Elena G. Irwin

Department of Agricultural, Environmental, and Development Economics
College of Food, Agricultural, and Development Economics

Sustainability Institute

Ohio State University

Email: irwin.78@osu.edu

Overall Research Impact: Google scholar cites: 11,900+, 27 papers with >100 cites, h-index: 38, external research funding as PI or Co-PI > $30 million, 5 post-docs, 18 Ph.D. students advised

Professional Experience

2025-present	Director, Sustainability Institute, Ohio State University
2023-present	Distinguished University Professor, Ohio State University
2019-2025	Faculty Director, Sustainability Institute, Ohio State University.
2020-2023	Distinguished Professor of Food, Agricultural and Environmental Sciences in Economics and Sustainability, Ohio State University
2015-2018	Faculty Director, Sustainable and Resilient Economy Discovery Themes Initiative, Ohio State University
2010-present	Professor, Department of Agricultural, Environmental & Development Economics, Ohio State University
2007-2008	Visiting Professor, Professorship for Environmental Economics and Policy, ETH Zürich and Social and Industrial Ecology, Dept. of Geography, University of Zürich
2005-2010	Associate Professor, Department of Agricultural, Environmental & Development Economics, Ohio State University
1998-2005	Assistant Professor, Department of Agricultural, Environmental & Development Economics, Ohio State University

Education

University of Maryland, College Park, MD. 1998. Ph.D., Agricultural and Resource Economics.

Washington University, St. Louis, MO. AB, 1988. Major fields: German and History.

Scholarly Areas of Interest

Land use change, management and policy; ecosystem services; integrated land-water systems models; spatial analysis and applied econometrics; urbanization; housing & land markets; sustainability assessment; Great Lakes communities and resilience; participatory research

Distinctions and Awards

Distinguished University Professor, 2023-current, Ohio State University.

Distinguished Professor of Food, Agricultural and Environmental Sciences in Economics and Sustainability, Ohio State University, 2020-2023.

Fellow, Agricultural and Applied Economics Association (AAEA), 2023-current.

Fellow, Association of Environmental and Resource Economists (AERE), 2022-current.

Member, Science Advisory Board and the Agricultural Science Committee, U.S. Environmental Protection Agency, 2021 – 2024.

Member, Agricultural and Applied Economics Association Executive Board, 2019-2022.

Member, Board of Scientific Councilors (BOSC) Sustainable and Healthy Communities Subcommittee, U.S. Environmental Protection Agency, 2014- 2016, 2018-2022.

Food Systems Leadership Institute (FSLI) Fellow, Cohort 14, 2018-2020.

Member, Board of Directors, Association of Environmental and Resource Economists, 2015-2018.

Member, National Science Foundation Advisory Committee for Environmental Research and Education Subcommittee on Sustainable Urban Systems, 2017-2018.

Member, National Research Council Land Change Modeling Committee, 2011-2012.

Multi-Disciplinary Team Award, College of Food, Agricultural and Environmental Sciences, Ohio State University, 2019

North American Colleges and Teachers of Agriculture (NACTA) Educator Award, 2015

Sustainability Science Award, Ecological Society of America, 2009

Distinguished Research Award, Top Junior Faculty, Ohio Agricultural Research and Development Center, Ohio State University, 2009

Geoffrey J.D. Hewings Award for Distinguished Young Scholar in Regional Science, North American Regional Science Council, 2008

MacArthur Foundation Research Fellowship, 1994-1997

Teaching

AED Economics 8502: Urban and Spatial Economics (PhD)

AED Economics 4330: The Sustainable Economy: Concepts and Methods (Undergraduate)

AED Economics 4567: Assessing Sustainability: Project Experience (Undergraduate capstone)

AED Economics 6020: Public Policy and Market Regulation (Masters)

University Leadership

Director, Sustainability Institute (SI), Ohio State University, 2025-current. Previously Faculty Director, 2019-2025. https://si.osu.edu/. Direct and co-founded a comprehensive, interdisciplinary university institute, including strategic planning, programming, and management across a variety of activities and over 350 faculty affiliates that support sustainability research, education, internal and external partnership engagement, and campus sustainability efforts.

