

CURRICULUM VITAE

JUAN-PABLO MONTERO

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Department of Economics, PUC-Chile

Vicuña Mackenna 4860, Macul

Santiago, Chile

Married to Paula Jaras Parker; three children (Isabella, Vicente and Pedro); born in Chile on December 1966

FIELDS OF INTEREST

Industrial Organization, Environmental and Energy Economics, Resource Economics.

EDUCATION

PhD in Industrial Economics, Massachusetts Institute of Technology (MIT), 1997

Master of Science in Economics, MIT, 1996

Master of Science in Technology and Public Policy, MIT, 1994

Master of Science in Hydraulic Engineering, Pontificia Universidad Católica de Chile (PUC-Chile), 1991

Civil Engineering, PUC-Chile, 1990

ACADEMIC/PROFESIONAL ACTIVITIES

2012-present Professor of Economics, Department of Economics, PUC-Chile

2015-present Member of Expert Panel on Public Transport, Ministry of Transportation

2014 Visiting Tinker Professor, Stanford University, January-March

2012 Visiting E3 Scholar, Bren School, UC Santa Barbara, February

2004-2011 Associate Professor of Economics, Department of Economics, PUC-Chile

2010-present Research Associate, Economics for Energy, Vigo, Spain.

2010-present Research Associate, Center for Global Change, PUC-Chile

2007-present Key Researcher, Instituto Sistemas Complejos de Ingeniería (ISCI)

1997-present Research Associate, Center for Energy and Environmental Policy Research, MIT

2005-2006 Visiting Repsol YPF-KSG Scholar, Kennedy School of Government, Harvard

2002-2004 Assistant Professor of Economics, Department of Economics, PUC-Chile

2001-2002 Visiting Professor of Applied Economics, Sloan School of Management, MIT

1997-2001 Assistant Professor of Industrial Economics, Dept. Industrial Engineering, PUC-Chile

2000 Lecturer, Department of Economics, PUC-Chile, August-December

1994 Summer Internship, The World Bank, June-August

1991-1992 Lecturer, Department of Hydraulic Engineering, PUC-Chile.

COURSES TAUGHT (U: undergraduate, G: graduate)

Microeconomic Theory I (G, PUC-Chile), Microeconomic Theory II (G, PUC-Chile),

Environmental Economics (G, PUC-Chile), Applied Econometrics (G, PUC-Chile),

Microeconomics (U, PUC-Chile), Economics (U, PUC-Chile), Economic Analysis for Business

Decisions (G, MIT), Industrial Organization (G, PUC-Chile), Industrial Organization (U, PUC Chile), Energy Markets (G, Stanford), Short Advanced Course in Environmental Economics (G, Carlos III-Madrid), Short Advanced Course in Environmental Economics and IO (G, Ecole Polytechnique).

PROFESSIONAL SERVICES AND ASSOCIATIONS

Associate Editor, RAND Journal of Economics, 2020-present.

Guest Editor, International Journal of Industrial Organization, CRESSE's special issue, 2016-present.

Editorial Board, Journal of Environmental Economics and Management, 2014-present

Associate Editor, Journal of Economic Behavior and Organization, 2012-2017

Lead Author, IPCC Working Group III Fifth Assessment Report, Chapter 15, 2012-2014.

CRESSE Associate (Competition and Regulation European Summer School and Conference), 2011-present

Editorial Board, Environment and Development Economics, 2008-2013

Editorial Board, Journal Economía, 2008-2009

Editorial Board, Review of Environmental Economics and Policy, 2006-present

Editorial Board, International Review of Environmental and Resource Economics, 2006-present

Editorial Board, International Yearbook of Environmental and Resource Economics, 2004-2005

Editorial Board, Journal of Applied Economics, 2001-present

Editorial Board, Cuadernos de Economía, 2001-2003

Co-Editor, Cuadernos de Economía, 2003-2008

Panel, Journal Economía, 2006-2007

Member American Economic Association (AEA)

