

# SCOTT FARROW

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## EXPERIENCE

University of Maryland, Baltimore County, (2005- ): Professor and Chair, Department of Economics; Faculty Fellow, Center for Urban Environmental Research and Education.

- Administer a Department of 15 regular faculty for a program with 500 undergraduate majors, offering a B.A. in Economics, a B.S. in Financial Economics, an M.A. in Economic Policy Analysis, and an economics track in a Ph.D. in Public Policy.
- Conduct research on risk based economic approaches to governmental program evaluation including decision-making under uncertainty.
- Teach econometrics and applied micro-economic courses.

U.S. GAO (Government Accountability Office), (2002-2005): Chief Economist

- Provide advice and assistance to the Comptroller General, Managing Directors, and Directors of the subject area teams,
- Review and resolve economic questions across all topic areas,
- Lead agency development with respect to risk management and economic performance,
- Develop the intellectual capital of the 80 Ph.D. economists in the agency,
- Represent GAO to the economics community.

Carnegie Mellon University, Department of Engineering and Public Policy and the H. John Heinz III School of Public Policy and Management, Director and Principal Research Economist, Center for the Study and Improvement of Regulation, 1998-2002 (on leave 2002-2004); Assistant, Associate Professor, 1982-1994.

- First director of a multi-disciplinary and bi-university center (Carnegie Mellon and the University of Washington) focused on the study of environmental, health and safety regulation. Duties involved research, fund-raising, and research management.
- Conduct quantitative research on environmental and natural resource policy issues from an economics perspective.
- Teach graduate and undergraduate classes in environmental economics and policy, econometrics, microeconomics, benefit-cost analysis, and technological change.

Dames & Moore, Inc. (1994 -98): Firm associate, and Senior Economist. Developed new environmental economic practice as part of 5,000 person firm w/125 offices.

- Services: Prepare and critique benefit-cost and impact analyses; advise foreign Ministries of the Environment on the use of economic instruments; advise states on the use of benefit-cost analysis; litigation support or expert witness on natural resource damage and cost allocation; cost distributions of potential environmental liability; review proposed environmental regulations.
- Locations: California, New Jersey, Pennsylvania, Ohio, Massachusetts, Maine, Czech Republic, Slovakia, Kazakhstan, Latvia, Chile, Chad, Cameroon.

## **EXPERIENCE: continued**

Executive Office of the President of the United States (1990-1992): Assoc. Director for Pollution Control and Prevention and Ranking Senior Economist, Council on Environmental Quality.

- Lead person for CEQ's review of EPA and Department of Energy initiatives.
- Senior policy advisor to the President's Commission on Environmental Quality.
- Authored studies on Clean Water Act and annual report
- Represented CEQ on inter-agency activities such as the Federal Council on Recycling and Procurement, and the interagency development of the National Energy Strategy.

## **Visiting or Fellowship Positions**

The Pennsylvania State University (1997-98), Department of Energy, Environmental and Mineral Economics, Visiting Associate Professor.

- Taught graduate and undergraduate natural resource & environmental economics.
- Conduct research on the option value of real assets and regulatory improvement.

Woods Hole Oceanographic Institution, Marine Policy Center, Marine Policy Fellow, 1989; Senior Fellow, 1998; Guest Investigator, 1990-1997, 1999-2001, 2005-.

- Conducted research on offshore oil and gas leasing, decision-making under uncertainty, and observed bureaucratic behavior.

Minerals Management Service, U.S. Department of the Interior (1985-1986), Economist, (inter-personnel agreement with Carnegie Mellon University).

- Evaluated policy options for the federal management of offshore oil and gas resources.
- Utilized system-wide data bases to respond to Congressional and General Accounting Office inquiries.

Executive Office of the President of the United States, Office of Policy, Planning and Evaluation, Council on Wage and Price Stability (1979): Economist.

- Responsible for macroeconomic modeling to support program evaluation.
- Analyzed agency data for program compliance.

## **EDUCATION**

Washington State University, Ph.D. (Economics), 1983; M.A. (Economics: Industrial Organization and Environmental Economics), 1981.

Whitman College, 1974, B.A., Honors in Economics, *cum laude*.

