

Robert H. Patrick

Department of Finance and Economics
Rutgers Business School
– Newark and New Brunswick
Rutgers University
1 Washington Park, 1148
Newark, New Jersey 07102

Phone: 973-353-5247 or 908-212-1865

Internet: rpatrick@rutgers.edu

<http://www.rci.rutgers.edu/~rpatrick/hp.html>

Experience

RUTGERS UNIVERSITY, Rutgers Business School – Newark and New Brunswick, NJ.
Associate Professor, Department of Finance and Economics, Sept. 1994-present.

STANFORD UNIVERSITY, Stanford, California.

Visiting Scholar, Department of Economics, Aug. 1993-Sept. 1994.

Visiting Scholar, Department of Engineering-Economic Systems, Aug. 1992-Aug. 1993.

COLORADO SCHOOL OF MINES, Golden, Colorado.

Associate Professor, Department of Mineral Economics, Aug. 1991-Aug. 1993.

Assistant Professor, Department of Mineral Economics, Aug. 1987-Aug. 1991.

PURDUE UNIVERSITY, West Lafayette, Indiana.

Research Associate, Department of Agricultural Economics, Aug. 1985-Aug. 1987.

UNIVERSITY OF NEW MEXICO, Albuquerque, New Mexico.

Research and Teaching Assistant, Department of Economics, Aug. 1980-Aug. 1985.

BURROUGHS CORPORATION, Fairbanks, Alaska. Manager, Aug. 1978-Aug. 1980.

Formal Education

Ph.D., Economics, 1985, University of New Mexico, Albuquerque, New Mexico.

B.A., *magna cum laude*, 1978, Blackburn College, Carlinville, Illinois.

Research and Teaching Interests

Applied Microeconomics and Applied Econometrics; primarily in the fields of Industrial Organization and Natural Resource and Environmental Economics.

Professional Publications

- "Hospital Length of Stay and Probability of Infection," with M. Hassan, H.P. Tuckman, D.S. Kountz, and J.L. Kohn, *International Journal of Pharmaceutical and Healthcare Marketing* 4(4):324-338, 2010. (Emerald Literati Network Award for Excellence 2011, Highly Commended Paper.)
- "Cost of Hospital Acquired Infection," with M. Hassan, H.P. Tuckman, D.S. Kountz, and J.L. Kohn, *Hospital Topics* 88(3):82-89, 2010.
- "Economics of Transboundary Aquifer Management," with J.M. Chermak and D. Brookshire, *Ground Water* 43(5):731-736, September-October 2005.
- "Comparing Tests of the Theory of Exhaustible Resources," with J.M. Chermak, *Resource and Energy Economics* 24(4):301-325, November 2002.
- "Real-Time Pricing and Demand Side Participation in Restructured Electricity Markets" with F.A. Wolak, in A. Faruqui and K. Eakin edited, *Electricity Pricing in Transition*, Kluwer Academic Publishers, 2002.
- "A Microeconomic Test of the Theory of Exhaustible Resources," with J.M. Chermak, *Journal of Environmental Economics and Management* 42(1):82-103, July 2001.
- "Using Customer-Level Response to Spot Prices to Design Pricing Options and Demand-Side Bids," with F.A. Wolak, in A. Faruqui and K. Eakin edited, *Pricing in Competitive Electricity Markets*, Kluwer Academic Publishers, 2000.
- "A Hybrid Economic-Engineering Model for Optimal Natural Gas Production," with J.M. Chermak, J. Crafton, and S. Norquist, *Energy Economics* 21(1):67-94, 1999.
- "Consumer Response to Real-Time Prices in the England and Wales Electricity Market: Implications for Demand-Side Bidding and Pricing Options Design Under Competition," with F.A. Wolak, in M.A. Crew edited, *Regulation Under Increasing Competition*, Kluwer Academic Publishers, 1999.
- "A Shock to the System: Restructuring America's Electricity Industry." *Journal of Economic Literature*, XXXVI(1):263-265, 1998.
- "Industry Structure and Regulation in the England and Wales Electricity Market," with F.A. Wolak, in M.A. Crew edited, *Pricing and Regulatory Innovations under Increasing Competition*, Kluwer Academic Publishers:65-90, 1996.
- "A Well-Based Cost Function and the Economics of Exhaustible Resources: the Case of Natural Gas," with J.M. Chermak, *Journal of Environmental Economics and Management* 28(2):174-189, 1995.
- "Technological Investment and the Recovery of Natural Gas: The Value of Information," with J.M. Chermak, *The Energy Journal* 16(1):113-135, 1995.

- "On the Road to NO_x Emissions Trading," with J. Kramer and S. Tikalsky, *The Electricity Journal* 8(1):80-85, 1995.
- "Incentives in Pipeline Pricing and Capacity," with J.M. Chermak, in *Incentive Regulation for Public Utilities*, edited by M.A. Crew, Kluwer Academic Publishers:157-184, 1994.
- "A Dynamic Game of a Transboundary Pollutant with Asymmetric Players," with W. Martin and B. Tolwinski, *Journal of Environmental Economics and Management* 25(1):1-12, 1993. (Lead article.)
- "Capital Recovery for the Regulated Firm Under Certainty and Regulatory Uncertainty," with T.H. Goodwin, *Resources and Energy* (presently *Resource and Energy Economics*) 14(4):337-361, 1992.
- "Optimal Depreciation, Payments to Capital, and Natural Monopoly Regulation," with H.S. Burness, *Journal of Regulatory Economics* 4(1):35-50, 1992.
- "Environmental Regulation Effects on Utility Profitability and Direction: Emission Allowance Endowments and Markets," in *Economic Innovations in Public Utility Regulation*, edited by M.A. Crew, Kluwer Academic Publishers, 1992.
- "Models of Reliability in Postal Services: Comment," in *Regulation and the Nature of Postal and Delivery Services*, edited by M.A. Crew and P.R. Kleindorfer, Kluwer Academic Publishers, 1992.
- "Peak Load Pricing with Continuous and Interdependent Demand," with H.S. Burness, *Journal of Regulatory Economics* 3(1):69-88, 1991.
- "Estimating Regional Benefits of Reducing Targeted Pollutants: an Application to Agricultural Effects on Water Quality and the Value of Recreational Fishing," with J. Fletcher, S. Lovejoy, W. Van Beek, G. Holloway, and J. Binkley, *Journal of Environmental Management* 33(4):301-310, 1991. (Lead article.)
- "Rate Structure Effects and Regression Parameter Instability Across Time-of-Use Electricity Pricing Experiments," *Resources and Energy* (presently *Resource and Energy Economics*) 12(2):179-195, 1990.
- "Rationing the Congested Recreational Facility: Market versus Political Instruments," with S.B. Lovejoy, in *Outdoor Recreation Policy: Pleasure and Preservation*, edited by J.D. Hutcheson, F.P. Noe, and R.E. Snow, (Greenwood Press, New York):95-105, 1990.
- "Optimal Rate Base Additions and the Regulated Firm," *Journal of Regulatory Economics* 1(2):149-162, 1989.
- "*Mineral Resources: A System Analytical and Functional Approach*," *Natural Resources Forum*, May, 1989.
- "Benefits to Indiana Fishermen from Soil and Water Conservation," with J. Fletcher, S. Lovejoy, W. Van Beek, and G. Holloway *Purdue Agricultural Economics Report*, February, 1989.