OTHER PROFESSIONAL ACTIVITIES

Consulting in topics of industrial organization, environmental and resource economics for agencies in the Government of Chile such as Ministry of the Economy, the Ministry of the Environment, the Ministry of Foreign Affairs, the Competition Authority (Fiscalía Nacional Económica); private corporations in Chile and international organizations such as the World Bank and the U.S. Environmental Protection Agency (more details on consulting work available upon request)

AWARDS/SCHOLARSHIPS/GRANTS

2021-2024 Fondecyt-Chile Grant #121-0252 ("Simple mechanisms for green subsidies"; principal investigator)

2019 Fellow of the Econometric Society

2017 COFECE (Mexico's Federal Economic Competition Commission) Research Award for the paper "Discount as a Barrier to Entry" (AER 2016, joint with E Ide and N Figueroa)

2016-2018 Fondecyt-Chile Grant #116-1802 ("Discount contracts and exclusionary practices"; principal investigator)

2017 Who'sWho Lifetime Achievement Award, Antitrust Economics

2013-2015 Fondecyt-Chile Grant #113-0998 ("Correcting Externalities: Theory and Evidence"; principal investigator)

2011 Simonsen Lecture, Latin American Meeting of the Econometric Society

- 2009-2011 Fondecyt-Chile Grant #109-5209 (“On collusion”; principal investigator)
- 2008 Campbell Watkins Award for best paper published in *The Energy Journal* in 2007
- 2008 Second Place in Research Medal Award of the Global Development Network (sponsored by the World Bank) with the paper “A simple auction mechanism for the optimal allocation of the commons”
- 2007 Appointed as main investigator, Instituto Milenio, Complex Engineering Systems (5 years appointment)
- 2007-2008 Fondecyt-Chile Grant #107-0982 (“Auctions for protecting the commons”; principal investigator)
- 2007 Chilean Economist of the Year (awarded by *El Mercurio* —Chile’s main newspaper— based on a poll to 400 Chilean economists)
- 2007 Public Policy Grant, awarded by PUC-Chile and the Ministerio Secretaría General de la Presidencia (Presidency General Secretariat Ministry)
- 2005-2006 Repsol YPF-KSG Research Fellowship at Harvard’s Kennedy School of Government
- 2005-2006 BBVA Foundation Grant/Award (co- investigator)
- 2005-2006 Fondecyt-Chile Grant #105-1008 (principal investigator)
- 2003 First Place in Research Medal Award of the Global Development Network (sponsored by the World Bank) held in Cairo-Egypt.
- 2003-2004 Fondecyt-Chile Grant #103-0961 (principal investigator)
- 2000-2002 Fondecyt-Chile Grant #100- 0517 (co-investigator)
- 1999-2001 Fondecyt-Chile Grant #199-0100 (principal investigator)
- 1998-1999 Ford Foundation Grant for Studies in Public Policy (principal investigator)
- 1997-1999 Fondecyt-Chile Grant #197-1291 (principal investigator)
- 1995-1997 Presidente de la República de Chile Scholarship
- 1993 National Award of the Chilean Hydraulic Engineering Society
- 1992-1994 Fulbright Scholarship
- 1992-1994 Enciclopedia Britannica Scholarship
- 1990-1991 Shell Inc. Scholarship to the best graduate student in the School of Engineering, PUC-Chile.
- 1990 Best student, Hydraulic Engineering Department, PUC-Chile