## **PUBLICATIONS**

### **Books and software**

Fischbeck, P. and S. Farrow, eds., Improving Regulation: Cases in Environment, Health and Safety, Resources for the Future Press, Washington, D.C. 2001.

Farrow, S., R. Ponce, E. Wong, et al., FERET: The Fast Environmental Regulatory Evaluation Tool, Version 1.0, June, 2001 (CD included in distribution of Improving Regulation and available along with supporting documentation on the web at: <http://depts.washington.edu/feret>).

Farrow, S. with J. Broadus, T. Grigalunas, P. Hoagland III and J. Opaluch, Managing the Outer Continental Shelf Lands: Oceans of Controversy, Taylor and Francis, New York, 1990.

### **ARTICLES AND MAJOR CHAPTERS**

Farrow, S., "The Economics of Homeland Security Expenditures: Foundational Expected Cost-Effectiveness Approaches," forthcoming, Contemporary Economic Policy, January, 2007.

Bray, C., S. Farrow and T. Guinane, "Microeconomic Performance: Uses, Gaps, and Opportunities in Government Program Evaluation," forthcoming, special volume based conference at the University of Washington.

Farrow, S., M. Schultz, P. Cellikol, and G. VanHoutven, "'Pollution Trading in Water Quality Limited Areas: Use of Benefits Assessment and Cost-Effective Trading Ratios," Land Economics, 81(2) May, 2005.

Brown, M., G. Morgan, and S. Farrow, "Expert Assessment of the Performance of the U.S. System for Environmental Regulation," Journal of Risk Research, 7(5):507-521, July, 2004.

Farrow, S., "Merging Risk Assessment, Benefit-Cost Analysis, and Real Options: A Quantitative Approach to the Precautionary Principle," Risk Analysis, 24(3):729-737, 2004.

Schultz, M., M. Small, S. Farrow, and P. Fischbeck, "State Water Pollution Control Policy Insights from a Reduced Form Model," Journal of Water Resources Planning and Management, 130(2):150-159, March/April 2004.

Wong, E., J. Gohlke, W. Griffith, S. Farrow, and E. Faustman, "Assessing the Health Benefits of Air Pollution Reduction for Children," Environmental Health Perspectives, 112 (2):226-232, February, 2004.

Wong, E., R. Ponce, et al., "Comparative Risk and Policy Analysis in Environmental Health," Risk Analysis, 23(6):1337-1349, December, 2003.

## ARTICLES AND MAJOR CHAPTERS: continued

Morel, B., S. Farrow., F. Wu, and E. Casman, "Pesticide Resistance, The Precautionary Principle, and the Regulation of Bt Corn: Real and Rational Option Approaches to Decision-Making " Chapter 8 in The Economics of Resistance, ed. R. Laxminaryan, Resources for the Future Press, pp. 184-213, 2002.

Dekay, M., et al., "Risk-Based Decision Analysis in Support of Precautionary Policies," Journal of Risk Research, 5(4):391-417, 2002.

Farrow, S. and H. Hayakawa, " Investing in Safety: An Analytical Precautionary Principle," Journal of Safety Research, 33(August):165-174, 2002.

Farrow, S., and B. Morel, "Continuation Rights, Options, and the Precautionary Principle," Risk, Decision, and Policy, 6:145-155, 2001.

Farrow, S., R. Ponce, E. Wong, et. al. "Facilitating Regulatory Design and Stakeholder Participation: The FERET Template with an Application to the Clean Air Act" in Improving Regulation: Cases in Environment, Health and Safety, S. Farrow and P. Fischbeck, eds., Resources for the Future Press, Washington, D.C. 2001.

Farrow, S., "The Duality of Taxes and Tradable Permits: A Survey with Applications to Central and Eastern Europe," Environment and Development Economics, 4(Oct):519-535, 1999.

Farrow, S. and M. Toman, "Using Environmental Benefit-Cost Analysis to Improve Government Performance," Environment 41(2):12-15,33-37 (March) 1999.

Farrow, S., "Environmental Equity and Sustainability: Rejecting the Kaldor-Hicks Criteria," Ecological Economics, 27(2):183-188, 1998.