"Peak Load Pricing and Public Utility Regulation," *Southwestern Review of Economics and Management* 5(3):67-80, 1986.

"A Note on Prudencio's Experimental Tests of the Coase Propositions," with R.D. Norton, *Journal of Environmental Economics and Management* 12(1):96-100, 1985.

Proceedings

"Measuring Transfer Prices, Option Values, and Pollution Control Costs with Limited Information." *European Association of Environmental and Resource Economics Book of Abstracts*, Budapest University of Economic Sciences and Public Administration, Budapest, Hungary, June 25-28, 2004.

"A Generalized Economic-Hydrologic Model for Efficient Groundwater Production: the Value of Information," with J.M. Chermak. *European Association of Environmental and Resource Economics Book of Abstracts*, Budapest University of Economic Sciences and Public Administration, Budapest, Hungary, June 25-28, 2004.

"Reconciling Tests of the Theory of Exhaustible Resources," with J.M. Chermak, *European Association of Environmental and Resource Economics Book of Abstracts*, University of Crete, Greece, June 2000.

"Incentives for Public Utility Conservation and Pollution Control with Unknown Costs," *European Association of Environmental and Resource Economics Book of Abstracts*, University of Crete, Greece, June 2000.

"Comparing Tests of the Theory of Exhaustible Resources," with J.M. Chermak, *World Congress of Environmental and Resource Economists Book of Abstracts*, Venice, Italy, July 1998.

"Modeling Uncertainty in Producing Natural Gas from Tight Sands," with J.M. Chermak and C.A. Dahl, *Into the Twenty-First Century: Harmonizing Energy Policy, Environment, and Sustainable Economic Growth*, International Association for Energy Economics, Eighteenth Annual Conference, 1995.

"Modeling Uncertainty in Production from Tight Gas Sands," with J.M. Chermak and C.A. Dahl in *Proceedings of the 1995 Mineral Economics Management Society Annual Meeting*, 1995.

"Incentives for Public Utility Conservation and Pollution Control with Unknown Costs." *Abstracts for the Fifth Annual Conference of the European Association of Environmental and Resource Economists*, University College Dublin, June 1994.

"A Well Based Extraction Cost Function and the Economics of Exhaustible Resources: the Case of Natural Gas," with J.M. Chermak, *Abstracts for the Fifth Annual Conference of the European Association of Environmental and Resource Economists*, University College Dublin, June 1994.

- "Downstream Environmental Benefits Through Upstream Efficiency Improvements: The Natural Gas Industry," with J.M. Chermak, *Proceedings of the Fifteenth Annual North American Conference of the International Association for Energy Economics*, 1993.
- "Decreasing Marginal Production Costs and the Theory of Exhaustible Resources," with J.M. Chermak, *Proceedings of the Second Annual Conference of the Mineral Economics and Management Society*, 1993.
- "Electric Utility Compliance and Regulatory Issues in the Implementation of Title IV of the Clean Air Act Amendments of 1990," *Proceedings of the Second Annual Conference of the Mineral Economics and Management Society*, 1993.
- "Electric Utility Input and Diversification Incentives with Emission Allowance Endowments and Markets," *Proceedings of the Fourteenth Annual North American Conference of the International Association for Energy Economics*, 1992.
- "Policy Implications of Exhaustible Resource Theory for Natural Gas Production," with J.M. Chermak, in *Proceedings of the Fourteenth Annual North American Conference of the International Association for Energy Economics*, 1992.
- "Global Climate Change: Issues Involving Dynamic Game Modeling," with W. Martin and B. Tolwinski, in *Proceedings of the Fifth International Symposium on Dynamic Games and Applications*, 1992.
- "Tax/Subsidy Incentives and Global Warming: A Dynamic Game Model," with W. Martin and B. Tolwinski, abstracted in *TIMS/ORSA Joint National Meeting*, April, 1992.
- "Modeling Global Warming as a Stochastic Dynamic Game," with W. Martin and B. Tolwinski, *International Conference on Game Theory Book of Abstracts*, June, 1991.
- "Peak Load Pricing," with H.S. Burness, *Econometric Society European Meeting Book of Abstracts*, September, 1989:319.
- "Estimation of Continuously Varying Electrical Demand," with L.A. Greening, *Proceedings of the Eleventh Annual North American Conference of the International Association for Energy Economics*, 1989.
- "The Role of Economics in Pollution Abatement Policy," with R.G. Eggert, *Proceedings of the Brown Cloud Forum*, (University of Denver Atmospheric Sciences Center, Technical Paper 1988-1), February, 1988.
- "Measuring Benefits of Quality Improvement in an Extended Hedonic Travel Cost Model," with J.J. Fletcher and S.B. Lovejoy, abstracted in *American Journal of Agricultural Economics*, 69 (5), December, 1987:1093.
- "Estimating Water Quality Effects on Recreational Value," with J.J. Fletcher, abstracted in *American Journal of Agricultural Economics*, 68 (5), December, 1986:1383.

