

CAROLYN FISCHER

Resources for the Future
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Education:

University of Michigan, Ann Arbor, MI. 1991-97. Ph.D. in Economics with fields in public finance and natural resource economics. M.A. in Economics, 1993.

University of Pennsylvania, Philadelphia, PA. 1986-90. B.A. in International Relations with honors (major Valedictorian) and Economics, minor in French, magna cum laude.

Université de Strasbourg, Institut d'Études Politiques, Strasbourg, France. 1988-89. Certificat de relations internationales. (Study abroad program with Hood College, Frederick, MD).

Professional Experience:

Resources For the Future, Washington, DC. 1997-present. Senior Fellow. Indefinite appointment (tenure), 2004.

Johns Hopkins University, 1999. Instructor, Natural Resource and Environmental Economics.

Council of Economic Advisors, Washington, DC. 1994-95. Staff economist for public finance and environment.

University of Michigan Department of Economics, 1992-96. Research Assistant for Paul Courant, 1993-96; Richard Porter, 1993; Joel Slemrod, Director, Office of Tax Policy Research, 1992. Teaching Assistant 1991-1993; Head Teaching Assistant 1992.

USDA, Economic Research Service, Resources and Technology Division, Washington, D.C. Summer 1992. Intern in Land, Capital Assets, and Global Change Branch.

The WEFA Group, Philadelphia, PA. 1990-91. Economic analyst in World Service division of econometric forecasting firm.

Awards and Fellowships:

Fellow, Center for Advanced Study at the Norwegian Academy of Science and Letters, with the group "Environmental Economics: Policy Instruments, Technology Development, and International Cooperation," 2005.

Alexander von Humboldt Foundation, German Chancellor Scholarship, 2003 (declined).

Joseph L. Fisher Dissertation Award, Resources for the Future, 1996-97.

Rackham Pre-Doctoral Fellowship, University of Michigan, 1995-96.

Summer Institute in Behavioral Economics, University of California at Berkeley, sponsored by the Russell Sage Foundation, Summer, 1996.

Third-Year Paper Prize, University of Michigan Department of Economics, 1994.

Deutscher Akademischer Austausch Dienst (German Academic Exchange Service) scholarship, Universität Regensburg, Germany, Summer, 1992.

International Relations Senior Class Valedictorian, University of Pennsylvania, 1990.

Benjamin Franklin Scholar, University of Pennsylvania, 1986-90.

Journal Articles:

- Fischer, Carolyn and Richard Newell (2008) "Environmental and Technology Policies for Climate Mitigation," *Journal of Environmental Economics and Management*. 55 (2): 142-162.
- Fischer, Carolyn (accepted) "Comparing Flexibility Mechanisms for Fuel Economy Standards" *Energy Policy*.
- Fischer, Carolyn (2008) "Emissions Pricing, Spillovers, and Public Investment in Environmentally Friendly Technologies," *Energy Economics*. 30 (2): 487-502.
- de Coninck, Heleen, Carolyn Fischer, Richard G. Newell, and Takahiro Ueno Fischer, C. (2008) "International Technology-Oriented Agreements to Address Climate Change" *Energy Policy*. 36 (1): 335-356.
- Fischer, Carolyn and Alan K. Fox (2007) "Output-Based Allocation of Emissions Permits for Mitigating Tax and Trade Interactions," *Land Economics*. 83: 575-599.
- Fischer, Carolyn, Winston Harrington, and Ian Parry (2007) "Do Market Failures Justify Tightening Corporate Average Fuel Economy (CAFE) Standards?" *The Energy Journal* 28 (4): 1-30.
- Bernard, A.L., C. Fischer, and A.K. Fox (2007) "Is There a Rationale for Output-Based Rebating of Environmental Levies?" *Resource & Energy Economics* 29 (2): 83-101.
- Fischer, Carolyn (2006) "Multinational Taxation and International Emissions Trading," *Resource & Energy Economics* 28 (2): 139-159.
- Fischer, Carolyn and Richard D. Morgenstern (2006) "Carbon Abatement Costs: Why the Wide Range of Estimates?" *Energy Journal* 27(2): 73-86.
- Fischer, Carolyn and Ramanan Laxaminarayan (2005) "Sequential Development and Exploitation of an Exhaustible Resource: Do Monopoly Rights Promote Conservation?" *Journal of Environmental Economics and Management*. 49 (3): 500-515.
- Fischer, Carolyn (2005) "Project-based mechanisms for emissions reductions: balancing trade-offs with baselines," *Energy Policy*, 33 (14): 1807-1823.
- Fischer, Carolyn (2005) "On the Importance of the Supply Side in Demand-Side Management," *Energy Economics*, 27 (1): 165-180.
- Fischer, Carolyn (2005) "Competition in Markets for Depletable Resources with Setup Costs." *Environmental and Resource Economics*, 30 (3): 243 - 257.
- Margolis, Michael, Jason F. Shogren and Carolyn Fischer (2005) "How trade politics affect invasive species control," *Ecological Economics*, 52 (3): 305-313.
- Fischer, Carolyn (2004) "The Complex Interactions of Markets for Endangered Species Products," *Journal of Environmental Economics and Management*, 48 (2): 926-953.
- Fischer, Carolyn, Michael A. Toman and Cees Withagen (2004) "Optimal Investment in Clean Production Capacity," *Environmental and Resource Economics*, 28 (3): 325-345.
- Fischer, Carolyn and Ramanan Laxaminarayan (2004) "Monopoly Extraction of an Exhaustible Resource with Two Markets," *Canadian Journal of Economics*, 37 (1): 178-188.

