

Navigating a Two-Way Street Between Academia and the Policy World

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Over the past decade, environmental and resource economics has continued to evolve from what was once a relatively obscure application of welfare economics to a prominent field of economics in its own right. The number of articles on the natural environment appearing in mainstream economics periodicals has continued to increase, as has the number of economics journals dedicated exclusively to environmental and resource topics. Likewise, the influence of environmental economics on public policy has increased significantly, particularly as greater use has been made of market-based instruments for environmental protection.

This introductory essay begins with some personal reflections on the professional path that has led to my research and writing, and concludes with a brief overview of the book.

A Professional Path

In retrospect, my professional path may now appear somewhat direct, if not altogether linear, but it hardly seemed so as I traveled along it. The path I describe took me back and forth across the United States and to several continents, and it took me from physics to philosophy, to agricultural extension, to international development studies, to agricultural economics, and eventually to environmental economics. It culminated in my receipt in 1988 of a Ph.D. degree in economics at Harvard University, where I have since been a faculty member at the John F. Kennedy School of Government. During this time, much has changed in the profession.

The early ascendancy of the field of environmental economics, during the period from 1970 to 1990, was centered within departments of agricultural and resource economics, mainly at U.S. universities, and at Resources for the Future (RFF), the Washington research institution. Within most economics departments, however, environmental studies remained a relatively minor area of applied welfare economics. So, when I enrolled in the Ph.D. program in Harvard's Department of Economics in 1983, and when I received my degree five years later, no field of study was offered in the field of environmental or resource economics.

Fortunately, Harvard permitted its graduate students to develop an optional, self-designed field as one of two fields on which they were to be examined orally before proceeding to dissertation research. Without a resident environmental economist in the Department of Economics (Martin Weitzman had yet to move to Harvard from the Massachusetts Institute of Technology), I developed an outline and reading list of the field through correspondence with leading scholars from other institutions, most prominently Kerry Smith, then at North Carolina State University. My proposal to prepare for and be examined in the special field of environmental and resource economics (along with econometrics) was approved by the Department's director of graduate study, Dale Jorgenson. So began my entry into the scholarly literature of the field.

But my interest in environmental economics pre-dated by a considerable number of years my matriculation at Harvard. Like many others before and since, I came to the field because of a personal interest in the natural environment (the origin of which I describe below). This personal interest evolved into a professional one while I was studying for an M.S. degree in agricultural economics at Cornell University in the late 1970's, where my thesis advisor and mentor was Kenneth Robinson. I had originally gone to Cornell to study for a professional degree in international development, but found agricultural economics more appealing, largely because of the opportunity to examine social questions with quantitative methods within a disciplinary framework.

The faculty at Cornell and the care given to graduate students (including masters students like me) were both outstanding. Ken Robinson, my first mentor within the economics profession, became my ongoing role model for intellectual integrity. It was a sad day just this past year when Professor Robinson passed away.

A course in linear algebra, brilliantly taught by S. R. Searle, inspired me to pursue quantitative methods of analysis, and I was fortunate to then have the opportunity to study econometrics with Tim Mount. One summer I had the great privilege of learning comparative economic systems in a small workshop setting from George Staller of the Cornell Department of Economics. Working with Bud Stanton, I had my first experience teaching at the university level, and with Olan Forker, I had my first try at serious writing. All of this led to research and writing of an M.S. thesis, "Forecasting the Size Distribution of Farms: A Methodological Analysis of the Dairy Industry in New York State." The methodology in question was a variable Markov transition probability matrix, the cells of which were estimated econometrically in a multinomial logit framework. Much to my surprise, this work subsequently received the Outstanding Master's Thesis Award in the national competition of the American Agricultural Economics Association.

Armed with my M.S. degree, I moved from Cornell to Berkeley, California, where I eventually met up with Phillip LeVeen, who had until shortly before that time been a faculty member in the Department of Agricultural and Resource Economics at the University of California, Berkeley. Phil was another superb mentor, and from him I learned the power of using simple models — by which I mean a set of supply and demand curves hastily drawn on a piece of scrap paper — to develop insights into real-world policy problems. He introduced me to a topic that was to occupy me for the next few years — California's perpetual concerns with water allocation. I remember many afternoons spent working with Phil at his dining room table on questions of water supply and demand.