REFEERING

American Economic Review, Annals of Operations Research, The BE Journals in Economic Analysis and Policy, Contemporary Economics Policy, Ecological Economics, Econometrica, The Energy Journal, European Economic Review, International Economic Review, International Journal of Industrial Organization, International Tax and Public Finance, Journal of Applied Economics, Journal of Economic Theory, Journal of Economics Behavior and Organization, Journal of Environmental Economics and Management, J Econ and Management Strategy, Journal of Industrial Economics, Journal of the European Economic Association, Journal of Law Economics and Organization, Journal of Political Economy, Journal of Public Economics, Journal of Public Economics Theory, Journal of Regulatory Economics, Operations Research, Production and Operations Management, RAND Journal of Economics, Resources and Energy Economics, Resource and Environmental Economics, Review of Economic Studies, Science, Cambridge University Press, Resources for the Future Press, Fondo Estudio Políticas Públicas U. Chile, Fondecyt-Chile, Perspectivas, Estudios de Economía, Ingeniería del Agua, Cuadernos de Economía, NSF, PNAS

SEMINAR PRESENTATIONS

2020: World Congress in Transport Economics (online), Ridge Workshop in Environmental Economics (keynote speaker; online), Universidad de Montevideo (online), PUC-Chile (online), ISCI-IO Group (online), ITAM (covid cancelled), USC (covid cancelled).

2019: Univ. of Miami, INRA-Paris, CREST-Paris, IO CEPR-Madrid, Toulouse Climate and Energy Economics Workshop (keynote speaker), UPenn-Wharton, Aalto University, Ecole Polytechnique.

2018: AARES-Adelaide (invited speaker), Univ of Florida, OECD/KPC Competition Economics Workshop-Seoul (invited speaker), Univ of Vigo (invited speaker), EAERE-Gothenburg (World Congress), CRESSE, Toronto, Ecole Polytechnique. TOI-Chile.

2017: Economics for Energy Workshop - Madrid, PUC-Rio, Aalto University, Bergen-BEEER Conference (keynote speaker), Toulouse Climate and Energy Economics Workshop, UBC Summer Competition Policy Workshop, Chile's Economic Society Meeting (keynote speaker), Cornell, RIDGE-Montevideo, LAMES-Buenos Aires.

2016: Economics for Energy Workshop - Madrid, McGill University, IIOC, Columbia, Paris School of Economics, Ecole Polytechnique, Univ of Vigo, CRESSE-Rhodes, Colombia's Economic Society Meeting (keynote speaker), Georgetown University, Notre Dame University, RIDGE-Montevideo (invited speaker).

2015: Univ. of Vigo, Univ of Miami, Harvard, Univ of Michigan, LSE, Ecole Polytechnique, CRESSE, IIOC (International IO Conference), EAERE, Universidad de Montevideo, ITAM-PUC Chile Conference in Law and Economics, Brasil's Economic Society Meeting (invited speaker), TOI -Chile (IO Workshop)

2014: UC Berkeley, Stanford, MIT, Paris School of Economics, Toulouse School of Economics, IIOC, Economics for Energy Workshop, Universite d' Auvergne Clermont-Ferrand (keynote speaker), Aalto University-Helsinki School of Economics.

Previous years: MIT, Harvard, Columbia, Yale, Stanford, UC Berkeley, Maryland University, Texas A&M University, Univ. Massachusetts-Amherst, UC Santa Barbara, University of Miami, UC Davis, Helsinki School of Economics, Catholic University of Louvain/CORE, University of Vigo, University College London, Toulouse School of Economics, University of Zaragoza, Center for Advanced Studies-Oslo, Universidad Carlos III, Università Bocconi, Ecole Polytechnique, University of Iceland, Paris School of Economics, CEMFI, St Andrews University, Universitat de Barcelona, PUC-Chile, University of Chile, University of Concepción, Universidad, Universidad Alberto Hurtado, CEMA University, Universidad EAFIT, Universidad de Montevideo, Universidad de los Andes-Colombia, NBER, ASSA-AEA, Econometric Society Meetings, EAERE Meetings, IIOC, LACEA, World Bank-Global Development Network Annual Meetings, CRESSE, TOI-Chile

PUBLICATIONS

A. BOOKS

Markets for Clean Air: The US Acid Rain Experience (with A.D. Ellerman, P. Joskow, R. Schmalensee, and E. M. Bailey), Cambridge University Press, Cambridge, UK (2000).