Faculty Co-Lead, Sustainability Education and Learning Committee, Ohio State University, 2018-current. Founded and co-lead a university-wide committee of faculty that supports sustainability curriculum across the university.

Faculty Fellow and Leader, Advancing Sustainability at Ohio State Initiative, Office of Academic Affairs, Ohio State University, 2023-2024. Developed, led, and executed overall strategy to develop a transformational vision for advancing sustainability education, research, and community engagement at OSU on behalf of the university.

Co-chair, President and Provost's Council on Sustainability (PPCS*),* 2020-2022, Ohio State University. Provided leadership to this council comprised of representatives from academic and non-academic units to promote campus as a living lab and integration of sustainability research and learning opportunities with campus stewardship.

Faculty Director, Sustainable and Resilient Economy Discovery Themes Program, 2014-2019, Ohio State University. Developed, proposed, and led a university-wide interdisciplinary initiative to hire over 30 tenure-track faculty in sustainability science and catalyze sustainability research and graduate training.

Co-Founder, Environment, Economy, Development and Sustainability (EEDS) Undergraduate Major, 2012, College of Food, Agricultural and Environmental Sciences, Ohio State University. Led the development and implementation of OSU's first interdisciplinary major in sustainability in close

partnership with the School of Environment and Natural Resources, Department of Agricultural Environmental and Development Economics, and the Fisher College of Business, which was one the first of its kind in the nation. The EEDS major has graduated 500+ students since 2012, many of whom are pursuing sustainability careers.

Board Member, Center for Urban and Regional Analysis**,** 2017-2022. Provide overall strategic guidance and advice to this university center that focuses on community engagement and research on the environmental, social and economic sustainability of cities and regions in an urbanized world.

Member, Visionary Project Advisory Committee*,* 2018-2021*.* Direct and manage development of plans and specifications for the Energy Innovation Center; work with internal and external stakeholder groups to determine the visionary center's purpose, objectives, program and building requirements, and its location on campus, as well as its long-term vision, mission, and short-, intermediate-, and long-term success criteria.

Member, Energy Academic Collaboration Committee, 2017-2020*.* Served as the university Board of Advisors to attain a strong foundation for an integrated 50-year partnership with Ohio State Energy Partners that advances the sustainability academic mission of Ohio State; ensure that we maximize and enhance the value of this relationship with broad, university-wide interaction.

Faculty Leader, Schmidt Futures Alliance for the American Dream, 2018-2019*.* Provided overall leadership and strategic direction to this university initiative that seeks to identify ideas that will foster true social mobility, true equality of opportunity and a true middle class that is attainable; work closely with Ohio State University VP for Development and Office of Academic Affairs.

Member, Smart Campus Advisory Committee, 2018-2019*.* Provided feedback to the Smart Campus strategic plan that incorporates research, teaching, engagement and campus operations.

Working Group Leader, Developing Future Research Leaders, Research and Creative Expression Strategic Planning Committee, 2019, Office of Research, Ohio State University

Member, University Research and Creative Expression Strategic Planning Committee*,* 2019.

Member, Global Water Institute Advisory Board**,** 2016-2019.

Search Committee Member, Director, Proposal Development Office*,* 2018, Office of Research, Ohio State University

Search Committee Member, ENGIE Endowed Chair in Resilient Energy Systems, 2017-18, Ohio State University

Search Committee Member, STEAM Postdoctoral Fellows Program, Ohio State University, 2019.

Research Leadership

PI, Great Lakes Food-Energy-Water Systems Research Program. Funding: NSF Innovations at the Nexus of Food, Energy, Water Systems, USDA NIFA Resilient Agriculture Under a Changing Climate, NSF Coupled Natural-Human Systems Program, Ohio Sea Grant.

