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*Curriculum Vitae*

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**Fields**

Industrial Organization, Organizations, Microeconomic Theory

**Education**

Ph.D. Economics, Duke University, 1984

B.A., University of Virginia, 1979

**Academic Experience**

Professor, Department of Economics, Johns Hopkins University, July 1994  
- present.

Visiting Professor, Department of Economics, Harvard University, Sep-  
tember 2005 - May 2006.

Visiting Scholar, Institut d'Anàlisi Econòmica-CSIC, Universitat Autònoma  
de Barcelona, July 1997 - December 1997.

Visiting Scholar, Department of Management & Strategy, J. L. Kellogg  
Graduate School of Management, Northwestern University, September  
1991 - August 1992.

Associate Professor, Department of Economics, Johns Hopkins University,  
July 1990 - July 1994.

Visiting Assistant Professor, Department of Economics, University of  
North Carolina-Chapel Hill, January 1987 - June 1987.

Assistant Professor, Department of Economics, Johns Hopkins University,  
July 1984 - July 1990.

## Editorial Boards

*Foundations and Trends in Microeconomics*: Co-Editor (Industrial Organization), January 2005 - present.

*RAND Journal of Economics*: Editor, August 1999 - July 2008; Associate Editor, October 1997 - August 1999.

*Southern Economic Journal*: Associate Editor, January 1997 - May 2008.

*Economics of Governance*: Associate Editor, March 2002 - October 2005.

*Journal of Economics and Management Strategy*: Co-Editor, December 1991 - December 1999.

*International Journal of Industrial Organization*: Editor, January 1993 - April 1999; Associate Editor, January 1991 - January 1993.

## Grants

National Science Foundation (SES-0516943) "Fighting Hard Core Cartels," 2005-2009.

National Science Foundation (SES-0209486) "The Effects of Antitrust Laws on Cartel Pricing," 2002-2005.

National Science Foundation (ECS-0224817) "Dynamic Game-Theoretic Models of Electric Power Markets and their Vulnerability," (co-PIs: Benjamin Hobbs, Terry Friesz, and Jong-Shi Pang), 2002-2005.

National Science Foundation (SES-0078752) "Computational Modeling of Multi-Level/Multi-Unit Organizations" (co-PI, Myong-Hun Chang), 2000-2002.

National Science Foundation (SES-0000649), "Rigidity and Flexibility in Social Systems - Further Research," 2000-2001.

National Science Foundation (SES-9708910), "Rigidity and Flexibility in Social Systems," 1997-2000.

Technology Fellows Program, Johns Hopkins University, 1998-99.

Spanish Ministry of Education, 1997-98.

## Short Courses

"Collusive Practices," European Summer School and Conference in Competition & Regulation (Crete), July 2009.

"Industrial Organization," Norwegian School of Economics and Business Administration, August 2008, May 1999.

“Economics of Collusion,” ENCORE (Economics Network for Competition and Regulation), University of Amsterdam, July 2004.

“Economic Regulation,” Summer School in Regulation and Antitrust, Universidade Nova de Lisboa, July 2002.

### **Awards, Honors, Keynote Lectures, Service**

Vice President (2010-11) and President-Elect of the Industrial Organization Society.

Keynote Lecture, 3rd Conference of the Research Network on Innovation and Competition Policy: "Competition Policy and Innovation: Where Do We Stand?" (Vienna), October 2009

Keynote Lecture, 3rd Annual Competition Commission, Competition Tribunal and Mandela Institute Conference on Competition Law, Economics and Policy (Pretoria), September 2009

Conference Policy Lecture, European Summer School and Conference in Competition & Regulation (Crete), July 2009.

Keynote Lecture, Amsterdam Center for Law and Economics, Fifth Annual Competition & Regulation Meeting: "To Enforce and Comply: Incentives inside Corporations and Agencies" (Amsterdam), March 2009.

Keynote Lecture, 15th WZB Conference on Markets and Politics and the 2nd Conference of the Research Network on Innovation and Competition Policy: "Deterrence in Competition Policy" (Berlin), October 2008.