This work with Phil LeVeen led to a consultancy and then a staff position with the Environmental Defense Fund (EDF), the national advocacy group consisting of lawyers, natural scientists, and — then almost unique among environmental advocacy organizations — economists. At EDF, I was able to experience for the first time the use of economic analysis in pursuit of better environmental policy. With W. R. Zach Willey, EDF's senior economist in California, as a role model, and Thomas Graff, EDF's senior attorney, as my mentor, I thrived in EDF's collegial atmosphere, while thoroughly enjoying life in Berkeley's "gourmet ghetto," as my neighborhood was called. Sadly, Tom Graff — without whose mentorship I would not be where I am today — passed away last year after a heroic battle with cancer.

Although I found the work at EDF exceptionally rewarding, I worried that I would eventually be constrained — either within the organization or outside it — by my limited education. So, like many others in similar situations, I considered a law degree as the next logical step. In fact, I came very close to enrolling at Stanford Law School, but instead, in 1983, I accepted an offer of admission to the Department of Economics at Harvard, moved back east to Cambridge, Massachusetts, and began what has turned out to be a long-term relationship with the University.

But where did my interest in the natural environment begin? Not at Cornell; it was present long before those days. But it had not yet arisen when I was studying earlier at Northwestern University, from which I received a B.A. degree in philosophy, having departed from my first scholarly interest, astronomy and astrophysics.

Rather, the origins of my affinity for the natural environment and my interest in resource issues are to be found in the four years I spent in a small, remote village in Sierra Leone, West Africa, as a Peace Corps Volunteer, working in agricultural extension (in particular, paddy rice development). It was there that I was first exposed both to the qualities of a pristine natural environment and the trade-offs associated with economic development.

So, I had begun in astrophysics, moved to philosophy (both at Northwestern), then to agricultural extension in a developing country (Sierra Leone), then to international development studies and subsequently to agricultural economics (both at Cornell), then to environmental economics and policy (EDF), and eventually to graduate study in economics at Harvard.

My dissertation research at Harvard was directed by a committee of three faculty members: Joseph Kalt, Zvi Griliches, and Adam Jaffe. Joseph Kalt was the first faculty member at the Department of Economics to validate my interest in environmental and resource issues, and he was unfailingly generous to me and many other graduate students in making his office (and computer, then a rather scarce resource) available at all hours. Now a colleague at the Kennedy School, Joe provided examples never to be forgotten — that economics could be a meaningful and enjoyable pursuit, and that excellence in teaching was a laudable goal.

Zvi Griliches was not only my advisor and mentor, but my spiritual father as well. Generations of Harvard graduate students would offer similar testimony. My own father had died only a year before I entered Harvard, and Zvi soon filled for me many paternal needs. It is now more than a decade since Zvi himself passed away. I felt as if I had lost my father a second time.

If Zvi Griliches provided caring and inspiration, Adam Jaffe provided invaluable day-to-day guidance. It was Adam who convinced me not to go on the job market in my fourth year with what would have been a mediocre dissertation, but to put in another year and do it right. That turned out to be some of the best professional advice I have ever received. Our intensive faculty-student relationship from dissertation days subsequently evolved into a very productive professional (and personal) one that continues to this day. The name of Adam Jaffe appears frequently in my curriculum vitae as a co-author; he has been and continues to be much more than that.

Although they were not members of my thesis committee, I should acknowledge two other faculty members at the Harvard Department of Economics who played important roles in my education. I was fortunate to take two courses in economic history (a department requirement) from Jeffrey Williamson, who had recently arrived from the University of Wisconsin. Williamson's class sessions were as close as anything I have seen to being economic research laboratories. In class after class, we would carefully dissect one or more articles — examining hypothesis, theoretical model, data, estimation method, results, and conclusions. If there was any place where I actually learned how to carry out economic research, it was in those classes.

The other name that is important to highlight is that of Lawrence Goulder, then a faculty member at Harvard, and now a professor at Stanford. I say this not simply because he was willing to be my examiner in my chosen field of environmental and resource economics, nor because he subsequently became such a close friend. Rather, what is striking about my professional relationship with Larry is the degree to which he has been an unnamed collaborator on so many projects of mine. Although he and I have co-authored no more than a few articles, his name probably appears more frequently than anyone else's in the acknowledgments of papers I have written. There is no one whose overall judgement in matters of economics I trust more, and no one who has been more helpful.

