

# Ana Espinola – Arredondo

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## EDUCATION

Ph.D. in Economics, University of Pittsburgh, 2008.  
M.Sc. in Economics, University of Barcelona, Spain, June 2002.  
B.S. Industrial Engineering with Honors, University of Valparaiso, Chile, 1999.  
B.A. Business Administration with Honors, University of Valparaiso, Chile, 1999.

## RESEARCH INTERESTS

Environmental Economics, Game Theory and Industrial Organization.

## POSITIONS

Associate Director, School of Economic Sciences, Washington State University, August 2019-  
Associate Professor, School of Economic Sciences, Washington State University, August 2014-  
Visitor, University of Barcelona, School of Economics. January – May 2017.  
Assistant Professor, School of Economic Sciences, Washington State University, August 2009-2014  
Visitor, University of California, Berkeley, April 2010.  
Visiting Professor, University of Granada, Spain, Summer 2009.  
Postdoctoral Research Associate, School of Economic Sciences, WSU, 2008-2009.  
Researcher, Barcelona Economics Institute (IEB), Spain, 2001-2002.

## PUBLICATIONS

1. Espinola-Arredondo, A., F. Munoz-Garcia and I. Duah. Anticipatory Effects of Taxation in the Commons: When Do Taxes Work, and When Do They Fail? *Forthcoming Ecological Economics*.
2. Espinola-Arredondo, A., F. Munoz-Garcia and A. Jung. Organic Mergers: When are they welfare improving? *Forthcoming Journal of Industry, Competition and Trade*.
3. Bayham, J., F. Munoz-Garcia and A. Espinola-Arredondo. International Coordination of Environmental Policies: Is it Always Worth the Effort? *Environment and Development Economics*. 2019, 24(3), pp. 294-316.
4. Espinola-Arredondo, A., F. Munoz-Garcia and B. Liu. Strategic Emission Fees: Using Green Technology to Deter Entry. *Journal of Industry, Competition and Trade*. 2019, 19, pp. 313-349.
5. Choi, P., Espinola-Arredondo, A. and F. Munoz-Garcia. Conservation Procurement Auctions with Bidirectional Externalities. *Journal of Environmental Economics and Management*. 2018, 92, pp. 559-579.
6. Strandholm, J., A. Espinola-Arredondo and F. Munoz-Garcia. Regulation, Free-Riding Incentives, and R&D investment with Spillover. *Resource and Energy Economics*. 2018, 53, pp. 133-146.

7. Espinola-Arredondo, A., F. Munoz-Garcia and P. Tantihkarnchana. Information Transmission during the Trial: The Role of Punitive Damages and Legal Costs. *Journal of Public Economic Theory*. 2018, 20(2), pp. 136-155.
8. Zaikin, A., Espinola-Arredondo, A. and A. Prera. Water Allocation Strategies: Experimental Evidence from Uzbekistan. *Journal of Water Resource and Protection*. 2018, 10, pp. 20-40.
9. Espinola-Arredondo, A. and F. Munoz-Garcia. Profit-Enhancing Environmental Policy: Uninformed Regulation in an Entry-Deterrence Model. *Journal of Regulatory Economics*. 2016, 50(2), pp. 146-163.
10. Tongzhe Li, Espinola-Arredondo, A. and Jill McCluskey. Promoting Residential Recycling: An Alternative Policy Based on a Recycling Reward System. *Games*. 2016, 7(3), pp. 1-18.
11. Espinola-Arredondo, A. and F. Munoz-Garcia. An Excessive Development of Green Products? *Economics of Governance*. 2016, 17(2), pp. 101-129.
12. Espinola-Arredondo, A. and F. Munoz-Garcia. Can Poorly Informed Regulators Hinder Competition? *Environmental and Resource Economics*. 2015, 61(3), pp. 433-461.
13. Espinola-Arredondo, A. and F. Munoz-Garcia. Why do Firms Oppose Entry-Detering Regulation? Environmental Regulation and Entry Deterrence. *Environment and Development Economics*. 2015, 20(2), pp.141-160.
14. Espinola-Arredondo, A. and F. Munoz-Garcia. The Signaling Role of Subsidies. *The B.E. Journal of Economic Analysis and Policy*. 2015, 15(1), pp. 157-178.
15. Espinola-Arredondo, A., Munoz-Garcia, F. and J. Bayham. The Entry-Detering Effects of Inflexible Regulation. *Canadian Journal of Economics*, 2014, 47(1), pp. 298-324.
16. Espinola-Arredondo, A. and F. Munoz-Garcia. Asymmetric Information May Protect the Commons: The Welfare Benefits of Uninformed Regulators. *Economics Letters*, 2013, 121(3), pp. 463-467.
17. Espinola-Arredondo, A. and F. Munoz-Garcia. Don't Forget to Protect Abundant Resources. *Strategic Behavior and the Environment*, 2013, 3(4), pp. 251-278.
18. Espinola-Arredondo, A. and F. Munoz-Garcia. When does Environmental Regulation Facilitate Entry-Detering Practices? *Journal of Environmental Economics and Management*, 2013, 65(1), pp. 133-152.
19. Espinola-Arredondo, A. and F. Munoz-Garcia. Uncovering Entry Deterrence in the Presence of Learning-by-Doing. *Journal of Industry, Competition and Trade*, 2013, 13(3), pp. 319-338.
20. Espinola-Arredondo, A. and F. Munoz-Garcia. The Entry-Detering Effects of Environmental Policy. *Review of Environment, Energy and Economics (Re3)*, January 10, 2013. Available at <http://www.feem.it/getpage.aspx?id=5259>
21. Espinola-Arredondo, A. and H. Zhao. Environmental Policy in a Linear City Model of Product Differentiation. *Environment and Development Economics*, 2012, 17(4), pp. 461-47.
22. Espinola-Arredondo, A. and F. Munoz-Garcia. When do Firms Support Environmental Agreements? *Journal of Regulatory Economics*, 2012, 41(3), pp. 380-401.
23. Espinola-Arredondo, A. and F. Munoz-Garcia. Can incomplete information lead to under-exploitation in the commons? *Journal of Environmental Economics and Management*, 2011, 62(3), pp. 402-413.