ENRE Best Publication Award, INFORMS (Energy, Natural Resources and Environment Section), 2007.

Member, Distinguished Fellow Award Committee, Industrial Organization Society, 2007-09.

Keynote Lecture, 1st Conference of the Research Network on Innovation and Competition Policy: Modern Approaches in Competition Policy (Mannheim), May 2007.

Co-Organizer, Conference in Honor of Jim Friedman’s 70th Birthday, Nov 2006.

Keynote Lecture, EARIE Conference (Amsterdam), August 2006.

Member, Program Committee, International Industrial Organization Conference, 2006-07.

Keynote Lecture, Csef-Igier Symposium on Economics and Institutions (Capri), June/July 2005.

ENCORE Fellow (U.of Amsterdam), 2003 - present.

Plenary Speaker, Taipei International Conference on Industrial Economics, June 2000.

Nominator, MacArthur Fellows Program - 1999, 2000, 2003.

Fellow of the *International Journal of Industrial Organization* (Inducted 1997).

Duncan Black Award for the Best Article in *Public Choice*, 1990.

Awarded National Fellowship, Hoover Institution, 1990-91 (declined).

### **Administrative Experience**

Chair, Department of Economics, Johns Hopkins University, July 2007 - present.

Chair, MA Program in Applied Economics, Johns Hopkins University, January 1997 - June 1997, January 1998- present.

### **Articles**

“Endogenous Cartel Formation with Heterogeneous Firms,” (co-authored with Iwan Bos), *RAND Journal of Economics*, forthcoming.

“Modelling the Birth and Death of Cartels with an Application to Evaluating Antitrust Policy,” (co-authored with Myong-Hun Chang), *Journal of the European Economic Association*, Vol. 7, December 2009, 1400-1435.

“Avoiding Market Dominance: Product Compatibility in a Market with Network Effects,” (co-authored with Jiawei Chen and Ulrich Doraszelski), *RAND Journal of Economics*, Vol. 40, Autumn 2009, 455-485.

“Optimal Corporate Leniency Programs,” *Journal of Industrial Economics*, 56 (2008), 215-246.

“Detecting Cartels,” in *Handbook of Antitrust Economics*, P. Buccirossi, ed., The MIT Press, 2008.

“Collusion with Monitoring of Sales,” (co-authored with Andrzej Skrzypacz), *RAND Journal of Economics*, Vol. 38, Summer 2007, 314-331.

“Behavioral Screening and the Detection of Cartels,” in *European Competition Law Annual 2006: Enforcement of Prohibition of Cartels*, Claus-Dieter Ehlermann and Isabela Atanasiu, eds., Hart Publishing, 2007.

“Innovators, Imitators, and the Evolving Architecture of Social Networks,” (co-authored with Myong-Hun Chang), *Organization Science*, Vol. 18, July 2007, 648-666.

“The Impact of the Corporate Leniency Program on Cartel Formation and the Cartel Price Path,” (co-authored with Joe Chen), *The Political Economy of Antitrust*, V. Ghosal and J. Stennek, eds., Elsevier, 2007.

“Equilibrium Pricing in a (Partial) Search Market: The Shopbot Paradox,” (co-authored with Megan Leahey), *Economics Letters*, Vol. 94, January 2007, 111-117.

“Handedness and Earnings,” (co-authored with Robert Moffitt and Christopher Ruebeck), *Laterality*, 12 (2007), 101-120. (NBER Working Paper 12387, July 2006)

“Cartel Pricing Dynamics with Cost Variability and Endogenous Buyer Detection,” (co-authored with Joe Chen), *International Journal of Industrial Organization*, Vol. 24, November 2006, 1185-1212.

“How Do Cartels Operate?,” *Foundations and Trends in Microeconomics*, Volume 2, Issue 1, July 2006.