Working Papers (unless otherwise indicated, available at <http://www.rci.rutgers.edu/~rpatrick/hp.html>)

- “Health and Wealth: A Dynamic Demand for Medical Care,” with J.L. Kohn, SSRN Working Paper, http://papers.ssrn.com/sol3/papers.cfm?abstract_id=994723, currently under revision.
- “Impacts of Completion and Production Decisions for Vertical versus Horizontal Technologies on Shale Gas Well Production,” with J.M. Chermak and J.W. Crafton, May 2012.
- “Oil Prices: Speculation, Option Value, and Market Power,” with J.M. Chermak, June 2011.
- “Incentives for Public Utility Conservation and Pollution Control with Unknown Costs.”
- “A Dual Approach to Transfer Pricing in Vertically Integrated Firms,” June 2009.
- “Irreconcilable Differences in Tests of Hotelling’s Theory of Exhaustible Resources,” with J.M. Chermak, December 2008.
- “The theory of exhaustible resources: what are the econometric methods testing?” with J.M. Chermak, January 2005.
- “The Impact of Market Rules and Market Structure on the Price Determination Process in the England and Wales Electricity Market,” with F.A. Wolak, NBER Working Paper 8248, National Bureau of Economic Research, Cambridge MA, April, 2001. <http://www.ucei.berkeley.edu/ucei/PDF/pwp047.pdf> <http://www.nber.org/papers/w8248>
- “Estimating the Customer-Level Demand for Electricity Under Real-Time Market Prices,” with F.A. Wolak, NBER Working Paper 8213, National Bureau of Economic Research, Cambridge MA, April, 2001. <ftp://zia.stanford.edu/pub/papers/rtpap.pdf> <http://www.nber.org/papers/w8213>
- “Designing Electricity Market Structure and Market Rules with Competition.”
- “Incentives in Electricity Spot Market Auctions,” with H.S. Burness.
- “Price Caps, Demand-Side Bidding, and Capacity Withholding Incentives in Restructured Electricity Markets.”
- “Optimal Irreversible Discrete Investment in Nonrenewable Resource Production,” with J.M. Chermak.
- “Incorporating Risk into the Exhaustible Resource Production Decisions,” with J.M. Chermak.
- “Designing Public Utility Regulatory Policy for Conservation and Pollution Control with Limited Information.”

“The Time Series Behavior of Market Prices and Output in the England and Wales Electricity Market,” with F.A. Wolak.

Citations

Over 300 citations, including cites in the *American Economic Review*, *Annual Review of Resource Economics*, *Australian Journal of Management*, *Econometrica*, *Economic Inquiry*, *Electricity Journal*, *Economic Journal*, *Energy*, *Energy Economics*, *Energy Journal*, *Energy Policy*, *IEEE Transactions*, *International Economic Review*, *International Journal of Industrial Organization*, *Journal of Economic Dynamics and Control*, *Journal of Economic Perspectives*, *Journal of Economic Theory*, *Journal of Environmental Economics and Management*, *Journal of Industrial Economics*, *Journal of Law and Economics*, *Journal of Regulatory Economics*, *Journal of Evolutionary Economics*, *Operations Research*, *Optimal Control Applications and Methods*, *Oxford Review of Economic Policy*, *RAND Journal of Economics*, *Resource and Energy Economics*, *Resources and Energy*, *Revista Brasileira de Economia*, *Review of Economics and Statistics*, *Review of Network Economics*, *Handbook of Natural Resource and Energy Economics*, and *Handbook of Marketing*.

Government and other Reports (selected)

Using Customer Demands Under Spot Market Prices for Service Design and Analysis, Electric Power Research Institute, June 2001 (with F.A. Wolak).

Customer Load Response to Spot Prices in England: Implications for Retail Service Design, Electric Power Research Institute Report EPRI TR-109143, Palo Alto, CA, November 1997 (with F.A. Wolak).

The Economics of Technology Research and Development: Recovery of Natural Gas from Tight Sands, Gas Research Institute Report 92-0267, National Technical Information Service, Washington, D.C., 1992, (with J.M. Chermak).

Methods for Assessing Economic Returns from State-Supported Energy Research, New Mexico Energy Research and Development Institute, Publication No. NMERDI 2-71-4136, Santa Fe, New Mexico, January, 1984, (with H.S. Burness and R.G. Cummings).

Grants and Awards (selected)

“Empirical Specification and Testing of the Dynamic Model for Lifecycle Medical Care

- Demand," Rutgers Business School Research Resources Grant, 2007-2008, \$3,000.
- "Modeling the dynamic demand for health care," Rutgers Business School Research Resources Grant, 2006-2007, \$5,000.
- "Using Customer Demands Under Spot Market Prices for Service Design and Analysis," Electric Power Research Institute, 1998-2001, \$100,000.
- "Using Real-Time Pricing Data for Policy Design and Analysis," with F.A. Wolak, Electric Power Research Institute, Midlands Electricity plc, and the National Science Foundation, 1994-97, \$180,011.
- "Using Real-Time Pricing Data for Policy Design and Analysis: Extensions," with F.A. Wolak, Electric Power Research Institute and Midlands Electricity plc, 1995-96, \$39,210.
- "The Economics of Technology Research and Development: Recovery of Natural Gas from Tight Sands," (continuation), Gas Research Institute (CER P-1266-0285-S), 1991-1992, \$203,000.
- "The Economics of Technology Research and Development: Recovery of Natural Gas from Tight Sands," Gas Research Institute (CER P-0966-280-S), 1990-1991, \$250,000.
- "Economic Analysis in Support of EPA Rulemaking," with W.E. Martin, United States Environmental Protection Agency, 1989-1992, \$33,000.
- "Economic Evaluation of Tight Gas Sands Research and Development," Gas Research Institute (CER No. P-9743-0270-0), 1989, \$60,000.
- "The Offsite Costs of Agricultural Production: An Extension of Impacts on Recreational Demand," with J.J. Fletcher and S.B. Lovejoy, United States Department of Agriculture, 1987, \$30,000.
- "The Offsite Costs of Agricultural Production: A Framework for Analysis," with J.J. Fletcher and S.B. Lovejoy, United States Department of Agriculture, 1985-1987, \$157,000.

