

Costs and Approaches for Municipal Solid Waste Recycling Programs

Committee

Don Fullerton

Co-Chair

Don Fullerton is a Visiting Professor at U.C. Santa Barbara (2023-present). He was Gutsell Professor of Finance at the University of Illinois in Urbana-Champaign (2008-2023). He taught at Princeton, Virginia, Carnegie Mellon, and Texas, before joining Illinois in 2008. From 1985 to 1987, he was Deputy Assistant Secretary for Tax Analysis at the Treasury Department. His research analyzes distributional and efficiency effects of environmental and tax policies. After researching taxation, Fullerton switched to environmental economics and policy. His work has included analysis of household behavior in response to a price per bag of garbage by measuring the reduction of curbside garbage and the increase in curbside recycling. His current research is about the Circular Economy, including policies to reduce negative effects of extraction, production, and disposal. He studies economic effects of climate policy, energy efficiency mandates, renewable portfolio standards, cap-and-trade permits for emissions, and carbon taxes, including the distribution of the burdens of policy as well as effects on the environment, on cost efficiency, and on overall social welfare. Dr. Fullerton received a BA from Cornell, and a PhD in Economics from U.C. Berkeley. In 2014, he was a Lead Author of the 5th Assessment Report, U.N. Intergovernmental Panel on Climate Change (IPCC).

Debra R. Reinhart

Co-Chair

Debra Reinhart is a Pegasus Professor Emerita at the University of Central Florida. Prior to her retirement in June 2021, she was Associate Vice President for Research and Scholarship at the University of Central Florida and a member of the Civil, Environmental and Construction Engineering Department. Dr. Reinhart's research area is solid waste management, with a focus on optimized waste collection, recycling, and processing as well as sustainable operation of landfills. From 2011-2013, Dr. Reinhart was a program manager at the National Science Foundation. Dr. Reinhart is an Associate Editor for the Waste Management. She is a registered professional engineer in Florida and Georgia, a Board Certified Environmental Engineer, and a Fellow of the American Society of Civil Engineers, the American Association for the Advancement of Science, and the Association of Environmental Engineering and Science Professors. She holds a B.S. in Engineering from Florida Technological University, and an M.S. in Sanitary Engineering and a Ph.D. in Environmental Engineering from Georgia Institute of Technology. Dr. Reinhart served as a member of the National Academies' study committee on Repurposing Plastics Waste in Infrastructure

Malak Anshassi

Member

Malak Anshassi is an assistant professor at Florida Polytechnic University teaching solid waste management, sustainability, and life cycle assessment courses. Her research focuses on incorporating life cycle thinking into solid waste management. She previously conducted research using principles from sustainable materials management (or SMM) to analyze the application of life cycle thinking into Florida's solid waste management system to achieve the 75% recycling rate target. In her current research she formulates SMM-based solid waste management and policy approaches that decision makers from any region of the world can use to measure their waste management system's environmental and economic impacts. She is an active member of Solid Waste Association of North America (SWANA), Air and Waste Management Association (AWMA), and Recycle Florida Today (RFT). She received her Doctorate degree from the University of Florida in 2020

Fatima Hafsa

Member

Fatima Hafsa is a circular economy specialist and materials engineer at the World Bank. Her research focuses on sustainable supply chain, recycling economics, and voluntary governance. Her work experience spans private businesses, non-profits, and government agencies in the U.S., Pakistan, and West Africa. She consults for the World Bank in implementing circular economy systems at a national level in the Global South. Fatima also has extensive experience in recycling systems within the U.S. As a postdoctoral scholar at Arizona State University, Fatima assessed the efficacy of U.S. recycling systems. She mapped local recycling supply chains, assessed waste trade, identified recycling innovations, and identified ways in which U.S. local governments can use sustainable purchasing to improve recycling systems. Fatima is also a Fulbright scholar from Pakistan. Fatima completed her PhD in sustainability at Arizona State University in 2022 and has a masters in materials engineering from Georgia Institute of Technology.