Emissions Trading under the US Acid Rain Program: Evaluation of Compliance Costs and Allowance Market Performance (with A.D. Ellerman, R. Schmalensee, P. Joskow, and E. M. Bailey), Center for Energy and Environmental Policy Research, MIT (1997).

B. JOURNAL ARTICLES AND BOOK CHAPTERS

Product Lines and Price Discrimination in Markets with Information Frictions (with Natalia Fabra), Management Science, forthcoming.

A Practical Approach for Curbing Congestion and Air Pollution: Driving Restrictions with Toll and Vintage Exemptions (with Leonardo Basso and Felipe Sepúlveda), Transportation Research Part A, forthcoming.

Vintage-specific driving restrictions (with Nano Barahona and Francisco Gallego), Review of Economic Studies 84, 1646-1682 (2020).

Una restricción vehicular inteligente para la congestión y contaminación de Santiago (with Leonardo Basso, Felipe Sepúlveda, Luis Cifuentes, Pablo Valenzuela and Sebastián Vicuña). In: Centro Políticas Públicas UC, eds., *Propuestas para Chile. Concurso Políticas Públicas 2018*, Ch. 3, 79-113, PUC Chile editores, Santiago (2019).

Output-based allocations in pollution markets with uncertainty and self-selection (with Guy Meunier and Jean-Pierre Ponsard), Journal of Environmental Economics and Management 92, 832-851 (2018).

Using output-based allocations to manage volatility and leakage in pollution markets (with Guy Meunier and Jean-Pierre Ponsard), Energy Economics 68, 57-65 (2017).

Discounts as a barrier to entry (with Enrique Ide and Nicolás Figueroa), American Economic Review 106, 1849-77 (2016). [Distinguished with Mexico's Federal Economic Competition Commission (COFECE) Research Award for best research on Competition Policy in 2016]

Cartel sales dynamics when monitoring for compliance is more frequent than punishment for non-compliance (with Joseph E. Harrington). In: Martin Peitz and Yossi Spiegel, eds., *Analysis of Competition Policy and Sectoral Regulation*, now publishers Inc., Boston-Delft (2014)

Forward trading in exhaustible-resource oligopoly (with Matti Liski), Resource and Energy Economics 37, 122-146 (2014).

The effect of transport policies on car use: Evidence from Latin American cities (with Francisco

Gallego and Christian Salas), Journal of Public Economics 107, 47-62 (2013).

The effect of transport policies on car use: A bundling model with applications (with Francisco Gallego and Christian Salas), Energy Economics 40, S85-S97 (2013).

En Busca de la Eficiencia y la Efectividad en el Transporte Urbano (with Francisco Gallego). In: Grupo Res Pública Chile, editors, *95 Propuestas para un Chile Mejor*. Santiago, Chile: Grupo Res Pública Chile (2013).

Cuotas de pesca y libre competencia: Consideraciones para la nueva ley de pesca, Estudios Públicos 127, 1-51 (2012).

A note on environmental policy and innovation when governments cannot commit, Energy Economics 33, S13-S19 (2011).

Market power in an exhaustible-resource market: The case of storable pollution permits (with Matti Liski), The Economic Journal 121, 116-144 (2011).

Output-expanding collusion in the presence of a competitive fringe (with Juan Ignacio Guzmán), Journal of Industrial Economics 58, 106-126 (2010).

Market power in pollution permit markets, The Energy Journal 30, 115-142 (2009).

A simple auction mechanism for the optimal allocation of the commons, American Economic Review 98, 496-518 (2008).

The Efficiency and Robustness of Allowance Banking in the U.S. Acid Rain Program (with Denny Ellerman), The Energy Journal 28, 47-71 (2007) [Distinguished with the Campbell Watkins Award for best paper in The Energy Journal in 2007]

An Auction Mechanism in a Climate Change Architecture. In R. Stavins and J. Aldy, eds., *Architectures for Agreement: Addressing Global Climate Change in the Post-Kyoto World*. Cambridge University Press (2007).