Grants Administered

- "Assessment of Emission Trading Based on Experience with the Clean Air Act Amendments of 1990," Electric Power Research Institute, 1992-1994, \$697,000.
- "Experimental Tests of Alternative Mechanisms for Reaching Environmental Goals," Electric Power Research Institute, 1994, \$300,000.
- "Evaluation of Market Mechanisms to Control NO_x Emissions," Electric Power Research Institute, 1993-1994, \$600,000.
- "Emission Management Methods for Utility Operations," Electric Power Research Institute, 1992-1993, \$367,000.

"Risk Management Under the 1990 Clean Air Act Amendments: A Study of Emissions Allowance Reserves," Electric Power Research Institute, 1993, \$40,000.

"Assessment of the Feasibility of a Regional Visibility Trading Market," Electric Power Research Institute, 1992, \$50,000.

"Climate Change Valuation Research Design Support and Synthesis," Electric Power Research Institute, 1992, \$140,000.

Professional Activities

Papers Presented and Selected Participation at Professional Meetings

"Shale Gas, Competition and Regulation," with J.M. Chermak and J. Crafton, Rutgers University 31st Annual Eastern Conference, *Advanced Workshop in Regulation and Competition*, Shawnee on Delaware, PA, May, 2012.

"Option values of alternative completion and production strategies in shale gas plays," with J.M. Chermak and J. Crafton, *International Association for Energy Economics*, 30th USAEE/IAEE North American Conference, Washington, DC, October 9-12, 2011.

"Oil Prices: Speculation, Option Value, and Market Power," with J.M. Chermak, *European Association of Environmental and Resource Economists* annual conference, Rome, Italy, June 29-July 2, 2011.

"Fair Pricing – Ethics and Dynamic Pricing: Discussion and Comments," presented at *Fair Pricing – A Conference on Ethics and Dynamic Pricing*, Rutgers Business School, Rutgers University, Newark, NJ, April 9, 2010.

"Irreconcilable Differences in Tests of Hotelling's Theory of Exhaustible Resources," with J.M. Chermak, presented at the *American Economic Association (ASSA) Annual Meeting*, New Orleans, LA, January 4-6, 2008.

"Measuring Scarcity in Nonrenewable Resource Production: New Duality Results and Implications for Econometric Tests of the Theory," with J.M. Chermak, *Southern Economic Association Meetings*, Charleston, SC, November 18-21, 2006.

Discussant, "The Exhaustive Testable Implications of the Vertically Integrated Nonrenewable Resource Extracting Model of the Competitive Firm," by Michael R. Caputo, *Southern Economic Association Meetings*, Charleston, SC, November 18-21, 2006.

"The theory of exhaustible resources: what are the econometric methods testing?" with J.M. Chermak. *American Economic Association (ASSA) Annual Meeting*, Philadelphia, PA, January 7-9, 2005.

"Measuring Transfer Prices, Option Values, and Pollution Control Costs with Limited

Information.” *European Association of Environmental and Resource Economists Thirteenth Annual Conference*, Budapest University of Economic Sciences and Public Administration, Budapest, Hungary, June 25-28, 2004. (<http://eaere2004.bkae.hu/download/paper/patrickpaper.pdf>)

“A Generalized Economic-Hydrologic Model for Efficient Groundwater Production: the Value of Information,” with J.M. Chermak. *European Association of Environmental and Resource Economists Thirteenth Annual Conference*, Budapest University of Economic Sciences and Public Administration, Budapest, Hungary, June 25-28, 2004. (<http://eaere2004.bkae.hu/download/paper/chermakpaper.pdf>).

“Alternative Methods for Estimating Relative Risk Aversion.” Discussant of this paper by C.F. Lee, J.C. Lee, and H.F. Ni, Ninth Annual Conference on Financial Economics and Accounting, Rutgers University, New Brunswick, NJ, September 2001.

"RTP and Demand Side Bidding in Restructured Electricity Markets." Electricity Modeling Forum, Stanford University, Stanford, CA, June 2001.

"On Mitigating Market Power in Restructured Electricity Markets." National Regulatory Research Institute, Ohio State University, Columbus, OH, April 2001.

“Incentives for Public Utility Conservation and Pollution Control with Unknown Costs,” *European Association of Environmental and Resource Economics*, University of Crete, Greece, June 2000.

“Reconciling Tests of the Theory of Exhaustible Resources,” with J.M. Chermak, *European Association of Environmental and Resource Economics*, University of Crete, Greece, June 2000.

Session Chair, *European Association of Environmental and Resource Economics*, University of Crete, Greece, June 2000.

“Reconciling Tests of the Theory of Exhaustible Resources,” with J.M. Chermak. *One Hundred and Twelfth Annual Meeting of the American Economic Association*, Boston, January, 2000.

“Measuring Transfer Prices with Limited Information,” 12th Annual Western Conference, *Advanced Workshop in Regulation and Competition: Meeting the Competitive Challenges in Network Industries*, San Diego, July 1999.

"Estimating the Customer-Level Demand for Electricity Under Real-Time Market Prices," with F.A. Wolak, 12th Annual Western Conference, *Advanced Workshop in Regulation and Competition: Meeting the Competitive Challenges in Network Industries*, July 1999.

“Reconciling Tests of the Theory of Exhaustible Resources,” with J.M. Chermak, University of Colorado Environmental and Resource Economics Workshop, Boulder, June 1999.