Co-PI, Enabling Farmer Discovery and Managing Critical Tradeoffs with the Emergence of National Scale Carbon Markets. Funding: Sustainable Ag Systems (SAS) Program, USDA.

Co-PI, EmPOWERment Convergent Graduate Training Program for a Sustainable Energy Future. Funding: NSF National Research Traineeship (NRT) Program.

Research

Peer Reviewed Articles

Conroy, M., B. Mansfield. E. Irwin, G. Jaquet, J. Brooks, G. Hitzhusen. 2024. Six Dimensions of Sustainability: A Framework for Organizing Diverse University Sustainability Curricula at The Ohio State University. *International Journal of Sustainability in Higher Education*. *25*(9), 316-332.

Hertel, T., E.G. Irwin, S. Polasky, N. Ramankutty. Focus on global-local-global analysis of sustainability. 2023. *Environmental Letters*. DOI 10.1088/1748-9326/acf8da

Song, CX, V Merwade, S Wang, M Witt, V Kumar, E Irwin, L Zhao, A Walton. Cyberinfrastructure for sustainability sciences. 2023. *Environmental Letters*. DOI: 10.1088/1748-9326/acd9dd

Cultice, B, EG Irwin, M Jones. Accounting for spatial economic interactions at local and meso scales in integrated assessment model (IAM) frameworks: challenges and recent progress. 2023. *Environmental Letters* 18 035009. DOI: 10.1088/1748-9326/acbce6

Jaeger, W. K., Irwin, E. G., Fenichel, E. P., Levin, S., & Herziger, A. 2023. Meeting the challenges to economists of pursuing interdisciplinary research on human–natural systems. Review of Environmental Economics and Policy, 17(1), 43-63.

Chen, Y, EG Irwin, C Jayaprakash, KJ Park. 2021. An agent-based model of a thinly traded land market in an urbanizing region. *Journal of Artificial Societies and Social Simulation* 24(1): 1-7.

Lee, J, N Irwin, EG Irwin, HJ Miller. 2021. The role of distance-dependent vs. localized amenities in polarizing urban spatial structure: A spatio-temporal analysis of residential location value in Columbus, Ohio, 2000-2015. *Geographical Analysis*. 53 (2): 283-306.

Miller, HJ, K Clifton, G Akar, S Gopalakrishnan, K Tufte, J MacArthur, EG Irwin, R Ramanath, J Stiles. 2021. Urban Sustainability Observatories: Understanding the Impacts of Disruptive Mobility Technologies on Cities via Persistent Observation, Analysis and Engagement. 2021. *Harvard Data Science Review* 3(2).

Ara, S, EG Irwin. 2021. Cluster Analysis for Housing Market Segmentation. *Sosyoekonomi* 29(49): 11-32.

Liu, H, W Zhang, EG Irwin, N Aloysius, J Martin. 2020. A spatially integrated economic-ecological model of farmers' land management decisions and water quality outcomes in Lake Erie. *Land Economics* 96(4).

Pickett, S, M Cadenasso, M Baker, L Band, C Boone, G Buckley, P Groffman, M Grove, E Irwin, S Kaushal, S LaDeau, A Miller, C Nilon, M Romolini, E Rosi, C Swan, K Szlavecz. 2020. Theoretical Perspectives of the Baltimore Ecosystem Study: Conceptual Evolution in a Social-Ecological Research Project. 2020. *BioScience*. 70(4): 297–314.

Cardoso, L, M Bittencourt, W Litt, EG Irwin. 2019. Biofuels policies and fuel demand elasticities in Brazil. *Energy Policy* 128, 296-305

Irwin, EG, PJ Culligan, M Fischer-Kowalski, K Lavender Law, R Murtugudde, S Pfirman. 2018. Bridging barriers to advance global sustainability. *Nature Sustainability*. 1(7): 324-326.