When I began graduate school at Harvard in 1983, it was my intention to return to EDF as soon as I received my degree. But by my third year in the program, I had decided to pursue an academic career, although one that was heavily flavored with involvement in the real world of public policy. Within the context of this professional objective, it was not a difficult decision to accept the offer I received in February, 1988, to become an Assistant Professor at the Kennedy School. Although some of the other offers I received at that time were also very attractive, the choice for me was obvious, and I have never regretted it — not for a moment.

I remain at the Kennedy School today, where I was promoted to Associate Professor in 1992 (an untenured rank at Harvard), and to a tenured position as Professor of Public Policy in 1997. In 1998, I accepted an appointment as the Albert Pratt Professor of Business and Government.

Two years later, I launched the Harvard Environmental Economics Program, which today brings together — from across the University — thirty Faculty Fellows and twenty-five Pre-Doctoral Fellows, who are graduate students studying for the Ph.D. degree in economics, political economy and government, public policy, or health policy. The Program, which I continue to direct, forms links among faculty and graduate students engaged in research, teaching, and

outreach in environmental, natural resource, and energy economics and related public policy, by sponsoring research projects, convening workshops, and supporting graduate (and undergraduate) education.

A key reason why the Program — and its various projects, including the Harvard Project on Climate Agreements — have been so successful is the marvelous administrative leadership and staff support it enjoys. Everyone who has been involved in virtually any way has come away impressed by our Executive Director, Robert Stowe, and Program Coordinator, Jason Chapman.

At the Kennedy School, I have had an excellent mentor, William Hogan, and a superb advisor and friend, Richard Zeckhauser. Over the years, five successive deans have provided leadership, guidance, and support (including abundant time for my research and writing) — Graham Allison, Robert Putnam, Albert Carnesale, Joseph Nye, and David Ellwood. At Harvard more broadly, I have benefitted from regular interactions with Daniel Schrag, director of the Harvard University Center for the Environment, and Martin Weitzman of the Department of Economics. For two decades, Marty and I have co-directed a bi-weekly Seminar in Environmental Economics and Policy, which has provided me with frequent opportunities to learn both from seminar speakers and from Marty's questions and comments. I will refrain from naming the many others at Harvard and elsewhere from whom I continue to learn — including my many co-authors — only because the list of such valued colleagues and friends is so long. Included have been a most remarkable set of Ph.D. students, many of whom have gone on to productive — indeed illustrious — careers.

Along the way, I have had my share of administrative responsibilities at Harvard, including serving as Director of Graduate Studies for the Doctoral Program in Public Policy and the Doctoral Program in Political Economy and Government, and Co-Chair of the Harvard Business School-Harvard Kennedy School Joint Degree Programs. Outside of Harvard, I have had the privilege of being a University Fellow of Resources for the Future, a Research Associate of the National Bureau of Economic Research, and the founding Editor and now Co-Editor of the *Review of Environmental Economics and Policy*, as well as a member of the Board of Directors of Resources for the Future, the Scientific Advisory Board of the Fondazione Eni Enrico Mattei, and numerous editorial boards. I must also note that I serve as an editor of the *Journal of Wine Economics*. In 2009, I was elected a Fellow of the Association of Environmental and Resource Economists.

What originally attracted me to the Kennedy School was the possibility of combining an academic career with extensive involvement in the development of public policy. I have not been disappointed. Indeed, a theme that emerges from this book is the interplay between scholarly economic research and implementation in real-world political contexts. This is a two-way street. In some cases, my policy involvement has come from expertise I developed through research, following a path well worn by academics. But, in many other cases, my participation in policy matters has stimulated for me entirely new lines of research.