- “Comparing Tests of the Theory of Exhaustible Resources,” with J.M. Chermak, *World Congress of Environmental and Resource Economists*, Venice, Italy, July 1998.
- “Customer Load Response to Spot Prices in the England and Wales Electricity Market: Implications for Service Design,” with Frank A. Wolak, *Pricing Energy in a Competitive Market*, Electric Power Research Institute Conference, Washington DC, July 1998
- "A Microeconomic Test of the Theory of Exhaustible Resources," with J.M. Chermak, *European Association of Environmental and Resource Economists*, Tilburg University, The Netherlands, June 1997
- "The Impact of Market Rules and Market Structure on the Price Determination Process in the England and Wales Electricity Market," with F.A. Wolak, University College London Conference, 1997
- "Estimating the Customer-Level Demand for Electricity Under Real-Time Market Prices," with F.A. Wolak, *NBER Summer Institute*, Cambridge, MA, August 1997
- "The Impact of Market Rules and Market Structure on the Price Determination Process in the England and Wales Electricity Market," with F.A. Wolak, University of Warwick *Energy Economics Conference*, Coventry, England, December 1997
- "A Microeconomic Test of the Theory of Exhaustible Resources," with J.M. Chermak, 18th Annual North American Conference of the USAEE/IAEE, San Francisco, CA, September 1997.
- "Estimating the Customer-Level Demand for Electricity Under Real-Time Market Prices," with F.A. Wolak, 18th Annual North American Conference of the USAEE/IAEE, San Francisco, CA, September 1997.
- "The Impact of Market Rules and Market Structure on the Price Determination Process in the England and Wales Electricity Market," with F.A. Wolak, 18th Annual North American Conference of the USAEE/IAEE, San Francisco, CA, September 1997.
- "Customer Load Response to Spot Prices in the England and Wales Electricity Market: Implications for Service Design," with F.A. Wolak, CRRI Workshop, *Regulation under Increasing Competition*, Newark, NJ, October 24, 1997.
- "The Impact of Market Rules and Market Structure on the Price Determination Process in the England and Wales Electricity Market," with F.A. Wolak, CRRI Western Workshop, San Diego, July, 1997.
- "The Impact of Market Rules and Market Structure on the Price Determination Process in the England and Wales Electricity Market," with F.A. Wolak, manuscript invited for presentation at the *One Hundred and Ninth Annual Meeting of the American Economic Association*, New Orleans, LA, January, 1997.

"A Microeconomic Test of the Theory of Exhaustible Resources," with J.M. Chermak, manuscript presented at the at the *One Hundred and Eighth Annual Meeting of the American Economic Association*, San Francisco, CA, January, 1996.

"The Impact of Market Rules and Market Structure on the Price Determination Process in the England and Wales Electricity Market," with F.A. Wolak, *Stanford Institute for Theoretical Economics (SITE) Workshop*, Stanford University, August, 1996.

"Industry Structure and Regulation in the England and Wales Electricity Market," with F.A. Wolak, CRRI seminar, *Pricing and Regulatory Innovations under Increasing Competition*, Rutgers University, May, 1996.

"The Impact of Market Rules and Market Structure on the Price Determination Process in the England and Wales Electricity Market," invited paper, with F.A. Wolak, *Workshop on Market Power Issues in Restructured Electricity Markets*, New York Department of Public Service, New York, NY, July 22, 1996.

"Nonlinear Pricing Options and Competition," *Analytical Foundations Module*, Ninth Annual Western Conference, *Advanced Workshop in Regulation and Public Utility Economics*, San Diego, CA, July, 1996.

"The Impact of Market Rules and Market Structure on the Price Determination Process in the England and Wales Electricity Market," with F.A. Wolak, Ninth Annual Western Conference, *Advanced Workshop in Regulation and Public Utility Economics*, San Diego, California, July, 1996.

"Nonlinear Pricing Options," with F.A. Wolak, CRRI Workshop, Newark, NJ, April 19, 1996.

Discussant, *Econometric Society Meetings*, Washington, D.C., January, 1995.

"Modeling Uncertainty in Producing Natural Gas from Tight Sands," with J.M. Chermak and CA.. Dahl, *World Congress of the International Association for Energy Economics*, Washington, D.C., July, 1995.

Discussant of Roger Sherman's paper, Center for Research in Regulated Industries Workshop, Rutgers University, Newark, NJ, 1995.

"Economic Incentives for NOx Abatement," Rutgers CRRI Workshop on Regulated Industries, Newark, NJ, April 1995.

"Estimating Consumer Electricity Demands Under Alternative Nonlinear Pricing Options," with F.A. Wolak, manuscript presented at the *Electric Power Research Institute's 1995 National Conference*, Atlanta, GA, October, 1995

"Incentives in Pipeline Pricing, Capacity, and Vertical Integration into Exhaustible Natural Resource Production," manuscript presented at the Eighth Annual Western Conference of the *Advanced Workshop in Regulation and Public Utility Economics*: San Diego,

CA, July 1995.

"Incentive Regulation and Underlying Economic Theory," with M.A. Crew, *Analytical Foundations of Regulatory Economics Module*, 8th Annual Western Conference, *Advanced Workshop in Regulation and Public Utility Economics*, San Diego, CA, July, 1995.

"Incentives in Pipeline Pricing, Capacity, and Vertical Integration into Exhaustible Natural Resource Production," with J.M. Chermak, *Eighth Annual Western Conference of the Advanced Workshop in Regulation and Public Utility Economics*, San Diego, CA, July, 1995.

Discussant, *Fourteenth Annual Eastern Conference, Advanced Workshop in Regulation and Public Utility Economics*, Newport, RI, May, 1995.

"Modeling Uncertainty in Production from Tight Gas Sands," with C.A. Dahl and J.M. Chermak, 4th Annual Conference of the *Mineral Economics and Management Society*, Boulder, CO, March, 1995

"Incentives for Public Utility Conservation and Pollution Control with Unknown Costs," manuscript presented at the 5th Annual Conference of the *European Association of Environmental and Resource Economists*, Dublin, Ireland, June 1994.

"A Well-Based Cost Function and the Economics of Exhaustible Resources: The Case of Natural Gas," with J.M. Chermak, manuscript presented at the 5th Annual Conference of the *European Association of Environmental and Resource Economists*, Dublin, Ireland, June 1994.

"Incentives in Pipeline Pricing and Capacity," with J.M. Chermak, manuscript presented at the CRRRI Workshop *Incentive Regulation for Public Utilities*, Newark, NJ, May 6, 1994.

