, 1999.
70. "Technology Requirements for Population and Economic Growth," Portland International Conference on Management of Engineering and Technology, Portland Oregon, 1999.
71. Closing panel discussion, European Meeting on Applied Evolutionary Economics, Grenoble, France, 1999. *Plenary*.
72. "Industry Shakeouts and Technological Change," European Meeting on Applied Evolutionary Economics, Grenoble, France, 1999.
73. "Industry Shakeouts and Technological Change," Network of Industry Economists Annual Meeting, Oxford, 1999.
74. "International Dynamics of Product Market Competition," International Association for Management of Technology, Cairo, 1999.
75. "Technology Requirements for Population and Economic Growth," International Association for Management of Technology, Cairo, 1999.
76. "The Making of an Oligopoly: Firm Survival and Technological Change in the Evolution of the U.S. Tire Industry," Wissenschaftszentrum Berlin Conference on Empirical Issues in Industrial Organization, Berlin, 1997.
77. "The Making of an Oligopoly: Firm Survival and Technological Change in the Evolution of the U.S. Tire Industry," European Association for Research in Industrial Economics Conference, Leuven, Belgium, 1997.
78. "Technological Extinctions of Industrial Firms: An Enquiry into their Nature and Causes," International Association for Management of Technology, Götteborg, Sweden, 1997.
79. "Technological Extinctions of Industrial Firms: An Enquiry into their Nature and Causes," European Association for Research in Industrial Economics Conference, Vienna, 1996.
80. "Innovation and Industry Shakeouts," Business History Conference, Columbus, Ohio, 1996.
81. "Research on Industry Shakeouts," CCC Doctoral Colloquium on R&D, Technological Change, Organization Structure, and Market Evolution, Pittsburgh, 1994.
82. "Technological Change and Industry Shakeouts," Allied Social Science Associations Conference, Boston, 1994.
83. "Software to Communicate Simulation Models," Society for Computer Simulation Summer Simulation Conference, Boston, 1993.
84. "Software to Communicate Global Models," International Simulation and Gaming Association Conference, Kyoto, Japan, 1991, with Peter J. Poole.
85. "New Technologies in Simulation Games," International System Dynamics Conference, Boston, 1990.

### **Other Invited Presentations**

86. "Engine of Dominance: Competence-Enhancing Process Innovation," State University of New York, Albany, NY, 28 April 2016.
87. "LED Lighting Technology and Product Evolution," SUNY Polytechnic Institute Colleges of Nanoscale Science and Engineering, Albany, NY, 11 March 2016.
88. "Technology Disruptions in Industries: Frequency and Nature," Ulsan National Institute of Science and Technology, Ulsan, South Korea, 22 May 2014.
89. "Industry Dynamics and Technological Change" and "Technology Disruptions in Industries: Frequency and Nature," Ulsan National Institute of Science and Technology, Ulsan, South Korea, 22 May 2014.
90. "Industry Dynamics and Technological Change" and "Technology Disruptions in Industries: Frequency and Nature," KAIST (Korea Advanced Institute of Science and Technology), Daejeon, South Korea, 20 May 2014.
91. "Product Market Characteristics and the Industry Life Cycle," National Bureau of Economic Research, 3 April 2012.
92. "Solid State Lighting Technology and Market Development," Walsin Lihwa Corporation, New York and Yongmei City, Taiwan (teleconference), 8 June 2011.
93. "The Frequency and Nature of Disruptive Technological Change in Industries," National Graduate Institute for Policy Studies, Tokyo, Japan, 10 June 2009.
94. "Solid State Lighting Development and Policy in the Global Context," U.S. Department of Energy, 14 May 2008.
95. "Product Market Characteristics and the Industry Life Cycle," Antitrust Division, U.S. Department of Justice, 8 May 2007.
96. "Product Market Characteristics and the Industry Life Cycle," University of Kentucky, 20 October 2006.
97. "Ownership Change, Productivity, and Human Capital: New Evidence from Matched Employer-Employee Data in Swedish Manufacturing," National Bureau of Economic Research, Cambridge, Ma., 22 November 2005.
98. "Product Market Characteristics and the Industry Life Cycle," Oklahoma University, 5 November 2004.
99. "Technological Extinctions of Industrial Firms," Rensselaer Polytechnic Institute, School of Management, Business Implications of Emerging Technologies MBA seminar, 26 October 2004.
100. "Product Market Characteristics and the Industry Life Cycle," Union College, 17 September 2004.
101. "Two Roads to Riches," Purdue University, Technology Transfer Initiative Seminar, 8 March 2004.
102. "Product Market Characteristics and the Industry Life Cycle," Purdue University, Economics Department, 8 March 2004.
103. "Product Market Characteristics and the Industry Life Cycle," Rensselaer Polytechnic Institute department of Decision Sciences and Engineering Systems, 18 November 2003.
104. "Product Market Characteristics and the Industry Life Cycle," Cornell University, 6 November 2003.
105. "Product Market Characteristics and the Industry Life Cycle," SUNY at Albany, 24 October 2003.