- Fischer, Carolyn (2003) "Combining Rate-Based and Cap-and-Trade Emissions Policies," *Climate Policy* 3S2: S89-S109.
- Fischer, Carolyn, Ian W. H. Parry and William A Pizer (2003) "Instrument Choice for Environmental Protection when Technological Innovation is Endogenous," *Journal of Environmental Economics and Management* 45(3): 523-545.
- Parry, I. W. H., W. A. Pizer and C. Fischer (2003) "How Large Are the Welfare Gains from Technological Innovation Induced by Environmental Policies?" *Journal of Regulatory Economics* 23(3): 237-255.
- Fischer, Carolyn (2003) "Climate Change Policy Choices and Technical Innovation," *Minerals and Energy*, 1:7-15.
- Fischer, Carolyn (2001) "Read This Paper Later: Procrastination with Time-Consistent Preferences." *Journal of Economic Behavior and Organization*, (46)3 pp. 249-269.
- Fischer, Carolyn, Suzi Kerr and Michael A. Toman (1998) "Using Emissions Trading to Regulate U.S. Greenhouse Gas Emissions: An Overview of Policy Design and Implementation Issues," *National Tax Journal* v51, n3 (September 1998): 453-64.

Under Review:

- Fischer, Carolyn and Thomas Sterner (2007) Climate Policy, Prudence, and the Role of Technological Innovation. (under review at *Environmental and Resource Economics*)
- Fischer, Carolyn (2006) "When Do Renewable Portfolio Standards Lower Electricity Prices?" RFF Discussion Paper 06-20. (revise/resubmit at *The Energy Journal*)
- Fischer, Carolyn and Ramanan Laxminarayan (2005) "Managing partially protected resources under uncertainty: an application to antibiotic resistance" (under review at *JEEM*)
- Fischer, Carolyn, Edwin Muchapondwa and Thomas Sterner (2005) "A Bioeconomic Model of Community Incentives for Wildlife Management Before and After CAMPFIRE." RFF Discussion Paper 05-06. (under review at *American Journal of Agricultural Economics*)
- Fischer, Carolyn (2003) "Market Power and Output-Based Refunding of Environmental Policy Revenues," RFF Discussion Paper 03-27. (revise/resubmit to *Journal of Regulatory Economics*.)
- Fischer, Carolyn (2001) "Read This Paper Even Later: Procrastination with Time-Inconsistent Preferences." RFF Discussion Paper 99-20. (revise/resubmit at *Journal of Economic Behavior and Organization*)

Other Discussion and Working Papers:

- Fischer, Carolyn and Alan K. Fox (2008) "Comparing Policies to Combat Emissions Leakage: Border Tax Adjustments versus Rebates"
- Fischer, Carolyn and Thomas P. Lyon (2008) "Competing Environmental Labels"
- Sanchirico, James N., Heidi J. Albers, Carolyn Fischer, and Paul Doescher (2007) "Spatial Management of Invasive Alien Species: An Application to Cheatgrass Management in the Great Basin"

Fischer, Carolyn, Richard Morgenstern, and Evan Herrstadt (2007) Understanding Bias in EIA Forecasts of Energy Demand.