"Incentives in Pipeline Pricing, Capacity, and Vertical Integration into Exhaustible Natural Resource Production," with J.M. Chermak, manuscript presented at the *16th Annual North American Meetings of the International Association for Energy Economics*, Dallas, TX, October, 1994.

"Designing Public Utility Regulatory Policy for Conservation and Pollution Control with Limited Information," Seventh Annual Western Conference, *Advanced Workshop in Regulation and Public Utility Economics*, San Diego, CA, July, 1994.

"Incentives for Public Utility Conservation and Pollution Control with Unknown Costs," *Rutgers University Thirteenth Annual Eastern Conference, Advanced Workshop in Regulation and Public Utility Economics*, RI, May, 1994.

"Incentives in Pipeline Pricing and Capacity," with J.M. Chermak, *Rutgers University Advanced Workshop in Regulation and Public Utility Economics*, Newark, NJ, May, 1994.

"Market Approaches to Pollution Control," Edison Electric Institute *Strategic Issues Conference*, Tucson, AZ, March, 1994.

- "Policy Implications of Exhaustible Natural Resource Theory for Natural Gas Production and Regulation," with J.M. Chermak, manuscript presented at the *Hundred and Fifth Annual Meeting of the American Economic Association*, Anaheim, CA, January, 1993.
- "Using Market Incentives for Pollution Control," EPRI National Conference in St. Petersburg, FL, 1993.
- "Downstream Environmental Benefits Through Upstream Efficiency Improvements: The Natural Gas Industry," with J.M. Chermak, manuscript presented at the *Fifteenth Annual North American Conference of the International Association for Energy Economics*, October, 1993.
- "Designing Public Utility Regulatory Policy for Conservation and Pollution Control with Limited Information," manuscript presented at the Rutgers University Twelfth Annual Eastern Conference, *Advanced Workshop in Regulation and Public Utility Economics*, Cape Cod, MA, May, 1993.
- Discussant of John Panzer's "Using USPS Cost Accounting Data for Pricing Decisions and Cross-Subsidy Calculations," *Workshop on Postal and Delivery Economics*, Daun, Germany, June, 1993.
- "Electric Utility Input Substitution and Conservation Incentives with Emission Allowance Endowments, Banking, and Markets," manuscript presented at the Rutgers University Sixth Annual Western Conference, *Advanced Workshop in Regulation and Public Utility Economics*, San Diego, CA, July, 1993.
- "Decreasing Marginal Production Costs and the Theory of Exhaustible Resources," J.M. Chermak, *Proceedings of the Second Annual Conference of the Mineral Economics and Management Society*, Reno, Nevada, November, 1993.
- "Electric Utility Compliance and Regulatory Issues in the Implementation of Title IV of the Clean Air Act Amendments of 1990," manuscript presented at the *Second Annual Conference of the Mineral Economics and Management Society*, Reno, NV, November, 1993.
- "Electric Utility Input and Diversification Incentives with Emission Allowance Endowments and Markets," manuscript presented at the *Fourteenth Annual North American Conference of the International Association for Energy Economics*, New Orleans, LA, October, 1992.
- "Policy Implications of Exhaustible Resource Theory for Natural Gas Production," with J.M. Chermak, manuscript presented at the *Fourteenth Annual North American Conference of the International Association for Energy Economics*, New Orleans, LA, October, 1992.
- "Global Climate Change: Issues Involving Dynamic Game Modeling," with W. Martin and B. Tolwinski, manuscript presented at the *Fifth International Symposium on Dynamic Games and Applications*, June, 1992.
- "Tax/Subsidy Incentives and Global Warming: A Dynamic Game Model," with W. Martin and B. Tolwinski, manuscript presented at *The Institute of Management Sciences and*

Operations Research Society of America Joint National Meeting, Orlando, FL, April, 1992.

"Incentives for Conservation by Public Utilities Under Profit and Environmental Regulation," manuscript presented at the *Journal of Regulatory Economics Editors' Conference*, San Diego, CA, October, 1992.

"Environmental Regulation Effects on Utility Profitability and Direction: Emission Allowance Endowments and Markets," manuscript presented at the *Rutgers University Fifth Annual Western Conference, Advanced Workshop in Regulation and Public Utility Economics*, San Diego, CA, July, 1992.

"Global Climate Change: Issues Involving Dynamic Game Modeling," with W. Martin and B. Tolwinski, invited presentation for the *Fifth International Symposium on Dynamic Games and Applications*, Geneva, Switzerland, July, 1992.

"Welfare Effects of Utility Integrated Resource Planning and Environmental Regulation," with R.A. Michelfelder, presented at the *Rutgers University Eleventh Annual Eastern Conference, Advanced Workshop in Regulation and Public Utility Economics*, New Paltz, NY, May, 1992.

"Models of Reliability in Postal Services," invited discussant, *Regulation and the Evolving Nature of Postal and Delivery Services: 1992 and Beyond*, La Londe les Maures, France, March 18-21, 1992.

"Tax/Subsidy Incentives and Global Warming: A Dynamic Game Model," with W. Martin and B. Tolwinski, invited presentation for the session, *Quantitative Analysis of Environmental Regulation*, TIMS/ORSA Conference, Orlando, FL, April 26-29, 1992.

"Modeling Global Warming as a Stochastic Dynamic Game," with W. Martin and B. Tolwinski, manuscript presented at the *International Conference on Game Theory*, Geneva, Switzerland, June, 1991.

"Environmental Regulation Effects on Utility Input Choice and Diversification Incentives," invited presentation for the *Advanced Workshop in Regulation and Public Utility Economics*, Rutgers University Campus, Newark, NJ, October, 1991.

Federal Reserve System Energy Conference, invited Discussant, Denver, CO, September, 1991.

"Modeling Global Warming as a Dynamic Game," with W. Martin and B. Tolwinski, invited presentation for the *International Conference on Game Theory*, Florence, Italy, June, 1991.