Irwin, N, EG Irwin, J Martin, P Aracena. 2018. Constructed wetlands for water quality improvements: Benefit transfer analysis from Ohio. *Journal of Environmental Management.* 206:1063-1071.

Chen, Yong, Elena G. Irwin, Ciriyam Jayaprakash, Nicholas Irwin. 2017. Market thinness, income sorting and leapfrog development across the urban-rural gradient. *Regional Science and Urban Econ.* 66: 213-223.

Irwin, Nicholas, K. Allen Klaiber, Elena G. Irwin. 2017. Do stormwater basins generate co-benefits? Evidence from Baltimore County, Maryland. *Ecological Economics* 141:202-212.

Zhang, Wendong, Douglas Wrenn, Elena G. Irwin. 2017. Spatial heterogeneity, accessibility, and zoning: An empirical investigation of leapfrog development. *Journal of Economic Geography*. 17(3): 547–570.

Carrión-Flores, Carmen and Elena G. Irwin. 2017. A fixed effects logit model of rural land conversion and zoning. *The Annals of Regional Science*, 58(1), 181-208.

Irwin, Elena G, Sathya Gopalakrishnan, Alan Randall. 2016. Welfare, wealth and sustainability. *Annual Review of Resource Economics* 8: DOI: 10.1146/annurev-resource-100815-095351.

Irwin, Elena G, Joseph Campbell, Robyn Wilson, Alessandra Faggian, Richard Moore, Nicholas Irwin. 2016. Human adaptations in food, energy and water systems. *Journal of Environmental Studies and Science*. DOI: 10.1007/s13412-016-0375-8.

W. Zhang, Wilson, R., E. Burnett, E.G. Irwin, J. Martin. 2016. What motivates farmers to apply phosphorus at the "right" time? Survey evidence from the Western Lake Erie Basin. *Journal of Great Lakes Research.* DOI: 10.1016/j.jglr.2016.08.007

Wrenn, Douglas and Elena G. Irwin. 2015. Time Is money: An empirical examination of the effects of regulatory delay on residential subdivision development. *Regional Science and Urban Economics* 51: 25-36.

Irwin, Elena G., P. Wilner Jeanty, Mark D. Partridge. 2014. Amenity values versus land constraints: The local effects and spatial spillovers of preserved land and natural features on housing values. *Land Economics.* 90(1): 61-78.

Chen, Yong, Elena G. Irwin, Ciriyam Jayaprakash. 2013. Population dispersion vs. concentration in a two-region migration model with endogenous natural amenities. *Journal of Regional Science*. 53(2): 256–273.

Chen, Yong, Ciriyam Jayaprakash, Elena G. Irwin. 2012. Threshold management in a coupled economic–ecological system. *Journal of Environmental Economics and Management* 64(3): 442-455.

Wrenn, D. and E.G. Irwin. 2012. How do land use policies influence fragmentation? An econometric model of land development with spatial simulation." *Environmental Economics* 3(4): 81-95.

Chen, Yong, Elena G. Irwin, Ciriyam Jayaprakash. 2011. "Incorporating spatial complexity into economic models of land markets and land use change." *Agricultural and Resource Economics Review* 40(3): 321-340.

Brady, Michael and Elena G. Irwin. 2011. "Accounting for spatial effects in economic models of land use: Recent developments and challenges ahead." *Environmental and Resource Economics*. 48(3): 487-509.

Pickett STA, Cadenasso ML, Grove JM, Boone CG, Irwin EG, Kaushal SS, Marshall V, McGrath BP, Nilon CH, Pouyat RV, Szlavecz K, Troy A, Warren P. 2011. "Urban ecological systems: Scientific foundations and a decade of progress." *Journal of Environmental Management* 92: 331-362.

Carrion-Flores, Carmen and Elena G. Irwin. 2010. "Identifying spatial interaction effects in the presence of spatially error autocorrelation: an application to land use spillovers." *Energy and Resource Economics* 32: 135–153.