Fischer, Carolyn and Alan K. Fox (2007) “When Revenue Recycling Isn’t Enough: Permit Allocation Strategies to Minimize Intra- and International Emissions Leakage”

Fischer, Carolyn and Michael Springborn (2007) “Emissions Targets and the Real Business Cycle”

Fischer, Carolyn (2001) “Rebating Environmental Policy Revenues: Output-Based Allocations and Tradable Performance Standards,” RFF Discussion Paper 01-22.

Book Chapters and Reports:

Fischer, Carolyn and Christian Egenhofer. (forthcoming). “The Critical Role of Technology for International Climate Change Policy,” in *Beyond Bali: Strategic Issues for the international climate change negotiations*, Brussels, Belgium: CEPS; and Washington, DC: Brookings Institution.

Fischer, Carolyn (2007) “International Experience with Benefit-Sharing Instruments for Extractive Resources,” RFF Report, May 2007.

Fischer, Carolyn (2005) “Review of International Experience with Benefit Sharing Instruments,” Report for The World Bank Group, Southeast Asia Division.

McGuire, Greg et al. (2005) “Development of options for a vehicle feebate in Canada,” Prepared for National Round Table on the Environment and the Economy. Ottawa, Ontario, Canada: Marbek Resource Consultants in association with Resources for the Future and Desrosiers Automotive Consultants

Fischer, Carolyn (2005) “Technical innovation and design choices for emissions trading and other climate policies,” in Bernd Hansjuergens, Ed., *Emissions Trading for Climate Policy: US and European Perspectives*, Cambridge University Press, UK.

Fischer, Carolyn (forthcoming) “Why the Supply Side Matters,” Proceedings of the 2005 International Energy Program Evaluation Conference.

Sawyer, David and Carolyn Fischer (2005) “Assessment of Distribution Systems in a NO_x and SO₂ Cross-border Cap-and-Trade Emissions-Trading Program,” Report to Environment Canada. Ottawa: Marbek Associates.

Fischer, Carolyn, Ian Parry, Francisco Aguilar, and Puja Jawahar (2005) “Corporate Codes of Conduct: Is Common Environmental Content Feasible?” Report for the Foreign Investment Advisory Service of the World Bank Group. RFF Discussion Paper 05-09.

Fischer, Carolyn, Francisco Aguilar, Puja Jawahar, and Roger Sedjo (2005) “Forest Certification: Toward Common Standards?” Report for the Foreign Investment Advisory Service of the World Bank Group. RFF Discussion Paper 05-10.

Fischer, Carolyn, Francisco Aguilar, Puja Jawahar, and Roger Sedjo (2005) Forest certification: is a common environmental code of conduct feasible? In *Forestry: Economics and Environment*. Proceedings of the 35th annual Southern Forest Economics Workshop. Sun Joseph Chang/ Mike A. Dunn Eds. Baton Rouge, Louisiana. April 18-20, 2005.