Tracy J. Horst

Member

Tracy Horst is the Environmental Compliance and Recycling Director for the Choctaw Nation of Oklahoma and has been with the tribe since 2007. In her current position, she has assisted with creating and maintaining a compliance program to assure the tribe is following environmental regulations. Tracy has helped to establish the recycling program and set up and manages two recycling centers for the tribe. Tracy works to assist rural communities in southeastern Oklahoma to learn and understand more about what recycling is, how to start recycling, and options for recycling. Tracy currently serves on the Tribal Waste and Response Steering Committee for Institute for Tribal Environmental Professionals and is active with the Oklahoma Recycling Association including serving on the Board of Directors, as Vice President, and President. She also serves on the Board of Directors for the Durant Sustainability Coalition and the planning committee for the Texoma Earth Day Festival. Tracy has degrees in Biology and Chemistry from Southwestern College in Winfield, Kansas.

Derek Kellenberg

Member

Derek Kellenberg is a Professor in the Economics Department at the University of Montana. He has specializations in international and environmental economics, with particular interests in international environmental policy, international pollution haven effects, and the determinants of hazardous waste trade across countries. Dr. Kellenberg has published articles in and served on the editorial boards of the Journal of the Association of Environmental and Resource Economics and the Journal of Environmental Economics and Management, and currently serves on the editorial board of the International Journal of Sustainable Society. He was the keynote speaker at the Symposium on International Waste Trade: Economic Research and Policy Implications in Brussels, Belgium in 2015 and authored a chapter in the Annual Review of Resource Economics on the Economics of International Waste Trade. Dr. Kellenberg received his Ph.D. in Economics from the University of Colorado.

Jeremy O'Brien

Member

Jeremy K. O'Brien is a solid waste research engineer and consultant who has over 40 years of experience in the industry. Jeremy serves as a consultant for the City of Winston-Salem, North Carolina. Since 1999, he has served as the Director of Applied Research for the Solid Waste Association of North America (SWANA) – an association of more than 10,000 public and private sector professionals committed to advancing from solid waste management to resource management through their shared emphasis on education, advocacy, and research. At SWANA, Mr. O'Brien manages the SWANA Applied Research Foundation (ARF), a program funded by “penny per ton” contributions from forty-seven organizations that subscribe to one or more of four research groups: Collection; Sustainable Materials Management (SMM); Waste Conversion and Energy Recovery (WCER) and Disposal. Mr. O'Brien also consults for the city of Winston-Salem, North Carolina, providing an annual economic analysis and cost of services assessment, and other related consulting assignments as requested, for the city's integrated solid waste management system. During his 24-year employment tenure at SWANA, Mr. O'Brien has conducted over fifty applied research projects on topics identified and selected by the ARF's subscribing organizations. Of the resulting reports, twelve have addressed recycling and composting topics. From 1989-1999, Mr. O'Brien was employed by HDR, Inc. – a global architectural, engineering and consulting firm. He holds Bachelor's and Master's degrees from Duke University.

Susan Robinson

Member

Susan K. Robinson has 40 years' experience in the waste and recycling industry, including roles in the public and private sectors, and retired from Waste Management (WM) in 2021 after 23 years. At WM, she managed municipal contracts and implemented several large waste and recycling programs before moving to a corporate role leading WM's policy team and ultimately WM's Sustainability Team. Susan served as a subject matter expert on recycling markets and operations, and was a frequent speaker on waste, recycling, and sustainability issues. She worked on an internal team that developed an analysis of the cost and emissions impact for the entire U.S. solid waste stream, presenting the results publicly upon completion. She published a monthly sustainability column for Waste 360, as well as articles for the Air and Waste Management Magazine. She is currently an appointed member of the US EPA's National Advisory Council. She has served on multiple industry-related boards and on the Washington State Governor's Beyond Waste Task Force. She was a five-time recipient of the WM's Circle of Excellence Award. She holds a BS from the University of Washington. While retired, Ms. Robinson holds a consulting contract with WM related to monitoring and reporting the implementation of the state of Oregon's recycling policy; she also consults for the Carton Council of North America related to working with recycling facilities on the West Coast to successfully implement local community recycling programs.