Irwin, Elena G., Andrew Isserman, Maureen Kilkenny and Mark D. Partridge. 2010. "A century of research on rural development and regional issues." *American Journal of Agricultural Economics* 92(2): 522-553.

Irwin, Elena G. 2010. "New directions for urban economic models of land use change: incorporating spatial dynamics and heterogeneity." *Journal of Regional Science* 50(1): 65-91.

Jeanty, Wilner, Mark Partridge and Elena G. Irwin. 2010. "Estimation of a spatially interdependent system of migration and housing price dynamics." *Regional Science and Urban Economics* 40: 343-352.

Roy, Eric D., Jay F. Martin, Elena G. Irwin, Joseph D. Conroy, David A. Culver. 2010. "Unstable ecological-economic equilibria: the effects of invasive species and ecosystem restoration on nutrient management compromise in Lake Erie." *Ecology and Society* 15(1): 20.

Irwin, Elena G., Kathleen P. Bell, Nancy E. Bockstael, David Newburn, Mark D. Partridge, JunJie Wu 2009. "The economics of urban-rural space" *Annual Review of Resource Economics*, 1: 435-459.

Chen, Yong, Elena G. Irwin and Ciriyam Jayaprakash. 2009. “Dynamic modeling of environmental amenity-driven migration with ecological feedbacks.” *Ecological Economics* 68: 2498-2510.

Irwin, Elena G., Ciriyam Jayaprakash and Darla K. Munroe. 2009. “Towards a comprehensive model of urban spatial dynamics” *Landscape Ecology*, 24(9): 1223-1236.

Clark, Jill K., Ron McChesney, Darla K. Munroe, Elena G. Irwin. 2009. “Spatial characteristics of exurban settlement pattern in the U.S.” *Landscape and Urban Planning*. 90: 178-188.

Warren, Keith, Ciriyam Jayaprakash and Elena G. Irwin. 2009. “The interaction of segregation and suburbanization in an agent-based model of residential location.” *Environment and Planning B*, 36:6, 989 – 1007.

Wu, Junjie and Elena G. Irwin (2008). “Optimal land development with endogenous environmental amenities.” *American Journal of Agricultural Economics*, 90(1): 232-248.

Irwin, Elena G. and Nancy E. Bockstael (2007). “The evolution of urban sprawl: Evidence of spatial heterogeneity and increasing land fragmentation.” *Proceedings of the National Academy of Sciences* (PNAS). Dec 26, 2007; 104 (52): 20672-20677.

Irwin, E. and J.K. Clark (2007). “How states can mitigate the impacts of big box retail on local communities.” *Journal of Regional Analysis and Policy* 37(1):53-55.

Robinson, DT, DG Brown, DC Parker, P Schreinemachers, MA Janssen, M Huigen, H Wittmer, N Gotts, P Promburom, E Irwin, T Berger, F Gatzweiler and C Barnaud (2007). “Comparison of empirical methods for building agent-based models in land use science.” *Journal of Land Use Science* 2(1): 31-55.

Bayoh, Isaac, Elena G. Irwin and Timothy Haab (2006). “Determinants of residential location choice: How important are local public goods in attracting homeowners to central city locations?” *Journal of Regional Science* 46(February): 97-120.

Chen, Yong, Elena G. Irwin, Cyriam Jayaprakash, and Keith Warren (2006). “The emergence of racial segregation in an agent-based model of residential location: The role of competing preferences.” *Computational and Mathematical Organization Theory* 11(4): 333-338.

Roe, Brian, Elena G. Irwin, and Hazel A. Morrow-Jones (2005). “Changes in homeowner preferences for housing density following September 11, 2001,” *Applied Economics Letters* 12(February): 73-78.

Irwin, Elena G. and Nancy E. Bockstael (2004). “Land use externalities, growth management policies, and urban sprawl.” *Regional Science and Urban Economics*, 34(6): 705-25.