Vincent, J. and S. Farrow, "Implementation Practice and Policy Design," in Environmental Policies and Economics in Transition Economies, ed. R. Bluffstone and B. Larson, Edward Elgar, England, 1997.

Kite-Powell, H., DiJin and S. Farrow, "Expected Safety Benefits of Electronic Charts and Integrated Navigation Systems," J. of Transport. Economics and Policy, May, 1997, p. 147-162.

Hoagland, P. and S. Farrow, "Planning vs. Reality: Political and Scientific Determinants of Outer Continental Shelf Lease Sales," in The Political Economy of Environmental Policy, ed. R. Congleton, University of Michigan Press, 1996.

Farrow, S., "Marine Protected Areas: Emerging Economics," Marine Policy, 20(6):439-446, 1996.

Farrow, S., "The Dual Political Economy of Taxes and Tradable Permits," Economics Letters, August, 1995.

## **ARTICLES AND MAJOR CHAPTERS : continued**

Farrow, S., "Extinction and Market Forces: Two Case Studies," Ecological Economics, 13:115-123, June, 1995.

Lyon, R. and S. Farrow, "An Economic Analysis of Clean Water Act Issues," Water Resources Research, 31(1):213-223, January, 1995.

Farrow, S. and S. Joshi, "All Countries are Developing Countries," Pacific and Asian Journal of Energy, June, 1993, 3:1(33-41).

Anastasion, S., S. Farrow, et. al., "Oil Pollution Act of 1990: Offshore Oil Spills, The Tanker Business, and Regulation of Pollution Control," Marine Tech. Society Journal, 27(1):68-75, 1993.

Farrow, S. and M. Rose, "Public Information Externalities: Estimates from Offshore Energy Exploration," Marine Resource Economics, 7:2 (Summer, 1992), pp. 67-82.

Farrow, S., "Economics," in The President's 22nd Annual Report on Environmental Quality, Council on Environmental Quality, April, 1992.

Farrow, S., L. Campbell, A. Carlan and G. Kamens, "Economics" in The United States of American National Report: United Nations Conference on Environment and Development, The Council on Environmental Quality, March, 1992, p. 90-118.

Farrow, S. and J. Krautkraemer, "Economic Indicators of Resource Scarcity: Comment," Journal of Environmental Economics and Management, September, 1991. p. 190-194.

Farrow, S., "Making the Environment Count," in The President's 21st Annual Report on Environmental Quality, The Council on Environmental Quality, April, 1991; see also, "Making the Environment Count," Hearings of the Joint Economic Committee of the Congress of the United States, S. Hrg. 102-412, September 16 and October 9, 1991, U.S. GPO, Washington, D.C.

Farrow, S., "Does Analysis Matter? Economics and Planning in the Department of the Interior," The Review of Economics and Statistics, February, 1991. p. 172-176.

Farrow, S. and J. Krautkraemer, "Extraction at the Intensive Margin: Metal Supply and Grade Selection Response to Anticipated and Unanticipated Price Changes," Resources and Energy, March, 1989. p. 1-21.

Farrow, S., "Does Areawide Offshore Leasing Decrease Bonus Revenues?," Resources Policy, December, 1987. p. 28-36.

Raj, G. and S. Farrow, "Titanium Recycling," Journal of the Washington Academy of Sciences, December, 1987. p. 126-129.

## **ARTICLES AND MAJOR CHAPTERS : continued**

Farrow, S., "Lease Delay Rights: Market Valued Permits and Offshore Leasing," Resources Policy, June, 1987. p. 113-122.

Farrow, S., "Flexible Manufacturing: Market Structure and Market Failure," Journal of Policy Analysis and Management, Summer 1985. p. 583-587.

Farrow, S., "Testing the Efficiency of Extraction from a Stock Resource," Journal of Political Economy, June, 1985. p. 452-487.

## **PROCEEDINGS, ENCLYCLOPEDIA ENTRIES, GENERAL INTEREST, REVIEWS, OP-ED PUBLICATIONS, AND CONSULTING REPORTS**

US Government Accountability Office (GAO): contributor to numerous studies including those related to: 1) homeland security and risk management, 2) impacts of mergers in the oil industry, 3) gender differences in wages, 4) economic performance, 5) benefit-cost analysis for transportation investments.