Hilary Sigman

Member

Hilary Sigman is a Professor in the Department of Economics at Rutgers University and a Research Associate of the National Bureau of Economic Research. She conducts empirical research on the effects of environmental policy and has focused particularly on the economics of waste and contaminated land. Her research has been published in journals such as the American Economic Review, RAND Journal of Economics, Journal of the Association of Environmental and Resource Economists, and Journal of Environmental Economics and Management, and has been funded by grants from the National Science Foundation, the Environmental Protection Agency, and the World Bank. She has served on Environmental Protection Agency Science Advisory Board committees and on the Board of Directors and other committees of the Association of Environmental and Resource Economists. She holds a B.A. in Economics and Environmental Studies from Yale, an M.Phil. in Economics from Cambridge University (U.K.), and a Ph.D. in Economics from the Massachusetts Institute of Technology.

Mitchell J. Small

Member

Mitchell Small is a Professor Emeritus in Civil & Environmental Engineering and Engineering & Public Policy at Carnegie Mellon University. His research involves mathematical modeling of environmental systems, environmental statistics, and risk assessment. Current projects include models for leak detection at geologic CO₂ sequestration sites; the value of scientific information for conflict resolution among polarized stakeholders; and multi-objective design of solid waste management systems. He has published over 200 manuscripts in peer reviewed journals , books and conference proceedings. Small has participated on EPA Science Advisory Board (SAB) panels, was elected Fellow of the Society for Risk Analysis (SRA) in 2003, received Distinguished Educator Awards from the SRA in 2013 and the Association of Environmental Engineering and Science Professors (AEESP) in 2017, and served as an Associate Editor for the journal Environmental Science & Technology (1995 - 2011), where he helped to introduce new areas of focus for the journal, including life-cycle analysis, industrial ecology, and environmental policy analysis. Dr. Small holds a BS from Carnegie Mellon University and an MS and PhD from the University of Michigan. He has prior service on numerous National Academies committees, including as chair.

Rebecca Taylor

Member

Rebecca Taylor is an Assistant Professor at the University of Illinois, Urbana-Champaign in the Department of Agricultural & Consumer Economics. She is a leading expert on the economics of regulating waste from consumer items, and in particular, the regulation of plastic carryout bags. Dr. Taylor analyzes the effectiveness of environmental and food policies in changing consumer behavior, especially when there is debate over optimal policy design. She also studies how these policies interact with issues of equity and how these policies displace consumption in unintended ways, such as consumers buying more garbage bags when plastic carryout bags are banned. Her research has gained international attention and has been covered by news outlets in the United States, Australia, New Zealand, Canada, Mexico, and Indonesia. Her papers have also influenced policy recommendations, such as those given by the UN's Environmental Programme "Legislative Guide for the Regulation of Single-Use Plastic Products," and have won distinguished award, such as the 2020 Best Paper Prize for the Journal of Environmental Economics & Management. Dr. Taylor received her Ph.D. in Agricultural & Resource Economics at the University of California, Berkeley and her B.A. in Economics at Washington & Lee University.

Sofia B. Villas-Boas

Member

Sofia Berto Villas-Boas is a professor in the Department of Agricultural and Resource Economics at UC Berkeley. She holds the Class of 1934 Robert Gordon Sproul Chair in Agricultural Economics. Her research interests include industrial organization, consumer behavior, food policy, and environmental regulation. Her recent empirical work estimates the effects of policies on consumer behavior, such as a bottled water tax, a plastic bag ban, and a soda tax campaign and its implementation. Dr. Villas-Boas's other published work has focused on the economics behind wholesale price discrimination banning legislation, contractual relationships along a vertical supply chain, and identifying the role of those contracts in explaining the pass-through of cost shocks along the supply chain into retail prices that consumers face. She has published in top economics and field journals such as Review of Economic Studies, Rand Journal of Economics, American Journal of Agricultural Economics, Journal of Environmental Economics and Management, Marketing Science, Management Science, and Review of Economics and Statistics. She received her Ph.D. in Economics from U. C. Berkeley and an undergraduate degree in Economics from the Universidade Católica Portuguesa. She previously served on a National Academies committee related to consumer data for the US Department of Agriculture's Economic Research Service.