“Agent-Based Models of Organizations,” (co-authored with Myong-Hun Chang), *Handbook of Computational Economics, II: Agent-Based Computational Economics*, L. Tesfatsion and K. Judd, eds., Elsevier, 2006.

“Collusive Game Solutions via Optimization,” (co-authored with Benjamin Hobbs, Jong-Shi Pang, Andrew Liu, and Grant Roch), *Mathematical Programming B*, 104 (2005), 407-435. (ENRE Best Publication Award, INFORMS, 2007)

“Optimal Cartel Pricing in the Presence of an Antitrust Authority,” *International Economic Review*, Vol. 46, February 2005, 145-169. (Reprinted in *Recent Developments in Monopoly and Competition Policy*, G. Norman, editor, Edward Elgar, 2008.)

“Discovery and Diffusion of Knowledge in an Endogenous Social Network,” (co-authored with Myong-Hun Chang), *American Journal of Sociology*, Vol. 110, January 2005, 937-976.

“Co-Evolution of Firms and Consumers and the Implications for Market Dominance,” (co-authored with Myong-Hun Chang), *Journal of Economic Dynamics and Control*, Vol. 29, January 2005, 245-276.

“Cartel Pricing Dynamics in the Presence of an Antitrust Authority,” *RAND Journal of Economics*, Vol. 35, Winter 2004, 651-673. (Reprinted in *Pricing Tactics, Strategies, and Outcomes, Volume II*, M. Waldman and J. Johnson, editors, Edward Elgar, 2007.)

“Post-Cartel Pricing during Litigation,” *Journal of Industrial Economics*, Vol. 52, December 2004, 517-533.

“Organization of Innovation in a Multi-Unit Firm: Coordinating Adaptive Search on Multiple Rugged Landscapes,” (co-authored with Myong-Hun

Chang) in *Economic Complexity: Non-linear Dynamics, Multi-agents Economies, and Learning*, W. Barnett, C. Deissenberg, and G. Feichtinger, eds., ISETE, Vol. 14, Elsevier, 2004.

“Fluidity of Social Norms in a Hierarchical System,” in *Computational Models in Political Economy*, K. Kollman, J. Miller, and S. Page, eds., MIT Press, 2003.

“Some Implications of Antitrust Laws for Cartel Pricing,” *Economics Letters*, Vol. 79, June 2003, 377-383.

“Multi-Market Competition, Consumer Search, and the Organizational Structure of Multi-Unit Firms,” (co-authored with Myong-Hun Chang), *Management Science*, Vol. 49, April 2003, 541-552.

“Decentralized Business Strategies in a Multi-Unit Firm,” (co-authored with Myong-Hun Chang), *Annals of Operations Research* (Special Issue on "Game Practice"), Vol. 109, January 2002, 77-98.

“A Simple Game-Theoretic Explanation for the Relationship between Group Size and Helping,” *Journal of Mathematical Psychology*, Vol. 45, April 2001, 389-392.

“Centralization vs. Decentralization in a Multi-Unit Organization: A Computational Model of a Retail Chain as a Multi-Agent Adaptive System,” (co-authored with Myong-Hun Chang), *Management Science*, Vol. 46, November 2000, 1427-1440.

“A Theory of Rigid Extremists and Flexible Moderates with an Application to the U.S. Congress,” (co-authored with S. Brock Blomberg), *American Economic Review*, Vol. 90, June 2000, 605-620.

“Progressive Ambition, Electoral Selection, and the Creation of Ideologues,” *Economics of Governance*, Vol. 1, 2000, 13-23 (inaugural issue).

“The Equilibrium Level of Rigidity in a Hierarchy,” *Games and Economic Behavior*, Vol. 28, August 1999, pp. 189-202.

“Rigidity of Social Systems,” *Journal of Political Economy*, Vol. 107, February 1999, pp. 40-64.

“The Social Selection of Flexible and Rigid Agents,” *American Economic Review*, Vol. 88, March 1998, pp. 63-82.