Tradable Permits with Incomplete Monitoring: Evidence from Santiago's Particulate Permits Program. In J. Freeman and C. Kolstad, eds., *Moving to Markets in Environmental Regulation: Lessons from Twenty Years of Experience*. Oxford University Press (2007)

An auction mechanism for the commons: Some extensions, Cuadernos de Economía 44, 133-40 (2007)

Forward trading and collusion in oligopoly (with Matti Liski), Journal of Economic Theory 131, 212-230 (2006).

On pollution permit banking and market power (with Matti Liski), Journal of Regulatory Economics 29, 283-302 (2006).

Pollution markets with imperfectly observed emissions, RAND Journal of Economics 36, 645-

660 (2005). [Reprinted in *Economics of Environmental Law*, edited by Richard Brooks, Nathaniel O. Keohane, and Douglas A. Kysar, Edward Elgar, Cheltenham, UK, 2008]

A model of final-offer arbitration in regulation, *Journal of Regulatory Economics* 28, 23-46 (2005).

A note on market power in an emission permits market with banking (with Matti Liski), *Environmental and Resource Economics* 31, 159-173 (2005).

Notas para una regulación eficiente de la transmisión eléctrica (with Salvador Valdés), *Cuadernos de Economía* 41, 255-283 (2004).

Markets for environmental protection: Design and performance, *Estudios de Economía* 31, 79-99 (2004).

Is it possible to move the copper market? (with Matti Liski), *Cuadernos de Economía* 40, 559-565 (2003).

Second-generation electricity reforms in Latin America and the California paradigm (with Hugh Rudnick), *Journal of Industry, Competition and Trade* 2, 159-172 (2002).

Market structure and environmental innovation, *Journal of Applied Economics* 5, 293-325 (2002).

Permits, standards, and technology innovation, *Journal of Environmental Economics and Management* 44, 23-44 (2002). [Reprinted in Kathelen Segerson (ed.), *The Economics of Pollution Control*, Edward Elgar Publishing, UK, 2011]

Prices vs. quantities with incomplete enforcement, *Journal of Public Economics* 85, 435-454 (2002). [Reprinted in Michael Hoel (ed.), *Recent Developments in Environmental Economics*, Edward Elgar Publishing, UK, 2004]

A market-based environmental policy experiment in Chile (with J.M. Sánchez and R. Katz), *Journal of Law and Economics* 45, 267-287 (2002).

Multipollutant markets, *RAND Journal of Economics* 32, 762-774 (2001).

Crisis eléctrica en California: Algunas lecciones para Chile (con J.M. Sánchez), *Estudios Públicos* 83, 139-162 (2001).

Análisis de los Mercados de Derecho de Aprovechamiento de Agua en las Cuencas del Maipo y el Sistema Paloma en Chile: Efectos de la Variabilidad en la Oferta Hídrica y de los Costos de Transacción (con Guillermo Donoso y Sebastián Vicuña), *Revista De Derecho Administrativo Económico De Recursos Naturales* 3(2), 368-387 (2001).

Policies, measures and instruments (with Peter Bohn, Robert Stavins et al), in *Climate Change 2001: Mitigation*, Cambridge University Press, Cambridge, UK, Chapter 6, 399-450 (2001)

Precios eléctricos flexibles (with Hugh Rudnick), Cuadernos de Economía 38, 91-109 (2001).

Análisis del mercado de material particulado en Santiago (with J.M Sánchez and R. Katz), Estudios Públicos 81, 177-203 (2001).

Participación voluntaria en políticas internacionales de cambio climático: Implicancias para Chile (with L. Cifuentes and F. Soto), Estudios de Economía 27, 69-93 (2000).

Optimal design of a phase-in emissions trading program, Journal of Public Economics 75, 273-291 (2000).