- Fischer, Carolyn (2004) “CAFE Standards and Changes in Fleet Composition,” Chapter 2 in C. Fischer, I. Parry, and W. Harrington, “Economic Impacts of Tightening the Corporate Average Fuel Economy (CAFE) Standards,” Report prepared for Environmental Protection Agency and National Highway Traffic Safety Administration.
- Sawyer, D., C. Fischer, and R. Newell (2004) “Case Study on Renewable Grid-Power Electricity Baseline Study and Economic Report,” Final Report to National Round Table on Environment and Economy. Ottawa: Marbek Resource Consultants.
- Fischer, Carolyn, Sandra Hoffmann, and Yutaka Yoshino (2004) “Multilateral Trade Agreements and Market-Based Environmental Policies,” in Janet Milne, Kurt Deketelaere, Larry Kreiser, Hope Ashiabor, Ed., *Critical Issues in Environmental Taxation: International and Comparative Perspectives*, vol 1. Richmond, UK: Richmond Law and Tax Ltd.) pp. 363-384.
- Fischer, Carolyn (2003) “Economic Issues Related to Design of a Domestic Permit Trading System,” in Chang, Chi-Cheng, Robert Mendelsohn and Daigee Shaw, eds., *Global Warming and the Asian Pacific*. Edward Elgar Ltd.
- Fischer, Carolyn (2002) “Commentary: Does the Monopolist Care about Resistance?” in *Battling Resistance to Antibiotics and Pesticides: An Economic Approach*, Ramanan Laxminarayan, ed. Washington, DC: RFF Press.
- Fischer, Carolyn (2002) “International Emissions Trading Design and Tax Shifting by Multinational Corporations,” in Lawrence Kreiser, Ed., *Critical Issues in International Environmental Taxation*. Chicago: CCH Inc. pp. 481-502.
- Fischer, C., A. Krupnick, R. Morgenstern, K. Rolfe, B. Rufo and J. Logarta (2002) “Air Pollution Control Policy Options for Metro Manila,” ADB Report. Manila, Philippines: Asian Development Bank. (Also RFF Discussion Paper 03-30.)
- Buist, H., Fischer, C., Michos, J., and Tegene, A. (1995) “Purchase of Development Rights Programs and the Economics of Easements.” USDA Agricultural Economic Report Number 718.

Policy Briefs:

- Fischer, Carolyn Fischer, Craig Hanson, and William A. Pizer (2007). “Carbon Taxes and Cap-and-Trade Programs: Not Necessarily ‘Either/Or’” Washington, DC: WRI.
- Fischer, Carolyn and Christian Egenhofer. 2007. “The Critical Role of Technology for International Climate Change Policy,” Background Paper for High-Level Colloquium, “Climate change: key actions for the crucial years ahead,” European Climate Platform (ECP), an Initiative by Mistra’s Climate Policy Research Programme (Clipore) and the Centre for European Policy Studies (CEPS). Brussels, Belgium: CEPS.
- Fischer, Carolyn. (2007) “Americans, Cars, and Fuel Economy (and Economists).” in *Consilience. Interdisciplinary Communications 2005/2006*, Willy Østreng, ed. Oslo: Center for Advanced Study at the Norwegian Academy of Science and Letters.
- Fischer, Carolyn, Edwin Muchapondwa, and Thomas Sterner (2005) “Shall We Gather ’round the Campfire? Zimbabwe’s Approach to Conserving Indigenous Wildlife” *Resources*, Summer 2005. Washington, DC: Resources For the Future.

- Fischer, Carolyn (2004) “Balancing Mitigation and Technology Incentives in a Climate Policy Framework,” in *Ending the Energy Stalemate: A Bipartisan Strategy to Address America's Energy Challenges*, Technical Appendix, Chapter 6. Washington, DC: National Commission on Energy Policy.
- Fischer, Carolyn (2004) “Flexibility Mechanisms for Fuel Economy Standards,” in *Ending the Energy Stalemate: A Bipartisan Strategy to Address America's Energy Challenges*, Technical Appendix, Chapter 1. Washington, DC: National Commission on Energy Policy.
- Fischer, Carolyn and Paul Portney (2004) “Tradable CAFE Credits,” *New Approaches on Energy and the Environment: Policy Advice for the President*, Richard D. Morgenstern and Paul R. Portney, Ed. Washington, DC: RFF Press.
- Laxminarayan, Ramanan and Carolyn Fischer (2003) “Economic Implications of Development of Pest Resistance to Transgenic Bt Crops,” *Resources*, Fall/Winter (152).
- Fischer, Carolyn (2003) “Trading in Endangered Species: Legal Sales versus Total Bans,” *Resources*, Spring (150): 12-14.
- Fischer, C., S. Hoffmann, and Y. Yoshino (2002) “Sustainable Development: Trade and Environmental Agreements,” RFF Sustainable Development Issue Brief No. 02-21.
- Fischer, Carolyn (2001) “International Offsets for Carbon Emissions and Tax Shifting By Multinational Corporations,” RFF Climate Issue Brief 01-01.
- Fischer, Carolyn (2000) “Policy Choices for Innovation and the Environment,” RFF Climate Issues Brief #20, also in *Climate Change Economics and Policy: an RFF Anthology*, Michael A. Toman, ed. 2001. Washington, DC: RFF Press.
- Fischer, Carolyn and Toman, Michael (1998) “Environmentally and Economically Damaging Subsidies: Concepts and Illustrations,” RFF Climate Issues Brief #14, also in *Climate Change Economics and Policy: an RFF Anthology*, Michael A. Toman, ed. 2001.
- Fischer, Carolyn, Suzi Kerr and Michael A. Toman (1998) “Using Emissions Trading to Regulate U.S. Greenhouse Gas Emissions: Basic Policy Design and Implementation Issues,” RFF Climate Issues Brief #10, also in *Climate Change Economics and Policy: an RFF Anthology*, Michael A. Toman, ed. 2001. Washington, DC: RFF Press.
- Fischer, Carolyn, Suzi Kerr and Michael A. Toman (1998) “Using Emissions Trading to Regulate U.S. Greenhouse Gas Emissions: Additional Policy Design and Implementation Issues,” RFF Climate Issues Brief #11, also in *Climate Change Economics and Policy: an RFF Anthology*, Michael A. Toman, ed. 2001. Washington, DC: RFF Press.