Farrow, S. and U. R. Sumaila, "The "New" Emerging Economics of Marine Protected Areas," Fish and Fisheries, 2002, (3): 356-359.

M. Small, S. Farrow, and C. Goldberg, "Economic Valuation of the Environment: A Special Issue," Environmental Science and Technology, April 15, 2000, p. 1381-1383.

Farrow, S., "The Economics of Public Health," in McMillan Encyclopedia of Public Health, ed. Lester Breslow, Macmillan Reference, Chicago, Ill. 2001.

Hoagland, P., U.R. Sumaila and S. Farrow. 2001. "Marine Protected Areas." In J.H. Steele, S.A. Thorpe and K.K. Turekian, eds., Encyclopedia of Ocean Sciences. London: Academic Press, pp. 1654-1659, 2001.

Farrow, S. "Review: *Encountering the Past in Nature: Essays in Environmental History* edited by T. Myllyntaus and M. Saikku," Journal of Economic History, 2001.

Farrow, S., R. Ponce, E. Wong, et. al., "FERETing out the Costs and Health Impact of a Regulation," Chemistry Business, 29(2):35, 2001.

Farrow, S., "Trade and the Environment," in The U.S. Trade Deficit: Causes, Consequences, and Recommendations for Action, supplemental CD of documents and testimony, U.S. Trade Deficit Review Commission, November, 14, 2000.

Farrow, S., "How Little We Know About Regulation," Environmental Forum, 16(4):47, July/August, 1999.

**PROCEEDINGS AND OTHER REPORTS:** continued

Farrow, S., "Review: The Impact of Carbon Taxes on Energy Exporting Countries," The Energy Journal, p. 154-155, February, 1999.

Strellec, K. with S. Farrow, "Property Values and Public Revenues: Impacts of High Extraction Mining in Southwestern Pennsylvania," Dames & Moore, for the Audubon Society of W. PA. 1998.

Farrow, S., "Socioeconomics of Further Development" in the California Offshore Oil and Gas Energy Resources, (The COOGER Report); Dames & Moore for the U.S. Minerals Management Service, DRAFT: 1998 (not included in final report).

Farrow, S. and S. Menkhaus, "Economic Analysis of the Chad Export Project: Chad Portion," Dames & Moore, prepared for the Chad Export Consortium, 1998.

Farrow, S. and S. Menkhaus, "Economic Analysis of the Chad Export Project: Cameroon Portion," Dames & Moore, prepared for the Chad Export Consortium, 1998.

Farrow, S., "The Potential Contribution of Economics to Offshore Lease Abandonment," in Proceedings: Offshore lease Abandonment and Platform Disposal Conference," ed. A. Pulsipher, Louisiana State University Center for Energy Studies, Baton Rouge, 1997.

Farrow, S., "Adapting Tradable Permits to Existing Conditions in Transition Economies: Evidence from Central Europe and Asia," in Environmental Policy for Economies in Transition: Lessons Learned and Future Directions, Proceedings of the Resource Policy Consortium Symposium, ed. M. Livingston, Washington, 1996.

Farrow, S. and D. Larson, "The Trailhead of "Faint" Behavioral Trails: Television News Viewing and the Exxon Valdez," Association of Environmental and Resource Economists, Newsletter, Spring, 1995.

Farrow, S., "Comparing Economic and Administrative Instruments: The U.S. Experience," in Proceedings of the Workshop on Economic Instruments for Sustainable Development, Pruhonice, Czech Republic; Ministry of the Environment of the Czech Republic, February, 1995 (also available from the Harvard Institute for International Development, Cambridge, MA.)

Farrow, S., "The Czech Republic: Potential Cost Savings from Using Economic Instruments," prepared for the Harvard Institute of International Development and the Ministry of the Environment of the Czech Republic, March, 1995.

Margolis, J., G. Trivedi and S. Farrow, "The Feasibility of A Bubble System with Inter-Firm Trading in Almaty, Kazakhstan," prepared for the Harvard Institute of International Development and the Almaty City Department of Ecology, July, 1995.