24. Espinola-Arredondo, A., E. Gal-Or and F. Munoz-Garcia. When should a firm expand its business? The Signaling Implications of Business Expansion. *International Journal of Industrial Organization*, 2011, 29(6), pp. 729-745.
25. Espinola-Arredondo, A. and F. Munoz-Garcia. Free-riding in International Environmental Agreements: A Signaling Approach to Non-Enforceable Treaties. *Journal of Theoretical Politics*, 2011, 23(1), pp. 111-134.
26. Espinola-Arredondo, A. and F. Munoz-Garcia. The Intuitive and Divinity Criterion: Interpretation and Step-by-Step Examples. *Journal of Industrial Organization Education*, 2010, 5(1), Article 7.
27. Espinola-Arredondo, A. Free-riding and cooperation in environmental games. *Journal of Public Economic Theory*, 2009, 11(1), pp. 119-158.
28. Espinola-Arredondo, A., Yoder, J. and P. Wandschneider. Biofuel policy for the pursuit of multiple goals: The case of Washington State. *Western Economics Forum*, 2009, 8 (1), pp. 1-9.
29. Espinola-Arredondo, A. Green Auctions: a biodiversity study of mechanism design with externalities, *Ecological Economics*, 2008, 67(2), pp. 175-183.

#### **BOOKS AND BOOK CHAPTERS**

1. Espinola-Arredondo, A. and F. Munoz-Garcia. “Intermediate Economic Theory: Tools and Step-by-Step Examples.” The MIT Press, Forthcoming Spring 2020.
2. Dunaway, E., Strandholm, J., Espinola-Arredondo, A. and F. Munoz-Garcia. “Practice Exercises for Intermediate Economic Theory.” The MIT Press, Forthcoming Spring 2020.
3. Espinola-Arredondo, A. and F. Munoz-Garcia. Editors of the volume dedicated to “*Game Theory*,” in the WSCP reference of natural resources and environmental policy in the era of global change, World Scientific Publishing Company (WSPC)/Imperial College Press (IPC). October 2016.
4. Espinola-Arredondo, A. and F. Munoz-Garcia “Environmental Negotiations under Uncertainty,” in the *Analyzing Global Environmental Issues: Theoretical and Experimental Applications and their Policy Implications*, Ariel Dinar and Amnon Rapoport, eds. Routledge. February 14th, 2013, pp. 53-68.
5. Munoz-Garcia, F. and A. Espinola-Arredondo. “The Role of Information in the Tragedy of the Commons,” in the *Analyzing Global Environmental Issues: Theoretical and Experimental Applications and their Policy Implications*, Ariel Dinar and Amnon Rapoport, eds. Routledge. February 14th, 2013, pp. 29-52.
6. Instructor’s Manual to Accompany *Environmental and Natural Resource Economics*, 8th edition. (Tom Tietenberg and Lynne Lewis), Prentice Hall, 2009.