“Organizational Structure and Firm Innovation in a Retail Chain,” (co-authored with Myong-Hun Chang), *Computational and Mathematical Organization Theory*, Vol. 3, Winter 1997, pp. 267-288.

“A Spatial Theory of Positive and Negative Campaigning,” (co-authored with Gregory D. Hess), *Games and Economic Behavior*, Vol. 17, December 1996, pp. 209-229.

“Product Variety and Firm Agglomeration,” (co-authored with Jeffrey Fischer), *RAND Journal of Economics*, Vol. 27, Summer 1996, pp. 281-309.

“The Interactive Effect of Product Differentiation and Cost Variability on Firm Profit,” (co-authored with Myong-Hun Chang), *Journal of Economics and Management Strategy*, Vol. 5, Summer 1996, pp. 175-193.

“Experimentation and Learning in a Differentiated-Products Duopoly,” *Journal of Economic Theory*, Vol. 66, June 1995, pp. 275-288.

“Managerial Reputation and the Competitiveness of an Industry,” (co-authored with Shuichi Senbongi) *International Journal of Industrial Organization*, Vol. 13, March 1995, pp. 95-110.

“Cooperation in a One-Shot Prisoners’ Dilemma,” *Games and Economic Behavior*, Vol. 8, February 1995, pp. 364-377.

“The Dynamics of the Free-Rider Problem in Takeovers,” (co-authored with Jacek Prokop), *Review of Financial Studies*, Vol. 6, Winter 1993, pp. 851-882.

“Economic Policy, Economic Performance, and Elections,” *American Economic Review*, Volume 83, March 1993, pp. 27-42.

“The Impact of Re-election Pressures on the Fulfillment of Campaign Promises,” *Games and Economic Behavior*, Vol. 5, January 1993, pp. 71-97.

“The Revelation of Information through the Electoral Process: An Exploratory Analysis,” *Economics and Politics*, Vol. 4, November 1992, pp. 255-275.

“The Role of Party Reputation in the Formation of Policy,” *Journal of Public Economics*, Vol. 49, October 1992, pp. 107-121.

“Modelling the Role of Information in Elections,” *Mathematical and Computer Modelling*, Vol. 16, August/September 1992, pp. 133-145.

“Uncertainty over Product Differentiation in a Price-Setting Duopoly: A Non-Robustness Result,” *Economics Letters*, Vol. 39, 1992, pp. 283-288.

“The Determination of Price and Output Quotas in a Heterogeneous Cartel,” *International Economic Review*, Vol. 32, November 1991, pp. 767-792. (Reprinted in *Cartels - Volume II*, M. Levenstein and S. Salant, Edward Elgar Publishing, 2007.)

“The Joint Profit Maximum as a Free-Entry Equilibrium Outcome,” *European Economic Review*, Vol. 35, July 1991, pp. 1087-1101.

“The Impact of Cyclical Demand Movements on Collusive Behavior” (co-authored with John Haltiwanger), *RAND Journal of Economics*, Vol. 22,

Spring 1991, pp. 89-106. (Reprinted in *Cartels - Volume I*, M. Levenstein and S. Salant, Edward Elgar Publishing, 2007.)

“The Role of Risk Preferences in Bargaining when Acceptance of a Proposal Requires Less than Unanimous Approval,” *Journal of Risk and Uncertainty*, Vol. 3, June 1990, pp. 135-154.

“The Power of the Proposal Maker in a Model of Endogenous Agenda Formation,” *Public Choice*, Vol. 64, January 1990, pp. 1-20.

“Collusion and Predation under (Almost) Free Entry,” *International Journal of Industrial Organization*, Vol. 7, September 1989, pp. 381-401.

“Collusion Among Asymmetric Firms: The Case of Different Discount Factors,” *International Journal of Industrial Organization*, Vol. 7, June 1989, pp. 289-307.

“A Re-evaluation of Perfect Competition as the Solution to the Bertrand Price Game,” *Mathematical Social Sciences*, Vol. 17, June 1989, pp. 315-328.