**PROCEEDINGS AND OTHER REPORTS:** continued

Farrow, S. "Economics Based Air Pollution Strategy Options for Northern Bohemia," prepared for the Harvard Institute of International Development and the Ministry of the Environment of the Czech Republic, (also available in Czech), January, 1995.

Kite-Powell, Hauke, Di Jin, Scott Farrow and Peter Sassone, "Quantitative Estimation of Benefits and Costs of a Proposed Coastal Forecast System," prepared for the National Oceanic and Atmospheric Administration, National Ocean Service, 1994.

Farrow, S. "Cost Allocations for a Titanium Tetrachloride Plant in Ashtabula, Ohio," prepared for Thompson, Hine and Flory, 1994.

Farrow, S. (Rapporteur), "Renewable and Nonrenewable Resources Workshop," Trade and Sustainable Development, The Rene Dubos Center for Human Environments, New York, 1993.

Farrow, S., "The Existing Basis and Potential for Damage Fees and Tradable Allowances," in Clean Water and the American Economy Proceedings, October 19-21, EPA Office of Water, EPA 800-R-93-001a, March 1993, p. 7-10 to 7-18.

Farrow, S., "The Cost of Hazardous Waste Regulation: Comment," in The Costs of Environmental Regulation, The American Council on Capital Formation, 1992, p. 24-28.

Farrow, S., "The Economics of Oil and Gas from the Ocean," in Proceedings of the National Symposium on Marine Conservation, The Smithsonian Museum, May, 1992.

Farrow, S., "Oil and Gas Development in the Bering Sea," in Proceedings of the Conference on Shared Living Resources of the Bering Sea Region, CEQ, 1991, p. 207-210.

Farrow, S., "Financial Accounting for the Minerals Management Service," Proceedings: Eleventh Annual Gulf of Mexico Information Transfer Meeting, OCS Study 21-0040 (November) 1990 p 9-14.

Abadines, E., et. al., Catastrophic Oil Spills on the Great Lakes, Department of Engineering and Public Policy Project Report, Carnegie Mellon University, reprinted by the Great Lakes International Joint Commission, 1991. pp. 143.

Flack, K., et. al., "Catastrophic Oil Spills on the Great Lakes," Proceedings of the RCRA/Superfund Conference, 1990, p. 416-418.

Farrow, S., "Modeling the Importance of Oceans and Estuaries," Oceans89, I:130-132.

Farrow, S., "Financial Accounting for the OCS Leasing Program," Oceans89, II:500-504.

Farrow, S., "Dolphin-free Tuna," The New York Times, May 22, 1989.

Farrow, S., "Offshore Auctions, Greenpeace, and Lease Delay Rights," Environ., Dec., 1986 (4).

## **PROFESSIONAL ACTIVITIES**

### **Grants**

A. W. Mellon Foundation 1998 (Co-PI).  
ExxonMobil Corporation 1998-2000 (Co-PI).  
Ford Motor Co. 1998-2000 (Co-PI).  
EPA/NSF Water and Watershed 1999-2002 (Co-PI).  
Anonymous Pittsburgh Foundation 1998-2001 (PI).  
American Chemistry Council 1998-2001  
Carnegie Mellon Seed Fund, 2000  
The Heinz Family Foundation, 1992  
The Charles A. Lindbergh Fund (P.I.), 1985  
Resources for the Future, 1982 (Research Associate; Jeff Krautkraemer, P.I.)  
Faculty research grants, various years.

### **Fellowships**

Senior Research Fellow, The Woods Hole Oceanographic Institution, 1998.  
Marine Policy /Ocean Management Fellowship, Woods Hole Oceanographic Institution, 1988.  
Law Institute for Economists, George Mason University, 1987.

### **Conferences Organized**

"Implementing Emissions Trading," a conference co-hosted by the Pennsylvania Public Utility Commission and the Heinz School of Public Policy. Endorsed by the National Association of Regulatory Utility Commissioners, December 8-9, 1993, Pittsburgh, Pennsylvania.

"Economic Performance Measures," a workshop hosted by the US Governmental Accountability Office, December 17, 2004, Washington, D.C. See US GAO, "Economic Performance: Highlights of a Workshop on Economic Performance Measures," GAO-05-796SP, July, 2005.