Voluntary compliance with market-based environmental policy: Evidence from the US Acid Rain Program, Journal of Political Economy 107, 998-1033 (1999). [Reprinted in *Economics of Environmental Law*, edited by Richard Brooks, Nathaniel O. Keohane, and Douglas A. Kysar, Edward Elgar, Cheltenham, UK, 2008]

Summary evaluation of the US SO₂ Emissions Trading Program as implemented in 1995 (with A.D. Ellerman, R. Schmalensee, P. Joskow, and E.M. Bailey), in S. Sorrell and J. Skea (eds.), *Pollution for Sale: Emissions Trading and Joint Implementation*, Edward Elgar, Cheltenham, UK (1999).

Optimal opt-in “climate” contracts, Journal of Applied Economics 1, 363-384 (1998).

The declining trend in sulfur dioxide emissions: Implications for allowance prices (with A.D. Ellerman), Journal of Environmental Economics and Management 36, 26-45 (1998).

An Interim Evaluation of Sulfur Dioxide Emissions Trading (with R. Schmalensee, P. Joskow, A. D. Ellerman, and E.M. Bailey), Journal of Economic Perspectives 12, 53-68 (1998). [Reprinted in R.N. Stavins (ed.), *Economics of the Environment: Selected Readings*, 4th Edition, W.W. Norton's, 2000].

Marketable pollution permits with uncertainty and transaction costs, Resource and Energy Economics 20, 27-49 (1998).

A solute transport model for the acid leaching of copper in soil columns (with J.F. Muñoz, R. Abeliuk and M. Vauclin), Soil Science Society of America Journal 58, 678-686 (1994).

C. WORKING PAPERS AND WORK IN PROGRESS (available in my web site)

Technology-Neutral vs. Technology-Specific Procurement (with Natalia Fabra, working paper, Feb 2021)

A Theory of Must-Haves (with Enrique Ide, working paper, July 2020)

Smog checks, competition and corruption (with Barahona, Gallego et al; work in progress)

Permit markets and climate agreements (with Matti Liski; work in progress)

Multimarket contact, price discrimination, and collusive behavior (with Esperanza Johnson; working paper, June 2013)

On the Exhaustible-Resource Monopsony (with Matti Liski; working paper, July 2012)

D. SOME OTHER PUBLICATIONS (some of them in Spanish)

National and Sub-National Policies and Institutions (with Larry Goulder and many others). This corresponds to Chapter 15 of the IPCC (Intergovernmental Panel on Climate Change) Working Group III Fifth Assessment Report. The full report can be found in <http://www.ipcc.ch/index.htm>. February 2014.

La Competencia en el Mercado Eléctrico Mayorista en Chile (with Natalia Fabra and Mar Reguant). This report, which provides an analysis of the competition in Chile's wholesale electricity market, was requested by the Competition Authority (FNE). January 2014.

Roadmap for Implementing a Greenhouse Gas Emissions Trading System in Chile (with Suzi Kerr and many others). Report to the World Bank on Partnership for Carbon Market Readiness. November 2012.

Colusión en Mercados de Minerales, *Administración y Economía UC* 58, 7-11 (2005)

Tradeable permits with imperfect monitoring, *CESifo Forum* 4 (1), 23-27 (2003).

Algunas lecciones para la ley de bonos de descontaminación (con José Miguel Sánchez), *Administración y Economía UC* 42, 24-26 (2002).

Explaining low sulfur dioxide allowance prices: The effect of expectation errors and irreversibility (with A.D. Ellerman) Working paper 98-011, Center for Energy and Environmental Policy Research, MIT, 1998.

Privatización y Regulación de Empresas Sanitarias: Implicancias para Chile (con Manuel Madrid-Aris), *Jornadas de Hidráulica* 1998, Universidad Católica de Chile, Octubre 1998.

Environmental Regulation and Technological Change, *Revista Apuntes de Ingeniería* (Junio 1997).