“The Advantageous Nature of Risk Aversion in a Three Player Bargaining Game where Acceptance of a Proposal Requires a Simple Majority,” *Economics Letters*, Vol. 30, 1989, pp. 195-200.

“The Effects of Irreversible Investment in Durable Capacity on the Incentive for Horizontal Merger,” (co-authored with Myong-Hun Chang), *Southern Economic Journal*, Vol. 55, October 1988, pp. 443-453.

“Oligopolistic Entry Deterrence under Incomplete Information,” *RAND Journal of Economics*, Vol. 18, Summer 1987, pp. 211-231.

“Finite Rationalizability and Cooperation in the Finitely Repeated Prisoners’ Dilemma,” *Economics Letters*, Vol. 23, 1987, pp. 233-237.

“Collusion in Multiproduct Oligopoly Games under a Finite Horizon,” *International Economic Review*, Vol. 28, February 1987, pp. 1-14.

“A Non-cooperative Bargaining Game with Risk Averse Players and an Uncertain Finite Horizon,” *Economics Letters*, Vol. 20, 1986, pp. 9-13.

“Limit Pricing When the Potential Entrant is Uncertain of Its Cost Function,” *Econometrica*, Vol. 54, March 1986, pp. 429-437.

“Noncooperative Behavior by a Cartel as an Entry-Detering Signal,” *Rand Journal of Economics*, Vol. 15, Autumn 1984, pp. 426-433.

### **Comments, Reviews, and Other Published Papers**

“Antitrust Enforcement,” in *The New Palgrave: Dictionary of Economics*, 2nd Edition, L. Blume and S. Durlauf, eds., Macmillan, 2008, pp. 181-184.

“Issues in Antitrust Enforcement,” (co-authored with Vivek Ghosal and Johan Stennek) in *The Political Economy of Antitrust*, V. Ghosal and J. Stennek, eds., Elsevier, 2007.

“Comment on ‘Reducing Buyer Search Costs: Implications for Electronic Marketplaces’,” *Management Science*, Vol. 47, December 2001, pp. 1727-1732.

“Non-cooperative Games,” in *The New Palgrave Dictionary of Economics and the Law*, P. Newman, ed., Cambridge, England: Macmillan Press, Ltd., 1998.

“Review of *Games for Business and Economics* by Roy Gardner,” *Journal of Economic Education*, Vol. 28, Summer 1997, pp. 285-288.

“Review of *Essays on the Foundations of Game Theory* by Ken Binmore,” *Managerial and Decision Economics*, Vol. 12, August 1991, pp. 329-334.

“If *Homo Economicus* Could Choose His Own Utility Function, Would He Want One with a Conscience?: Comment,” *American Economic Review*, Vol. 79, June 1989, pp. 588-593.

“Non-cooperative Games” and “Strategic Behaviour and Market Structure” in *The New Palgrave: A Dictionary of Economics*, J. Eatwell, M. Milgate, and P. Newman, eds., Cambridge, England: Macmillan Press, Ltd., 1987.

## Books

*Games, Strategies, and Decision Making*, Worth Publishers, 2009.

*Economics of Regulation and Antitrust* (co-authored with W. Kip Viscusi and John M. Vernon), D.C. Heath, 1992; 2nd Edition, The MIT Press, 1995; 3rd Edition, The MIT Press, 2000 (translated into Chinese); 4th Edition, The MIT Press, 2005.

## Working Papers

“Supplying Anti-Viral Drugs during a Pandemic: The Role of Manufacturer Reserve Programs,” August 2009 (co-authored with Edward Hsu).

“Private Monitoring and Communication in Cartels: Explaining Recent Collusive Practices,” June 2008, Revised July 2009 (co-authored with Andrzej Skrzypacz).

“The Impact of a Corporate Leniency Program on Antitrust Enforcement and Cartelization,” December 2008, Revised February 2009 (co-authored with Myong Chang).