"A Dynamic Game of CO₂ Emissions with Asymmetric Players," with W. Martin and B. Tolwinski, manuscript presented at the *Second Annual Meeting of the European Association of Environmental and Resource Economists*, Stockholm, Sweden, June, 1991.

"A Regulatory Incentive Mechanism for Efficient Cost Recovery," manuscript presented at the *Rutgers University Fourth Annual Western Conference, Advanced Workshop in Regulation and Public Utility Economics*, San Diego, CA, July, 1991.

"A Differential Game of Pollution Abatement through Tax and Subsidy Incentives," with W.

Martin and B. Tolwinski, invited presentation for the session *Strategic Behavior and Natural Resources*, Western Economic Association International Conference, Seattle, WA, July, 1991.

"Incentives for Pollution Control Compliance Under Imperfect Information: the Composite Materials Case," with W.E. Martin, manuscript presented at the *European Association of Environmental Economists Conference*, Venice, Italy, April, 1990.

"Re-examining Conventional Wisdom on Common Property Resources and Water Demand," Session Chair, *American Agricultural Economics Association Meetings*, Vancouver, British Columbia, Canada, August, 1990.

"Peak Load Pricing," manuscript presented at the *Econometric Society European Meetings*, Munich, Germany, September, 1989.

"Cost Recovery and the Regulated Firm," manuscript presented at the Rutgers University Second Annual Western Conference, *Advanced Workshop in Regulation and Public Utility Economics*, Monterey, CA, July, 1989.

"Estimation of Continuously Varying Electrical Demand," with L.A. Greening, manuscript presented at the *Eleventh Annual North American Conference of the International Association for Energy Economics*, Los Angeles, CA, 1989.

"Dynamic Analysis of Capital Recovery Paths for the Regulated Firm," with T.H. Goodwin, manuscript presented at the Rutgers University First Annual Western Conference, *Advanced Workshop in Regulation and Public Utility Economics*, Monterey, CA, July, 1988.

"On Laboratory Experiments Involving Voluntary Bargaining Processes: the Coase Propositions," (with Wade Martin), manuscript presented at the *Eastern Economics Association Meeting*, Boston, MA, March, 1988.

"The Role of Economics in Pollution Abatement Policy," manuscript presented at *The Brown Cloud Forum*, Denver, CO, February, 1988, (with R.G. Eggert).

"Measuring Benefits of Quality Improvement in an Extended Hedonic Travel Cost Model," manuscript with J.J. Fletcher and S.B. Lovejoy presented at the *American Agricultural Economics Association Meetings*, Michigan State University, East Lansing, MI, August, 1987.

"Dynamic Aspects of Electricity Rates and Nuclear Power Costs," with T.H. Goodwin, manuscript presented at the *Western Economic Association Meetings*, Vancouver, British Columbia, Canada, July, 1987.

"Topics in Regression Analysis," Session Chair, *Eastern Economic Association Meetings*, Washington D.C., March, 1987.

"A Test of Regression Parameter Instability Across Time-of-Use Electricity Pricing Experiments," manuscript presented at the *Eastern Economic Association Meetings*,

Washington D.C., March, 1987.

"Estimating Water Quality Effects on Recreational Value," with J. Fletcher, manuscript presented at the *American Agricultural Economics Association Meetings*, Reno, NV, July, 1986.

"Estimating Water Quality Effects on Recreational Value," with J. Fletcher, manuscript presented at the *Eastern Economic Association Meetings*, Philadelphia, PA, April, 1986.

Editorial Boards

Journal of Regulatory Economics 1993-2000.

Journal of Environmental Economics and Management 1994-1996.

Selected Review Work

American Economic Review

Annals of Dynamic Games

Annals of Operations Research

Applied Mathematics Letters

Economic Inquiry

Environment and Development Economics

Environmental and Resource Economics

IBM Journal of Research and Development

International Journal of Power and Energy Systems

Journal of Applied Econometrics

Journal of Economic Dynamics and Control

Journal of Economics and Finance

Journal of Environmental Economics and Management

Journal of Environmental Management

Journal of Industrial Economics

Journal of Operations Management

Journal of Public Economic Theory

Journal of Regulatory Economics

Oxford Economic Papers

Resource and Energy Economics

Resources and Energy

Review of Economics and Statistics

Review of Economic Studies

Review of Quantitative Finance and Accounting

Southern Economic Journal

The Energy Journal

Water Resources Research

Addison-Wesley Publishing Company

Elsevier/North-Holland Publishers

Houghton Mifflin Company

McGraw-Hill Publishing Company

MIT Press

Oxford University Press

Palgrave Macmillan

Springer

Reviewer for Various Public and Private Agencies, including

California Energy Commission	Electric Power Research Institute
U.S. Energy Information Administration	Federal Energy Regulatory Commission
Israel Science Foundation	National Science Foundation
Postal Regulatory Commission	U.S. Environmental Protection Agency
U.S. Department of Energy	University of California Energy Institute

Other Affiliations, Advisory Boards, and Professional Associations

Research Scholar, Blanche and Irwin Lerner Center for Pharmaceutical Management Studies, Rutgers Business School, 2004-present.

Federal Energy Regulatory Commission.

New Jersey Council of Academic Policy Advisors, charter member.

New York Mercantile Exchange.

Advisory Board, Casa Maria Alzheimer's Center, 2004.

Faculty, Center for Research in Regulated Industries, Graduate School of Management, Rutgers University, 1990-1999.

Associate Director, Center for Research in Regulated Industries, Graduate School of Management, Rutgers University, 1994-1998.

Project Manager, Electric Power Research Institute, Palo Alto, California. Integrated Energy Systems Division, Aug. 1992-Aug. 1994.

Department of Mineral Economics, Curtin University of Technology, Perth, Australia, 1992-1993.

International Association for Energy Economics, elected vice president, Rocky Mountain Chapter, 1992, elected to board, 1990 and 1991.

Mineral Economics and Management Society, elected to board, 1992.
American Economic Association

Association of Environmental and Resource Economists

Econometric Society

Economists for Peace and Security

European Association of Environmental and Resource Economists

Awards and Honors

Emerald Literati Network Award for Excellence 2011, Highly Commended Paper, “Hospital Length of Stay and Probability of Infection,” with M. Hassan, H.P. Tuckman, D.S. Kountz, and J.L. Kohn, *International Journal of Pharmaceutical and Healthcare Marketing* 4(4):324-338, 2010.