Selected Grants:

- Principal Investigator (PI), Mistra Foundation Program Grant: Environment and Trade in a World of Interdependence (ENTWINED), 2007-10 (\$400K over 3 years, with possible extension for another 3-5 years)
- PI, EPA/STAR Grant RD: Differentiating Passenger Vehicles by Fuel Economy: Strategic Incentives and the Cost-Effectiveness of Tradable CAFE Standards, 2008-9. (\$80K)
- Co-PI, EPA RD-83285101: A Conceptual and Empirical Framework for Analyzing Information Disclosure Programs, 2006-8 (\$327K)
- Co-PI, EPA -82925601: Workshops on Model Differences & SGM Model, 2006-7. (\$75K)
- Investigator, Robert Wood Johnson Foundation Grant: Extending the Cure-Phase II, 2007-10. (\$1,833K)
- Co-PI, Mistra Foundation Program Grant: Emissions Trading in Climate Policy (ETIC), 2004-07 (\$103K)
- Co-PI, USDA #43-3AEM-4-80089: Spatial Management of Invasive Alien Species, 2004-07. (\$193K)
- PI, World Bank Grant: Feasibility of Corporate Codes of Environmental Conduct, 2004.
- PI, EPA/STAR Grant RD83099101: Rate-Based Allocation Mechanisms for Market-Based Environmental Policies: Interactions with Pre-Existing Taxes and Uncertainty, 2003-2005.
- PI, EPA Grant 829256-01-1: Policies for Encouraging Carbon-Reducing Technologies, 2002-2004.
- PI, EPA/STAR Grant R828628-01-0: Efficiency and Distributional Consequences of the Allocation of Tradable Emission Allowances, 2000-2002.
- PI, Environmental Protection Agency Grant CX825715: Multinational Taxation and International Emissions Permit Trading, 1999-2000.
- Subcontractor, NRTEE: Ecological Fiscal Reform and Energy Case Study on Renewable Grid Power Electricity, 2004.
- Co-PI, EPA/NHTSA Grant 68-W-02-046: Environmental and Economic Implications of CAFE, 2002-2003.
- Co-PI, Asian Development Bank, Technical Assistant Grant, Metro Manila Air Quality Improvement Loan. 2002.
- Co-PI, Environmental Protection Agency Grant CX 82625301: Carbon Emissions and Technological Innovation, 1997-2000.
- Co-PI, National Science Foundation Grant 9603135: Green Technology, 1999.
- Co-PI, Environmental Protection Agency Cooperative Agreement: Greenhouse Gas Trading Systems, 1998-2000.