106. "Information Technology and the Dynamics of Industry Structure: The UK IT Consulting Industry as a Contemporary Specimen," Rensselaer Polytechnic Institute, February 2003.
107. "Product Market Characteristics and the Industry Life Cycle," University of Toronto, Rotman School of Management, 2002.
108. "Product Market Characteristics and the Industry Life Cycle," University of Waterloo, 2002.
109. "Product Market Characteristics and the Industry Life Cycle," University of Connecticut, 2002.
110. "Product Market Characteristics and the Industry Life Cycle," Chalmers University of Technology, 2002.
111. "Product Market Characteristics and the Industry Life Cycle," Ente Einaudi (Bank of Italy), 2002.
112. "Industry Shakeouts and Technological Change," University of Texas at Dallas, 2002.
113. "Industry Shakeouts and Technological Change," Worcester Polytechnic Institute, 2002.
114. "Product Market Characteristics and the Industry Life Cycle," Sussex Policy Research Unit, 2001.
115. "Smoothing Hazards." Stata User Group annual meeting, London, 2001.
116. "Product Market Characteristics and the Industry Life Cycle," University of East Anglia, 2001.
117. "Product Market Characteristics and the Industry Life Cycle," Nottingham University Business School, 2001.
118. "Product Market Characteristics and the Industry Life Cycle," LSE, 2001.
119. "Competitive Dynamics following Privatization and Deregulation," MIT Sloan School of Management, 2001.
120. "Product Market Characteristics and the Industry Life Cycle," Warwick University, 2001.
121. "Dominance by Birthright: Entry of Prior Radio Producers and Competitive Ramifications in the U.S. Television Receiver Industry," Lancaster University, 1999.
122. "Industry Shakeouts and Technological Change," City University Business School, 1998.
123. "Revisiting the Limits to Growth," London Business School Seminar in System Dynamics, 1997.
124. "Technological Extinctions of Industrial Firms," University of Reading Department of Economics, 1996.
125. "Technological Change and Industry Shakeouts," Warwick University Department of Economics, 1996.
126. "Shakeouts: Firm Survival and Technological Change in New Manufacturing Industries," and "Industry Data Analyzer: Software for Econometric Analysis of Time-Varying Survival Data," Center for Economic Studies, US Census Bureau, 1995.
127. "Shakeouts: Firm Survival and Technological Change in New Manufacturing Industries," MIT Sloan School of Management, Operations Management Seminar, 1995.

128. “Shakeouts: Firm Survival and Technological Change in New Manufacturing Industries,” Österreichisches Institut für Wirtschaftsforschung, Vienna, 1995.
129. “The Causes of Industry Shakeouts and the Dominant Design Mythology,” Carnegie Mellon University Seminar on Technology and Social Change, 1993.
130. “Management Flight Simulator: The Gaia Hypothesis and Daisyworld,” MIT Sloan School of Management System Dynamics Seminar, 1990.

### **Teaching**

Preferred teaching: econometrics, dynamic modeling, quantitative methods, industrial organization, economics of technology, strategy, technology strategy.

#### PhD:

- Advanced Econometrics (Rensselaer)
- Advanced Quantitative Analysis (Rensselaer)
- Advanced Microeconomics (Rensselaer)
- Industrial Organization Economics [independent study for 6 students] (Rensselaer)

#### Master’s:

- Industrial Economics (London)
- Quantitative Methods for Economics (London)
- TA for Systems Thinking for MBAs/PhDs (MIT spring 1987)
- TA for System Dynamics to MBAs (MIT fall 1989)

#### Undergraduate:

- Econometrics (Rensselaer)
- Quantitative Analysis (Rensselaer)
- Structure of Industry: Competition, Innovation, Entrepreneurship, Policy (Rensselaer)
- Industrial Growth and Competition (London)
- Industrial Organization Economics (London)
- Quantitative Methods for Economics II (London)
- Dissertations (sessions on research methods and econometrics for all undergraduate dissertation students, London)
- Differential Equations (MIT ESG 3 terms 1989-1990)
- General Chemistry (MIT ESG 3 terms 1987-1988)

#### Executive:

- TA for System Dynamics to executives (MIT summer 1989)