What I have characterized as involvement in policy matters is described at the Kennedy School as faculty outreach, recognized to be of great institutional and social value, along with the two other components of our three-legged professional stool — research and teaching. Because they

relate to a number of the papers collected in this volume, I should note that my outreach efforts fall into five broad categories: advisory work with members of Congress and the White House (for example, Project 88, a bipartisan effort co-chaired by former Senator Timothy Wirth and the late Senator John Heinz, to develop innovative approaches to environmental and resource problems); service on federal government panels (for example, my role as Chairman of the Environmental Economics Advisory Committee of the U.S. Environmental Protection Agency Science Advisory Board); on-going consulting — often on an informal basis — with environmental NGOs (most frequently, the Environmental Defense Fund) and private firms; advisory work with state governments; and professional interventions in the international sphere, such as service as a Lead Author for the Second and the Third Assessment Reports and a Coordinating Lead Author for the Fifth Assessment Report of the Intergovernmental Panel on Climate Change, professional roles with the World Bank and other international organizations, and advisory work with foreign governments.

Finally, because this book focuses on my articles, not my books, I should note that over the years I have been co-editor with Joseph Aldy of *Post-Kyoto International Climate Policy: Implementing Architectures for Agreement* (Cambridge University Press, 2010), *Post-Kyoto International Climate Policy: Summary for Policymakers* (Cambridge University Press, 2009), and *Architectures for Agreement: Addressing Global Climate Change in the Post-Kyoto World* (Cambridge University Press, 2007); editor of three editions of *Economics of the Environment* (W. W. Norton, 2000, 2005a, 2012); co-editor with Bruce Hay and Richard Vietor of *Environmental Protection and the Social Responsibility of Firms: Perspectives from Law, Economics, and Business* (Resources for the Future, 2005); editor of *The Political Economy of Environmental Regulation* (Edward Elgar, 2004), co-editor with Paul Portney of *Public Policies for Environmental Protection* (Resources for the Future, 2000); and author of *Environmental Economics and Public Policy: Selected Papers of Robert N. Stavins, 1988-1999* (Edward Elgar, 2001).

The Current Volume

That last book is the predecessor of the current volume. Whereas the first volume (Stavins 2001) included selected papers from the period 1988 through 1999, this second volume covers the period from 2000 through 2011. To prepare this book, I have selected 26 articles from the many more (published and unpublished) papers I wrote — frequently with co-authors — over the past decade. Making this selection was not an easy task, but it was a rewarding one, because choosing the papers and organizing them has forced me to step back and reflect on the set of research endeavors in which I have been engaged over this decade, and thus to think more clearly about current and possible future directions.

The book is divided into seven parts. The papers in Part I provide an overview of environmental and resource economics, treating broadly several key topics, including economic views of: the problem of the commons (Stavins, *American Economic Review*, 2011); the history of U.S. environmental regulation (Hahn, Olmstead, and Stavins, *Harvard Environmental Law Review*, 2003); and corporate social responsibility (Reinhardt, Stavins, and Vietor, *Review of Environmental Economics and Policy*, 2008).

The articles in Part II deal with methods of environmental policy analysis, focusing, respectively, on: interpreting sustainability in economic terms (Stavins, Wagner, and Wagner, *Economic Letters*, 2003); the use of discounting in net present value analysis (Goulder and Stavins, *Nature*, 2002); the development of a new revealed-preference method for inferring environmental benefits (Bennear, Stavins, and Wagner, *Journal of Regulatory Economics*, 2005); and the value of formal assessment of uncertainty (that is, Monte Carlo analysis) in regulatory impact analysis (Jaffe and Stavins, *Regulation and Governance*, 2007).

Part III turns to economic analysis of alternative environmental policy instruments, with examinations of: vintage-differentiated environmental regulation (Stavins, *Stanford Environmental Law Journal*, 2006); cost heterogeneity and the potential savings from employing market-based environmental policies (Newell and Stavins, *Journal of Regulatory Economics*, 2003); the effects of allowance allocations on the performance of cap-and-trade systems (Hahn and Stavins, *Journal of Law and Economics*, 2011); and second-best theory and the use of multiple policy instruments (Bennear and Stavins, *Environmental and Resource Economics*, 2007).