Recent Presentations:

“Comparing Policies to Combat Emissions Leakage”

- ◆ International Energy Agency expert meeting “Issues behind Competitiveness and Carbon Leakage,” Paris, May 16, 2008
- ◆ Canadian Economics Association conference, Vancouver, BC, June 7, 2008

“Competing Environmental Labels”

- ◆ U.S. Environmental Protection Agency (EPA) National Center for Environmental Research (NCER) Workshop on Environmental Behavior and Decision-Making: Corporate Environmental Behavior, New York, NY, January 15, 2008
- ◆ Montreal Natural Resources and Environmental Economics Workshop, Montreal, QC, February 29, 2008

“Using RECs for Carbon Offsets: What are the Economic Issues?”

- ◆ Federal Trade Commission Workshop on Carbon Offsets & Renewable Energy Certificates, Washington, DC, January 8, 2008

“Environmental and technology policies for climate mitigation”

- ◆ Institute for Public Utilities 9th Annual Regulatory Policy Conference, Charleston, SC, December 4, 2007
- ◆ OECD Workshop, Innovation policy and Accelerating Clean Energy Technology, Paris, France, April 5, 2007
- ◆ Northwestern University Seale Center, Research Roundtable on Alternative Energy, April 18, 2008
- ◆ University of Toronto School of Public Policy and Governance, “Current Affairs - Perspectives on Electricity Policy for Ontario,” June 4-5, 2008

“Spatial Management of Invasive Species: Pathways and Policy Options”

- ◆ University of Minnesota Seminar in Applied Economics, November 19, 2007
- ◆ Environment for Development Annual Meeting, Cape Town, November 7, 2007
- ◆ Universidad de Guanajuato, Mexico, Economics Seminar, October 12, 2007
- ◆ Michigan State University, Economics of Invasive Species in the Great Lakes workshop, East Lansing, MI, October 9, 2007

“When Revenue Recycling Isn’t Enough: Permit Allocation Strategies to Minimize Intra- and International Emissions Leakage” (with Alan K. Fox)

- ◆ University of Michigan, Andrew W. Marcus Seminar in Applied Microeconomics, November 16, 2007
- ◆ University of California at Berkeley, Energy Institute seminar, August 24, 2007
- ◆ 15th EAERE Annual Conference, University of Macedonia, Greece, June 28, 2007
- ◆ AEA meetings, Chicago, IL, January 5, 2007

“Are Consumers or Fuel Economy Policies Efficient?”

- ◆ Asilomar Transportation and Climate Policy conference, August 23, 2007

“The Critical Role of Technology for International Climate Change Policy”

- ◆ European Climate Platform (ECP), Mistra’s Climate Policy Research Programme (Clipore) and the Centre for European Policy Studies (CEPS), “High-Level Colloquium, Climate change: key actions for the crucial years ahead,” Brussels, March 23, 2007

Professional Affiliations:

American Economic Association
 Association of Environmental and Resource Economists (AERE)
 Canadian Economics Association
 European Association of Environmental and Resource Economists (EAERE)

Service:

AERE Board of Directors, 2008-2010.

AERE Program Committee, 2005-2007.

Editorial Board, *Resource and Energy Economics*, 2006-2009.

Canadian National Round Table on the Environment and the Economy (NRTEE) Expert Advisory Committee to the Minister of Environment on National Medium and Long-term Emission Reduction Targets and Objectives for Greenhouse Gases

Leadership Committee for the Energy Collaborative Analysis Initiative, NREL

Reviewer for

American Journal of Agricultural Economics, Biological Conservation, Choices, Climate Policy, Ecological Economics, Economic Inquiry, Energy Journal, Energy Policy, Environment and Development Economics, Environmental and Resource Economics, International Journal of Industrial Organization, Journal of Economic Behavior and Organization, Journal of Environmental Economics and Management, Journal of Public Economics, Journal of Regulatory Economics, Oryx, Resource and Energy Economics, Transnational Corporations

National Science Foundation

Norwegian Research Council

Transportation Research Board

Gothenburg University

External Examiner for Thesis Defenses:

Edwin Muchapondwa, Gothenburg University, 2002

Markus Herrmann, University of Montreal, 2008

Personal Information:

Born October 7, 1968 in Ontario, Canada.

Citizenship: U.S. and Canadian (dual)

Languages: English (native)
 French (fluent, except for technical language)
 German (proficient)