#### Course Development:

- Structure of Industry: Competition, Innovation, Entrepreneurship, Policy (Rensselaer)
- Industrial Growth and Competition (London)
- Quantitative Methods for Economics II (London)
- Differential Equations (MIT approved alternative to standard curriculum)
- General Chemistry (MIT approved alternative to standard curriculum)

#### Program Development:

- Economics Ph.D. program development (Rensselaer, 2014-2016; new Ph.D. program approved within the university, pending faculty hiring completion and submission to and approval by New York State, with input from and approval by all Economics

Department faculty, Humanities and Social Science Curriculum Committee, and Rensselaer Faculty Senate Curriculum Committee)  
Strength in Economics Task Force (Rensselaer, 2012; chaired Institute committee and authored report) – conclusions were used to reshape the undergraduate program in the subsequent years

**Awards:**

admitted to the Institute for Learning and Teaching (now Higher Education Academy), 2002  
Karl Taylor Compton prize, MIT, 1990

New courses were developed in ways that convey both subject-oriented knowledge and practical skills for research, problem-solving, and group work. Students are actively involved in classroom and lecture activities. The Karl Taylor Compton prize is MIT's most prestigious student special award, given in this case for undergraduate and MBA/executive teaching, TA activities, and course development.

**PhD Students**

Principal Adviser:

Yu-li Ko, Economics, RPI, May 2016, “Technological Disruptions in the Energy Sector”  
KwangWook Gang, Management, July 2013, “Prior Experience on a Subsequent Entry and Institutional Changes on R&D Investment” – Assistant Professor, Ulsan National Institute of Science and Technology  
Ran Zhang, Economics, RPI, July 2009, “Essays on Firms’ Environmental Information Disclosure, Financial Performance and Behavior Change” – Baltimore Gas & Electric  
Sorin Krammer, Economics, RPI, June 2009, “Empirical Essays on Innovation Systems, Technology Diffusion and Industrial Dynamics” – Assistant Professor, University of Groningen

Committee Member:

Dapeng Zhang, Transportation Engineering, RPI, February 2016, “A Joint Response Model for Matched Decision Makers: Exploring Decision Making Mechanism for Mutually-selected Agents”  
Eric Peterson, School of Management, RPI, July 2014, “The End of the ICE Age: Technology Search, Concept Selection, and Niche Development in Electric Vehicles for the US Automobile Market 1980-2011”  
Simona Giura, School of Management, RPI, July 2014, “Internal and External Resource Endowments in Alliances: The Impact on Knowledge Flows and Competitive Actions”  
Huawei Song, Decision Sciences and Engineering Systems, RPI, April 2010, “Generalized Leading Indicator Model for Infrequent Events in Safety-Critical Systems and its Application to Marine Transportation Systems”  
Zenu Sharma, School of Management, RPI, September 2009, “Three Essays in Executive Compensation”  
Daniel Robeson, School of Management, RPI, July 2009, “Boards of Directors, Innovation, and Performance: An Exploration at Multiple Levels”

- John Marsh, School of Management, RPI, July 2009, “An Integrative Approach to Explaining the Acquisition Decision”
- Yu Liu, School of Management, RPI, July 2009, “Three Essays on Corporate Growth Strategy and Firm Performance: A Contingency Perspective”
- Robert Wuebker, School of Management, RPI, June 2009, “American Venture Capital in a Post-American World: The Role of Firm Resources and Capabilities in U.S. Cross-Border Venture Capital Investment”
- Jarrett Kotrozo, School of Management, RPI, June 2008, “The Role of Absorptive Capacity on Diversification Performance: Theory and Evidence”
- Shruti Sardeshmukh, School of Management, RPI, April 2008, “Successor Development in Family Firms”
- Sarah Parrales, Economics, RPI, December 2007, “Experienced Utility in a Nicaraguan Village”
- Shu Han, School of Management, RPI, August 2007, “Essays on Information Technology and Innovation Processes: Exploring the Effects of IT Investments on R&D Effectiveness and Understanding the Drivers of Migration to Services by IT Product Vendors”
- Judith Walls, School of Management, RPI, April 2007, “The Impact of Corporate Governance on Environmental Strategy”
- Yi-Nung Peng, School of Management, RPI, Sept. 2006, “The Influence of Major Pioneering Product Innovations and Technological Trajectories in High Technology Markets: Lessons from the Personal Computer and Digital Music Industries”