### **Editing/Journal activities**

Coordinator, special edition on economics at the U.S. Government Accountability Office, Contemporary Economic Policy, forthcoming, January, 2007.

Associate-editor, Environment Section, Historical Statistics of the United States, Millenium Edition, forthcoming, Cambridge University Press, 2005.

Guest Associate Editor, Environmental Valuation Special issue of Environmental Science and Technology, April 15, 2000

Editorial Council, Journal of Environmental Economics and Management, 1988-1990.

Reviewer, among others, for: Journal of Environmental Economics and Management, Review of Economics and Statistics, Energy Journal, Natural Resources and Energy, Environmental Science and Technology, Risk Analysis, Southern Economic Journal.

## **Recent Ph.D. Committees**

### Carnegie Mellon University

David Stickers, 2004. "Risk Regulation of Transportation Fuels: An Analysis of Stakeholder Behavior and Regulatory Outcomes."

Martin Schultz, 2002. "Performance Assessment in Water Quality Regulation."

Felicia Wu, 2002. "Tools for Regulatory Decisions Concerning Genetically Modified Corn."

### University of Melbourne (International Reader)

Nicholas Linacre, 2002. "Stochastic Dynamics of Insect Resistance in Bt-Corn."

## **Professional and Honorary Societies**

American Economic Association

Association of Environmental and Resource Economists

Environmental Executives, 1992

Phi Kappa Phi National Honor Society

Who's Who in America, 1998-

Who's Who in the East-multiple editions

Who's Who in the World, multiple editions

Periodically:

Society for Risk Analysis (Chair, Specialty Group on Economics, 2002-2003;  
Program committee, 2003)

Association for Public Policy Analysis and Management

## **Selected Presentations (often multiple years at Association conferences)**

Allied Social Science Association

American Association for the Advancement  
of Science

American Bar Association-Anti-trust Section  
American University

Association of Public Policy and  
Management

Columbia University

Duke University

Resources for the Future

Society for Toxicology

University of California at Berkeley

University of Kentucky

University of Southern California

University of Wyoming

Woods Hole Oceanographic Institution

Yale University

Association of Environmental and Resource  
Economists workshops

Czech Republic, Parliament of the Czech  
Republic (Environ. Comm),Czech Academy  
of Science

Environmental Economics Workshop, Almaty,  
Kazakhstan

Government Buy Recycled Products Trade Fair

Ministry of the Environment of the Czech  
Republic

National Bureau of Economic Research summer  
institute/environment

Ohio Environmental Conference

Organization for Economic Cooperation and  
Development

Society for Risk Analysis

Southwest Intergovernmental Audit Forum

World Congress-Environmental Economists

## **Awards**

Center for the Study and Improvement of Regulation (S. Farrow, Director), *3 Rivers Environmental Awards Finalist, Higher Education*

*Finalist, Best Paper Competition, Society for Risk Analysis (2002) for “Merging Risk Assessment, Benefit-Cost Analysis, and Real Options: A Quantitative Approach to the Precautionary Principle.”*

## **National, State and Local Committees and Activities**

National Science Foundation: review panel for Human and Social Dynamics (2006)

Society for Risk Analysis

Chair, Economics and Risk specialty group (2002/2003)

Paper selection committee (2003)

Whitman College, Visiting Educator, (1999).

U.S. EPA Effluent Guidelines Task Force, National Advisory Council for Environmental Policy and Technology (1994-1997)

Miami Valley Business Economists, Trustee, (1994-1996)

U.S. Department of State, Man and the Biosphere Program, Marine and Coastal Ecosystems Directorate (1990-1995)

Three Rivers Environmental Awards, academic advisor, Pittsburgh, Pennsylvania, 1994.

U.S. Department of the Interior, Science committee (chair, socioeconomics sub-committee) of the Outer Continental Shelf Advisory Board, (1990-1993.)

Advisory Group to the Lt. Governor of Pennsylvania, Future Industries/Green Industries (1993)

Pittsburgh United Way review committee for the elderly and disadvantaged, 1988-1989.