Royal Swedish Academy of Sciences, invited to nominate candidate(s) for the Sveriges Riksbank (Bank of Sweden) Prize in Economic Sciences in Memory of Alfred Nobel for 1996, 1997, 1998.

Who's Who in the World, Marquis Publications, 1997, 1998, 2000, 2001, 2003, 2005, 2006, 2008, 2009. 2010.

Who's Who in America, Marquis Publications, 1999, 2000, 2003, 2008, 2009. 2010.

1991 John M. Olin Distinguished Lectureship in Economics: Energy and Environmental Policy, Colorado School of Mines, Golden, CO.

Other Contributions to the advancement of the academic profession

American Economic Association survey on the *American Economic Review*, *Journal of Economic Literature*, and *Economic Perspectives*

Selected papers committee for *Association of Environmental and Resource Economists* AAEA sessions.

1992 International Workshop for Environmental Policy Modeling, Colorado School of Mines, Golden, CO.

Committee memberships and other activities

Finance and Economics Department Committees:

Ph.D. Program Executive Committee 2012-
Small Business Development Center department liaison, 2011-2012.
Departmental Elections Committee, 2011.
Finance and Economics Ph.D. Admissions Committee 1997-1999, 2011-
Reading Committee, Promotion and Tenure, 2002-2003, 2008, 2010
Ph.D. Qualifying Exam Committee, 1996-2008.
Faculty Salary Committee, 2005
Chair, Ph.D. Coordinating Committee, Fall 2003
Chair, Ph.D. Qualifying Exam Committee, Fall 2003
Seminar Series Director, Finance and Economics, Spring 2001.
MBA Microeconomics Curriculum Committee 1994-95
Undergraduate Finance Curriculum Committee 1994-95
Undergraduate Corporate Finance Curriculum Committee 1994-95

Rutgers Business School and other University Committees:

Newark Faculty Council, 2012
Newark Undergraduate Policy Committee, elected 2011-2013
Newark Undergraduate Scholastic Standing Committee, 2009-2011
Junior Faculty Teaching Award Committee, 2010, 2011
RBS Courses of Study, 2009-2010.
Faculty Grievance Committee, 2001-2002, 2004-2006.
Rutgers Business School Ph.D. Executive Committee, 2002-2006
Rutgers Business School Ph.D. Membership Committee, 2002-2004
Rutgers Business School Ph.D. Coordinating Committee, Fall 2003
University Committee on Ph.D. Faculty 1996-99
Faculty of Management MBA Scholastic Standing Committee 1996-98
Faculty of Management Bylaws Committee 1994-95
Numerous Ph.D. prelim and core exam committees
Chair or member of various hiring committees
Curriculum Committees (M.S. and Ph.D.)
Research Council (and subcommittee on external funding)
Library Advisory Committee

Teaching

Graduate Courses:

Advanced Econometrics* (Ph.D.)	Advanced Microeconomics (Ph.D.)
Applied Microeconomics (Ph.D.)	Econometrics* (Ph.D.)
Economics of Regulation (Ph.D.)	Empirical Finance* (Ph.D.)
Energy Economics (Ph.D.)	Mathematical Economics (Ph.D.)
Managerial Economic Analysis* (MBA)	Aggregate Economics* (MBA)
Economic Analysis and the Economics of Industrial Organization* (MBA)	

Undergraduate:

Financial Analysis, Planning, and Forecasting* [§]	Financial Econometrics*
Environmental Economics	Finance*
Principles of Microeconomics	Principles of Macroeconomics
Introduction to Economics	

* Rutgers Business School – Newark and New Brunswick, Finance and Economics Department courses.

[§] Approved course for applied statistical methods validation by educational experience (VEE), the Society of Actuaries, the Casualty Actuarial Society, and the Canadian Institute of Actuaries.

Graduate Students: Dissertation and Thesis Advising*/Reading

Jennifer Kohn, Ph.D., 2009*	Jason K. Hansen, Ph.D., 2009
Rohn Sanderson, Ph.D., 2009	Beixin Lin, Ph.D., 2004
Nina Dorata, Ph.D., 2003	Jo Ann Pinto, Ph.D., 1999

Michael Pagano, Ph.D., 1998	Lei Cao, Ph.D., 1997
Suzanne Norquist, Ph.D., 1993*	Lorna A. Greening, Ph.D., 1992*
James Knowles, M.S. 1988, Ph.D. 1992	Richard Hewitt, M.S. 1989, Ph.D., 1992
Bruce Lanning, M.S. 1989, Ph.D. 1992	William Jones, M.S., 1992
Philip Roan, M.S., 1992	Bruce Tunget, Ph.D., 1992
Janie M. Chermak, Ph.D., 1991*	James T. McDonnel, M.S., 1991*
Richard Martin, Ph.D., 1991	Michael Powers, Ph.D., 1991
Michael Pfenning, M.S. 1987, Ph.D. 1991	Theodore Montegue, M.S., 1991
George Brand, M.S., 1991	Luka Powanga, Ph.D. 1991
Calvin Mooreland, M.S., 1991	Janet Jones Peace, Ph.D. 1991
Robert E. Carr, M.S., 1990*	Rufus Akinwurni, M.S., 1990
Ahmed A. Zugail, Ph.D., 1990	Mamadou Barry, M.S., 1990
Carey Brady, M.S., 1990	Jerome P. Downey, Ph.D., 1990
Diana L. Moss, Ph.D., 1989*	Brian K. Johnson, M.S., 1988
Salim Alshanfari, M.S., 1989	D.N.S. Dhakal, Ph.D., 1989
Ellen Ewart, M.S., 1989	Kee Hyung Hwang, Ph.D., 1989
Shaine Tyson, Ph.D., 1989	Purnomo Yusgiantoro, Ph.D., 1989
Thomas Anderson, M.S., 1988	

References Furnished upon request.