Part IV focuses on a topic that also received considerable treatment in the predecessor to this volume, namely the economics of technological change. Here the articles include: a survey of the literature on environmental policy and technological change (Jaffe, Newell, and Stavins, *Environmental and Resource Economics*, 2002); an analysis of the interaction of environmental and technological market failures (Jaffe, Newell, and Stavins, *Ecological Economics*, 2005); an empirical assessment of the effect of environmental regulation on technology diffusion in the case of chlorine manufacturing (Miller, Snyder, and Stavins, *American Economic Review Papers and Proceedings*, 2003); and the effects of economic and policy incentives on carbon mitigation technologies (Jaffe, Newell, and Stavins, *Energy Economics*, 2006).

Part V consists of three articles in the area of natural resource economics dealing with land and water resources: an analysis of the factors driving land-use change in the United States (Lubowski, Plantinga, and Stavins, *Land Economics*, 2008); an econometric examination of the significance of *terroir*, the notion that wine quality is primarily determined by location (Cross, Plantinga, and Stavins, *American Economic Review Papers and Proceedings*, 2011); and an assessment of urban water demand under alternative pricing structures (Olmstead, Hanemann, and Stavins, *Journal of Environmental Economics and Management*, 2007).

Part VI consists of four articles on domestic (national and sub-national) climate change policy, beginning with a description and assessment of a comprehensive U.S. cap-and-trade system for carbon dioxide and other greenhouse gas emissions (Stavins, *Oxford Review of Economic Policy*, 2008), and followed by: an examination of the interactions of national and sub-national climate policies (Goulder and Stavins, *American Economic Review Papers and Proceedings*, 2011); an econometric study of the carbon-sequestration supply function (Lubowski, Plantinga, and Stavins, *Journal of Environmental Economics and Management*, 2006); and an assessment of the factors that affect the costs of biological carbon sequestration (Newell and Stavins, *Journal of Environmental Economics and Management*, 2000).

Finally, Part VII focuses on the international dimensions of climate change policy, and consists of four articles: a comparison of alternative global climate change policy architectures (Aldy,

Barrett, and Stavins, *Climate Policy*, 2003); an assessment of the Kyoto Protocol (Stavins, *Milken Institute Review*, 2005b); an examination of a promising post-Kyoto international climate regime (Olmstead and Stavins, *American Economic Review Papers and Proceedings*, 2006); and a detailed examination of a key element of emerging international climate policy architecture, namely the linkage of regional, national, and sub-national tradable permit systems (Ranson, Jaffe, and Stavins, *Ecology Law Quarterly*, 2010).

Final Words

Selecting the essays for this second volume of my papers has permitted me to take note of some common themes that emerge from this decade of research and writing. First, there is the value — or at least, the potential value — of economic analysis of environmental policy. The cause of virtually all environmental problems in a market economy is economic behavior (that is, imperfect markets affected by externalities), and so economics offers a powerful lens through which to view environmental problems, and therefore a potentially effective set of analytical tools for designing and evaluating environmental policies.

A second message, connected with the first, is the specific value of benefit-cost analysis for helping to promote efficient policies. Economic efficiency ought to be one of the key criteria for evaluating proposed and existing environmental policies. Despite its limitations, benefit-cost analysis can be useful for consistently assimilating the disparate information that is pertinent to sound decision making. If properly done, it can be of considerable help to public officials when they seek to establish or assess environmental goals.

Third, the means governments use to achieve environmental objectives matter greatly, because different policy instruments have very different implications along a number of dimensions, including abatement costs in both the short and the long term. Market-based instruments are particularly attractive in this regard.

Fourth, an economic perspective is also of considerable value when reflecting on the use of natural resources, whether land, water, fisheries, or forests. Excessive rates of depletion of these resources are frequently due to the nature of the respective property-rights regimes, in particular, common property and open-access. Economic instruments — such as ITQ systems in the case of fisheries — can and have been employed to bring harvesting rates down to socially efficient levels.

Fifth and finally, policies for addressing global climate change — linked with emissions of carbon dioxide and other greenhouse gases — can benefit greatly from the application of economic thinking. On the one hand, the long time-horizon of climate change, the profound uncertainty in links between emissions and actual damages, and the possibility of catastrophic climate change present significant challenges to conventional economic analysis. But, at the same time, the ubiquity of energy generation and use in modern economies means that only market-based policies — essentially carbon pricing regimes — are feasible instruments for achieving truly meaningful emissions reductions. Hence, despite the challenges, an economic perspective on this grandest of environmental threats is essential.