“Corporate Leniency Programs and the Role of the Antitrust Authority in Detecting Collusion,” February 2006. [policy paper]

### **Conference/Symposium Presentations (since 2004)**

European Summer School and Conference in Competition & Regulation (Crete), July 2009; Centre for Competition Policy (U. of East Anglia), Fifth Annual Conference - Cartels and Tacit Collusion (Norwich, England), June 2009. Helsinki Center of Economic Research, Cartels and Collusion (Helsinki), June 2009. International Industrial Organization Conference (Boston), April 2009; Amsterdam Center for Law and Economics, Fifth Annual Competition & Regulation Meeting: "To Enforce and Comply: Incentives inside Corporations and Agencies" (Amsterdam), March 2009; 15th WZB Conference on Markets and Politics and the 2nd Conference of the Research Network on Innovation and Competition Policy: "Deterrence in Competition Policy" (Berlin), October 2008; UBC Summer Conference on Industrial Organization (Whistler, BC), July 2008; Bates White Fifth Annual Antitrust Conference (Washington, D.C.), June 2008; EARIE Conference (Valencia), September 2007; European Summer Symposium in Economic Theory (Gerzensee), July 2007; Conference of the Research Network on Innovation and Competition Policy: Modern Approaches in Competition Policy (Mannheim), May 2007; International Industrial Organization Conference (Savannah), April 2007; American Economic Association Meetings (Chicago), January 2007; EARIE Conference (Amsterdam), August 2006; EU Competition Law and Policy Workshop: Enforcement of Prohibition of Cartels (Florence), June 2006; International Industrial Organization Conference (Boston), April 2006; Towards an Effective Implementation of New Competition Policy (Tokyo), January 2006; World Congress of the Econometric Society (London), August 2005; Csef-Igier Symposium on Economics and Institutions (Capri), June/July 2005; Advances in the Economics of Competition Law (Rome), June 2005; International Industrial Organization Conference (Atlanta), April 2005; Economics of Collusion (ENCORE, Amsterdam), April 2005; Collusion and Cartels (WZB, Berlin), October 2004; Duke/Northwestern/Texas I.O. Theory Conference (Duke), October 2004; Handbook of Computational Economics Conference (Michigan), May 2004; International Industrial Organization Conference (Chicago), April 2004.

### **Seminars (since 2000)**

Bates White, Boston University, Brigham Young University, Brookings Institution, California Institute of Technology, Columbia-NYU Joint I.O. Seminar, Cornell University, European Commission, European University Institute, Federal Reserve Bank of Minneapolis, George Mason University, George Washington University, Georgetown University, Harvard-

MIT Joint I.O. Seminar, Hitotsubashi University, Hong Kong University of Science and Technology, Indiana University (Kelley School of Business), Industriens Utredningsinstitut (Research Institute of Industrial Economics, Stockholm), Instituto Tecnológico Autónomo de México, Konkurransetilsynet (Norwegian Competition Authority), Michigan State University, Nathan Associates, Netherlands Competition Authority (NMa), Ohio State University, Rutgers University, Stanford University, Tulane University, Universidad de Alicante, Universidad Carlos III de Madrid, Università Bocconi, Universitat Autònoma de Barcelona & Institut d'Anàlisi Econòmica-CSIC, Universitat Pompeu Fabra, Universiteit van Amsterdam, University of Arizona, University of California-Berkeley, University of California-Irvine, University of Colorado, University of Copenhagen, University of Hong Kong, University of Houston, University of Illinois, University of Michigan, University of Minnesota, University of Pennsylvania, University of Tokyo, University of Toronto, University of Wisconsin, Wake Forest University, Yale University

### **Miscellaneous**

Invited Lectures: “The Role of Mathematics in Economics,” Bryn Mawr 6th Grade Mathematics Class (2001); Mathematical Economics Forum, Wake Forest University (2001); “Game Theory,” Gettysburg College (1993).

External Examiner, Doctoral Thesis: University of Amsterdam (2009), Universidad de Alicante (2004), Stockholm University (2000), Universitat Autònoma de Barcelona (1997).