## **Administration**

### Rensselaer:

- Planning and Resources Committee of the Faculty Senate 2015-
- Economics Graduate Program Director, 2014-2017
- Psychological Sciences Search Committee, 2016-2017
- Chair of Economics Full Professor and Department Head Search Committee, 2015-2016
- School of Humanities, Arts, and Social Sciences Executive Committee 2015-2016
- Middle States Standard 10 (Faculty) Sub-Committee (university), 2014-2015
- Economics Program Assessment Committee, 2014
- Faculty mentor, 2012-2014
- HASS [Ph.D.] Fellowship Review Committee 2014-2017
- Economics Ad Hoc Undergraduate Curriculum Committee, chair, 2013
- School of Humanities, Arts, and Social Sciences Executive Committee 2012
- Strength in Economics Task Force, chair, 2012
- School of Humanities and Social Sciences Faculty Council, 2004-2012
- School of Humanities and Social Sciences Curriculum Committee, 2004-2012
- Economics Search Committee, 2011-2017
- Vice Provost of Entrepreneurship Faculty Interview Committee, 2004
- Economics Department web site reorganization, 2003
- Alumni newsletter, 2006-2007
- Economics Department self-assessment, 2009



Office of Research Computation and Information Technology Strategic Plan Working Group, 2010

Economics Assessment Coordinator, 2010-2015

Dean of Lally School of Management Recruitment Committee, 2010-2011

Strength in Economics Task Force (Chair of university-wide committee), 2012

School of Humanities and Social Sciences Executive Committee, Fall 2012

Royal Holloway, University of London

(partial list)

Helped build Royal Holloway's Economics department from its inception in 1995

Junior and senior recruitment, Economics Department, 1995-2003

College Teaching Committee, 1999-2000

Director of the Centre for Analytical Policy Studies, 1999-2000

Examinations director for Economics, 2000-2001

Co-coordinator for accreditation for Economics, 2000-2001

Postgraduate teaching committee for Economics, 1998-1999

Exchange students coordinator for Economics, 1997-1998

Undergraduate dissertations coordinator, 1995-2001

### **Awards**

Top Ten Downloaded Papers, Social Science Research Network (CGN: Employees, Labor, & the Workplace), 2010, for "Assessing the Effects of Ownership Change on Women and Minority Employees: Evidence from Matched Employer-Employee Data."

Best Presentation prize, first place (as noted under conference presentations), for "Firm Survival and Dynamics of Competition in the Display Industry," NSF Smart Lighting Engineering Research Center Industry-Academia Day, 5 February 2010 (student presenter was coauthor Murad Mithani).

Top Ten Downloaded Papers, Social Science Research Network (Labor: Human Capital), 2010, for "Assessing the Effects of Mergers and Acquisitions on Firm Performance, Plant Productivity, and Workers: New Evidence from Matched Employer-Employee Data"

Best Paper, Academy of Management (Technology and Innovation Management Division), August 2009, for "Two Roads to Riches? The (In)Frequency of Strongly Disruptive Technological Change"

Top Ten Downloaded Papers, Social Science Research Network (CGN: Employees, Labor, & the Workplace), 2009, for "Assessing the Effects of Ownership Change on Women and Minority Employees: Evidence from Matched Employer-Employee Data"

Top Ten Downloaded Papers, Social Science Research Network (Entrepreneurship & Marketing *and* ERPN Conferences *and* ERPN Conferences & Meetings), 2008, for "Lighting Industry: Structure and Technology in the Transition to Solid State"

Top Ten Downloaded Papers, Social Science Research Network (Labor: Demographics & Economics of the Family *and* Human Resource Management & Personnel), 2007,

8-Aug-17

for “Assessing the Effects of Ownership Change on Women and Minority Employees: Evidence from Matched Employer-Employee Data”

Rensselaer Polytechnic Institute Faculty Achievement Award, 2007

Top Ten Downloaded Papers, Social Science Research Network (Product Innovation), 2006, for “Entrepreneurs Seeking Gains: Rational Motives in the Commercialization Decisions of Inventors”

Best Paper Proceedings and finalist for Carolyn Dexter Award (nominated by BPS division), Academy of Management, August 2003, for “Product Market Characteristics and the Industry Life Cycle”

Best Paper Proceedings, Academy of Management, August 2003, for “Information Technology and the Dynamics of Industry Structure”

Top Ten Downloaded Papers, Social Science Research Network (Political Economy), 2001, for “Political Instability and Growth in Dictatorships”

Top Ten Downloaded Papers, Social Science Research Network (Market Structure), 2000, for “The Making of an Oligopoly: Firm Survival and Technological Change in the U.S. Tire Industry”

National Science Foundation Graduate Fellowship, 1990 to 1993

Karl Taylor Compton Award from MIT, 1990, for exceptional teaching and contribution to the university