#### **RESEARCH PAPERS**

1. Regulators and Environmental Groups: Better Together than Apart? (with F. Munoz-Garcia and E. Stathopoulou)
2. Abolishing Environmental Regulation: Strategic Effects and Welfare Implications. (with F. Munoz-Garcia)

3. Can Mandatory Certification Promote Greenwashing? A Signaling Approach (with Dolores Garrido and F. Munoz-Garcia)
4. Pollution Abatement and Disruptive R&D Investment. (with John Strandholm and Felix Munoz-Garcia)
5. Investment in Green Technology and Entry Deterrence. (with John Strandholm)
6. Does Investment on Renewable Energy affect OPEC's Strategy? (with Anika Islam)
7. Environmental Policy Design Under Environmentally Conscious and Future Oriented Consumers (with Kiana Yektansani)
8. Mergers between Green and Brown Firms. (with Pak-Sing Choi and Félix Muñoz-García)
9. Does Ambiguity Matter for Ex Ante Regulation and Ex Post Liability? (with Casey Bolt)
10. Unilateral and Bilateral Signaling in Environmental Negotiations. (with Felix Munoz-Garcia)

### **ACADEMIC AWARDS**

- 2017-18 Fulbright U.S. Scholar Grant.
- The Sylvia Lane Mentor Fellowship. AAEA Foundation, 2010
- Second Place in Research Medal Award of the Global Development Network (sponsored by International Development Research Center, Canada (IDRC) and the World Bank) with the paper "Free-riding and Cooperation in Environmental Games." Kuwait, February 2009.
- Nominated Outstanding Mentor, Women and Leadership Forum, WSU, 2009.
- Junta de Andalucía Research Fellowship, Spain. Summer 2009.
- Arts & Sciences Research Fellowship, University of Pittsburgh, Summer and Fall 2007.

### **RESEARCH GRANTS**

- Moyer, M. (PI), W. Mahaffee, A. **Espinola-Arredondo** (Co-PI), T. Miles, R. Naegele, R. Stoll, P. Brannen, M. Cooper, M. Lewis- Ivey, I. Stergiopoulos. "Fungicide Resistance Assessment, Mitigation and Extension Network for Wine, Table and Raisin Grapes (FRAME)." The U.S. Department of Agriculture's National Institute of Food and Agriculture. \$2.4 million. September 2018.
- Yoder, J., C. R. Shumway, P. Wandschneider, D. Young, H. Chouinard, A. **Espinola-Arredondo**, S. Galinato, C. Frear, D. Holland, E. Jessup, J. LaFrance, K. Lyons, M. McCullough, K. Painter, L. Stodick. Biofuel Economics and Policy for Washington State. A Report to the Washington State Legislature and the Washington State Governor's Office. December 2008.
- The Sylvia Lane Mentorship Fund. (\$2,500)

### **PROFESSIONAL SERVICE**

#### *Editorial Duties:*

- Economic Inquiry, Co-Editor 2018-
- PLOS ONE, Editorial Board 2019-

## TEACHING EXPERIENCE

- *Washington State University*:
  - Microeconomic Theory I (Graduate Level), Fall 2018, 2017.
  - Environmental Economics (Graduate Level), Fall 2017, 2016, 2015, 2013, 2012, 2011, 2010 and 2009; Spring 2015.
  - Master’s Microeconomic Analysis II, Spring 2018, Fall 2018, 2016, 2015.
  - Natural Resource Economics (Undergraduate Level), Fall 2013, 2012, 2011, 2010, 2009 and 2008.
  - Industrial Organization (Undergraduate Level), Spring 2016, 2015, 2014, 2013, 2012 and 2011.
  - Economics Capstone (Undergraduate Level), Spring 2010.
- *University of Pittsburgh*. Introduction to Environmental Economics, Summer 2006.
- *University of Granada – Spain*. Game Theory (Graduate Level), Summer 2009.