On a personal level, the professional path I have taken offers some confirmation that research can influence public policy, and it also illustrates that involvement in public policy can stimulate new research. The quest — both professional and personal — that took me from Evanston, Illinois, to Sierra Leone, West Africa, to Ithaca, New York, to Berkeley, California, and finally to Cambridge, Massachusetts suggests some consistency of purpose and even function. I continue to find myself doing similar things, but in different contexts. It is fair to say that my professional life has taken me along a path that has brought me home (a home I am privileged to share with my wife, Joanna, and my children, Daniel and Julia). The words of T. S. Eliot (1943) ring true:

*We shall not cease from exploration
And the end of all our exploring
Will be to arrive where we started
And know the place for the first time.*

Selecting the papers for this volume forces me to reflect on the past and think more clearly about the future. The twenty-six articles that comprise this book and the twenty-two essays that comprised the predecessor volume are the product of twenty-three wonderful years on the faculty of the Harvard Kennedy School. During this time, I have continued to learn about environmental economics and related public policy from colleagues, collaborators, students, friends, and inhabitants of the "real world" of public policy, individuals from government, private industry, advocacy groups, and the press. I hope and trust that the learning will continue.

REFERENCES

- Aldy, Joseph E., Scott Barrett, and Robert N. Stavins (2003). "Thirteen Plus One: A Comparison of Global Climate Policy Architectures." *Climate Policy*, volume 3, number 4, pp. 373-397.
- Aldy, Joseph E., and Robert N. Stavins, eds. (2007). *Architectures for Agreement: Addressing Global Climate Change in the Post-Kyoto World*. New York: Cambridge University Press.
- Aldy, Joseph E., and Robert N. Stavins (2009). *Post-Kyoto International Climate Policy: Summary for Policymakers*. New York: Cambridge University Press.
- Aldy, Joseph E., and Robert N. Stavins, eds. (2010). *Post-Kyoto International Climate Policy: Implementing Architectures for Agreement*. New York: Cambridge University Press.
- Benbear, Lori Snyder, and Robert N. Stavins (2007). "Second-Best Theory and the Use of Multiple Policy Instruments." *Environmental and Resource Economics* 37: 111-129.
- Benbear, Lori Snyder, Robert N. Stavins, and Alexander F. Wagner (2005). "Using Revealed Preferences to Infer Environmental Benefits: Evidence from Recreational Fishing Licenses." *Journal of Regulatory Economics* 28:157-179.

Cross, Robin, Andrew J. Plantinga, and Robert N. Stavins (2011). "What is the Value of Terroir?" *American Economic Review Papers and Proceedings*, volume 101, number 3, pages 152-156.

Eliot, T. S. (1943). "Four Quartets: Little Gidding." *Collected Poems, 1909-1962*. New York: Hartcourt Brace, 1963.

Goulder, Lawrence H., and Robert N. Stavins (2002). "An Eye on the Future: How Economists Controversial Practice of Discounting Really Affects the Evaluation of Environmental Policies." *Nature*, Volume 419, October 17, pp. 673-674.

Goulder, Lawrence H., and Robert N. Stavins (2011). "The Challenge of Environmental Federalism: The Case of Climate Change Policy." *American Economic Review Papers and Proceedings*, volume 101, number 3, pages 253-257.

Hahn, Robert W., Sheila M. Olmstead, and Robert N. Stavins (2003). "Environmental Regulation During the 1990s: A Retrospective Analysis." *Harvard Environmental Law Review*, volume 27, number 2, pp. 377-415.

Hahn, Robert W., and Robert N. Stavins (2011). "The Effect of Allowance Allocations on Cap-and-Trade System Performance." *The Journal of Law and Economics*, 54(2), November, 2011, (published August, 2012), pp. S267-S294.

Hay, Bruce L., Robert N. Stavins, and Richard H. K. Vietor, eds. (2005). *Environmental Protection and the Social Responsibility of Firms: Perspectives from Law, Economics, and Business*. Washington, D.C.: Resources for the Future Press.

Jaffe, Adam B., Richard G. Newell, and Robert N. Stavins (2002). "Environmental Policy and Technological Change." *Environment and Resource Economics* 22:41-69.