## STUDENTS ADVISED

### as Ph.D. Committee Member (role, first placement):

- Casey Bolt (advisor)
- Anika Islam (advisor)
- Chelsea Pardini (advisor)
- Aerin Jung (co-advisor)
- Kiana Yektansani (co-advisor)
- Dolores Garrido (co-advisor)
- Youngran Choi (member)
- Paksing Choi 2018 (co-advisor, Assistant Professor, National Central University, Taiwan)
- Isaac Duah 2018 (member, Senior Regulatory Specialist, Commonwealth Edison, Chicago, IL)
- Kiriti Kanjilal 2018 (member, Indraprastha Institute of Information Technology, Delhi)
- Alisher Mamadzhanov 2017 (co-advisor, United Nations)
- John Strandholm 2017 (advisor, Assistant Professor, University of South Carolina Upstate)
- Ziyang Yang 2017 (member, Southwestern University of Finance and Economics)
- Pitchayaporn Tantihkarnchana 2016 (member, Lecturer, Penn State)
- Gregory Astill 2015 (member, Researcher, USDA)
- Tongzhe Li 2015 (co-advisor, Post-Doctoral Researcher, University of Delaware)
- Boying Liu 2015 (co-advisor, JPMorgan Chase & Co)
- Jude Bayham 2013 (member, Post-Doctoral Fellow, Yale University School of Forestry)
- Jingze Jiang 2013 (member, Assistant Professor, Edinboro University)
- Aysin Tekindor 2013 (member, Visiting Assistant Professor, Cal State Long Beach)
- Tricia Nusius 2013 (co-advisor, Assistant Director, Royal Malaysian Customs Agency)
- Huan Zhao 2012 (member, Economic Analyst, Washington State Dept. of Labor & Industries)
- Andrey Zaikin 2012 (co-advisor, Analyst, T-Mobile)

### as M.A. Committee Member:

- Devin Gray 2018 (advisor)
- Tyler Laferriere 2017 (member)
- Wai Yan Siu 2016 (advisor)
- Shuhong Zhang 2016 (member)
- Trang Tran 2015 (advisor)

- Fuad Alagsam 2011 (advisor).
- Gulnara Zaynutdinova 2010 (member)

as Undergraduate Committee Member:

- Ellen Robertson 2014 (member)

**Referee Service:** International Economic Review; Review of Industrial Organization; Canadian Journal of Economics; Journal of Environmental Economics and Management; The B.E. Journal of Economic Analysis & Policy; Journal of Policy Analysis and Management; Ecological Economics; Environmental and Resource Economics; Environment and Development Economics; Resource and Energy Economics; Energy Economics; Journal of Public Economic Theory; International Review of Economics and Finance; Journal of Conflict Resolution; Climate Policy; Economics of Governance; Regional Science and Urban Economics; Social Problems; Journal of Industry, Competition and Trade; Economic Inquiry; Strategic Behavior and the Environment; PLOS ONE; Kyklos; Economics Bulletin; Reviews in Fish Biology and Fisheries; Portuguese Economic Journal; Agricultural and Resource Economics Review; WSU Extension; Revista Economía & Región.

**Reviewer:** (i) Economics and the Environment, Eban S. Goodstein, 6th Edition and ECON306 (Industrial Organization) for the Saylor Foundation. (ii) Global Development Awards 2017, in the category of “Skilling for Agriculture;” (iii) proposals for the 2019 Association for Public Policy Analysis & Management (APPAM) Fall Research Conference on November 7-9, 2019 in Denver, Colorado.

**USDA’s NIFA/AFRI program:** Member of the panel for the Economics, Markets and Trade, and Environment foundational grant programs, September 2013, Washington DC.

**Scientific Committee.** Latin America and Caribbean Environmental Economics Program (LACEEP), 2010.

**Provost Leadership Academy- WSU.** Participant during September 2017- April 2018.

**Washington State University, SES.** Qualifying Examination Committee – Microeconomics, 2018. SES Communication, 2017; Economics Club Advisor, August 2009-2014; Director’s Advisory Committee, 2013; Graduate Studies Committee, August 2012-2016; Macro Search Committee, 2012 and 2016.

**AEA-CSWEP.** Liaison for Washington State University in the standing committee of the American Economic Association, the Committee on the Status of Women in the Economics Profession (CSWEP), August 2015-present.

**Viking Vanguard at Puyallup High School.** Interview about the impact of the Keystone XL pipeline in North Dakota to the state of Washington. December 5, 2016.

## SELECTED PRESENTATIONS

- Second Catalan Economic Society Conference (CESC). Barcelona, Spain. May 24 – 25, 2019.
- 15th Western Economic Association International conference. Tokyo, Japan. March 21<sup>st</sup> – 24<sup>th</sup>, 2019.
- Seminar Session, School of Economic Sciences, WSU. March 1<sup>st</sup>, 2019.
- University of Montreal, HEC-Canada. GERAD. March 11<sup>th</sup>, 2019
- 40th Association for Public Policy Analysis & Management (APPAM) Fall Research Conference, Washington, DC. November 8 – 10, 2018.
- 6th World Congress of Environmental and Resource Economists, Gothenburg. June 25-29, 2018.
- 87th Annual Conference of the Southern Economic Association. Tampa, FL. Nov.17-19, 2017.

August, 2019

- Workshop in Environmental and Resource Economics in Memory of Pierre Lasserre, Université du Québec à Montréal ( UQAM), Montréal, Canada, October 2017.
- 2017 AAEA Annual Meeting. Chicago, IL. July 30-August 1, 2017.
- First Catalan Economic Society Conference (CESC). Barcelona, Spain. May 26 – 27, 2017.
- University of Barcelona, School of Economics. Barcelona, Spain. April 7<sup>th</sup>, 2017.
- 12<sup>th</sup> Spanish Association for Energy Economics (AEEE). Salamanca, Spain. February 2 -3, 2017.
- Center for Environmental Research, Education, and Outreach (CEREO) seminar series, Washington State University. Pullman, WA. November 9, 2016.
- The 91st annual Western Economic Association International conference, Association of Environmental and Resource Economists session. Portland, OR. June 29-July 3, 2016.
- 13th Annual International Industrial Organization Conference, Boston, MA. April 24-26, 2015.
- 5th Workshop on Game Theory in Energy, Resources and Environment. HEC Montréal, Canada. May 26 - 27, 2014.
- University of Montana. Department of Economics, October 11<sup>th</sup>, 2013.
- The 88th annual Western Economic Association International conference. Seattle, WA. June 28-July 2, 2013.
- ASSA meeting. San Diego, CA. January 4 - 6, 2013.
- 4th Workshop on Game Theory in Energy, Resources and Environment. HEC Montréal, Canada. November 29 - 30, 2012.
- Washington State University. October 2012.
- AAEA Annual Meeting. Seattle, WA. August 12-14, 2012.
- The 10th annual International Industrial Organization Conference. The George Mason School of Law, Arlington, Virginia, March 16-18, 2012.
- 5th Conference on the Political Economy of International Organizations at Villanova University, Philadelphia, January 26–28, 2012.
- 8th Meeting on Game Theory and Practice Dedicated to Global and International Issues. University of California, Riverside, July 11-12, 2011
- AERE Summer Conference, June 9-10, 2011.
- Pontificia Universidad Católica de Chile, Chile. May 2011.
- Universidad de Concepción, Chile. May 2011.
- 9th Annual International Industrial Organization Conference, Boston, MA. April 8-10, 2011.
- ASSA meeting. Denver, CO. January 6 - 9, 2011
- 4th World Congress of Environmental and Resource Economists, Montréal. June 28 – July 2, 2010.
- 3rd Workshop on Game Theory in Energy, Resources and Environment. HEC Montréal, Canada. December 10 - 11, 2009.
- Washington State University. November 2009.
- 5th Spain, Italy, Netherlands Meeting on Game Theory, Amsterdam July 1-3, 2009.
- 17th Annual Conference of the EAERE, Amsterdam June 24-27, 2009.
- The Society of Labor Economists, Fourteenth Annual Meeting, Boston May 8-9, 2009.
- 7<sup>th</sup> International Industrial Organization Conference. Boston, April 3-5, 2009.
- Research Medal Award of the Global Development Network (sponsored by the World Bank). Kuwait, February 3-5, 2009.
- University of Chile, Centro de Economía Aplicada. December 2008.
- 2nd Workshop on Game Theory in Energy, Resources and Environment. HEC Montréal, Canada. November 20 - 21, 2008.
- Washington State University. November 2008.

- University of Navarra, Spain; University of the Balearic Islands, Spain; Cleveland State University and Washington State University. February-March, 2008.
- XXXII Simposio de Análisis Económico in Granada, Spain. December 13-15, 2007.
- CU Environmental and Resource Economics Workshop. Department of Economics, University of Colorado at Boulder. September 21-22, 2007.
- Public Economic Theory Conference (PET07). Vanderbilt University, Nashville. July 06-08, 2007.
- Spain-Italy-Netherlands Conference on Game Theory and Applications (SING3), Spain, July 2007.
- Economic Science Association World Meeting, Rome, Italy, June 2007.
- 7th Meeting on Game Theory and Practice Dedicated to Energy, Environment and Natural Resources. HEC Montréal, Canada. May 28 - 30, 2007.
- Midwest Economics Association, 71st Annual Meeting. Minnesota. March 23-25, 2007.
- Seminar in Microeconomic Theory. Department of Economics, University of Pittsburgh. Nov. 2006.
- 8th Annual BIOECON Conference on the Economic Analysis of Ecology and Biodiversity. Kings College Cambridge, University of Cambridge, UK. August 29-30, 2006.
- The Abdus Salam International Centre for Theoretical Physics, Trieste, Italy. November 12-16, 2001.

**PROFESSIONAL MEMBERSHIP**

Association of Environmental and Resource Economists; American Economic Association; European Association of Environmental and Resource Economists; and Royal Economic Society.