Jaffe, Adam B., Richard G. Newell, and Robert N. Stavins (2005). "A Tale of Two Market Failures: Technology and Environmental Policy." *Ecological Economics* 54:164-174.

Jaffe, Adam B., Richard G. Newell, and Robert N. Stavins (2006). "The Effects of Economic and Policy Incentives on Carbon Mitigation Technologies." *Energy Economics* 28: 563-578.

Jaffe, Judson, and Robert N. Stavins (2007). "On the Value of Formal Assessment of Uncertainty in Regulatory Analysis." *Regulation and Governance* 1: 154-171.

Lubowski, Ruben N., Andrew J. Plantinga, and Robert N. Stavins (2006). "Land-Use Change and Carbon Sinks: Econometric Estimation of the Carbon Sequestration Supply Function." *Journal of Environmental Economics and Management* 51: 135-152.

Lubowski, Ruben N., Andrew J. Plantinga, and Robert N. Stavins (2008). "What Drives Land-Use Change in the United States? A National Analysis of Landowner Decisions." *Land Economics* 84: 529-550.

Miller, Nolan, Lori Snyder, and Robert N. Stavins (2003). “The Effects of Environmental Regulation on Technology Diffusion: The Case of Chlorine Manufacturing.” *American Economic Review Papers and Proceedings* 93:431-435.

Newell, Richard G., and Robert N. Stavins (2000). “Climate Change and Forest Sinks: Factors Affecting the Costs of Carbon Sequestration.” *Journal of Environmental Economics and Management* 40:211-235.

Newell, Richard G., and Robert N. Stavins (2003). “Cost Heterogeneity and the Potential Savings from Market-Based Policies.” *Journal of Regulatory Economics* 23(1):43-59, January.

Olmstead, Sheila M., W. Michael Hanemann, and Robert N. Stavins (2007). “Water Demand Under Alternative Price Structures.” *Journal of Environmental Economics and Management* 54: 181-198.

Olmstead, Sheila M., and Robert N. Stavins (2006). “An International Policy Architecture for the Post-Kyoto Era.” *American Economic Review Papers and Proceedings*, Volume 96, Number 2, May, pp. 35-38.

Portney, Paul R., and Robert N. Stavins, eds. (2000). *Public Policies for Environmental Protection*. Second Edition. Washington, D.C.: Resources for the Future.

Ranson, Matthew, Judson Jaffe, and Robert N. Stavins (2010). “Linking Tradable Permit Systems: A Key Element of Emerging International Climate Policy Architecture.” *Ecology Law Quarterly*, 36:789-808.

Reinhardt, Forest, Robert N. Stavins, and Richard Vietor (2008). “Corporate Social Responsibility Through An Economic Lens.” *Review of Environmental Policy* 2: 219-239

Stavins, Robert N. (2001). *Environmental Economics and Public Policy: Selected Papers of Robert N. Stavins, 1988-1999*. Northampton, Massachusetts: Edward Elgar Publishing, Inc.

Stavins, Robert N., ed. (2004). *The Political Economy of Environmental Regulation*. Northampton, Massachusetts: Edward Elgar Publishing, Inc.

Stavins, Robert N., ed. (2005a). *Economics of the Environment: Selected Readings*. Fifth Edition. New York: W. W. Norton & Company.

Stavins, Robert N. (2005b). “Beyond Kyoto: Getting Serious About Climate Change.” *The Milken Institute Review*, volume 7, number 1, pp. 28-37.

Stavins, Robert N. (2006). “Vintage-Differentiated Environmental Regulation.” *Stanford Environmental Law Journal*, Volume 25, Number 1 (Winter), pp. 29-63.

Stavins, Robert N. (2008). “Addressing Climate Change with a Comprehensive U.S. Cap-and-Trade System.” *The Oxford Review of Economic Policy*, Volume 24, Number 2, pp. 298-321.

Stavins, Robert N. (2011). "The Problem of the Commons: Still Unsettled After 100 Years." *American Economic Review* 101: 83-112.

Stavins, Robert N., Alexander F. Wagner, and Gernot Wagner (2003). "Interpreting Sustainability in Economic Terms: Dynamic Efficiency Plus Intergenerational Equity." *Economic Letters* 79:339-343.