Carrion-Flores, Carmen and Elena G. Irwin (2004). “Determinants of residential land use conversion and sprawl at the rural-urban fringe.” *American Journal of Agricultural Economics*, 86(4): 889-904.

Roe, Brian, Elena G. Irwin, and Hazel A. Morrow-Jones (2004). “Estimating the benefits of farmland preservation to homeowners: Results of a conjoint analysis of housing choice.” *Land Economics*, 80: 55-75.

Morrow-Jones, Hazel, Elena G. Irwin and Brian Roe (2004). “Consumer preferences for neotraditional neighborhood characteristics.” *Housing Policy Debate*, 15(1): 171-202.

Bockstael, Nancy E. and Elena G. Irwin (2003). “Public policy and the changing landscape,” *Estuaries*, 26(2A): 210-225.

Irwin, Elena G., Kathleen Bell, and Jacqueline Geoghegan (2003). “Modeling and managing urban growth at the rural-urban fringe: A parcel-level model of residential land use change,” *Agricultural and Resource Economics Review*, 32(1): 83-102.

Irwin, Elena G. (2002) “The effects of open space on residential property values,” *Land Economics*, 78(4): 465-481.

Irwin, Elena G. and Nancy E. Bockstael (2002). "Interacting agents, spatial externalities, and the endogenous evolution of residential land use pattern," *Journal of Economic Geography*, 2(1), January: 31-54.

Bell, Kathleen and Elena G. Irwin (2002). “Spatially explicit micro-level modeling of the rural-urban interface,” *Agricultural Economics*, 1678: 1-16.

Roe, Brian E., Elena G. Irwin, and Jeff S. Sharp, (2002). “Pigs in space: Modeling the spatial structure of hog in traditional and nontraditional production regions," *American Journal of Agricultural Economics*, 84(2): 259-78.

Sharp, Jeff S., Brian E. Roe, and Elena G. Irwin (2002). “Impermanence or adaptation: Changes in agriculture and livestock production in exurban Cornbelt regions from 1978 to 1997.” *Growth and Change*, 33(1), Winter.

Irwin, Elena G. and Jacqueline Geoghegan (2001). "Theory, data, methods: Developing spatially-explicit economic models of land use change," *Agriculture Ecosystems and Environment*, 85(1-3): 7-24.

Editor Reviewed Articles

Irwin, Elena G., Hyun Jin Cho and Nancy Bockstael (2007). “Measuring the amount and pattern of land development in non-urban areas.” *Review of Agricultural Economics* 29(3): 494-501.

Irwin, Elena G. and Jill Clark (2006). “Wall street vs. main street: What are the benefits and costs of Wal-Mart to local communities?” *Choices* 21(2).

Irwin, Elena G., Cynthia J. Nickerson, and Larry Libby (2003). “What are farmland amenities worth?” *Choices*, 3rd Quarter.

Irwin, Elena G. and Nancy E. Bockstael (2001). “The problem of identifying land use spillovers: Measuring the effects of open space on residential property values,” *American Journal of Agricultural Economics*, 83(3): 698-704.

Edited Books

Pickett, STA, ML Cadenasso, JM Grove, EG Irwin, EJ Rosi, CM Swan, editors. 2019. *Science for the Sustainable City: Empirical Insights from the Baltimore School of Urban Ecology*. New Haven and London: Yale University Press.

Book Chapters

Doidge M., EG Irwin, N Sintov, RS Wilson. 2020. Human Behavior and Adaptation. In Saundry, Peter, Ruddell, Benjamin (eds.) *The Food-Energy-Water Nexus*. Springer, Cham. pp. 101-127.

Irwin, E.G., A. Klaiber, N. Irwin, C. Towe, A. Troy, J.M. Grove. 2019. “Effects of Disamenities and Amenities on Housing Markets and Locational Choices.” S. Pickett, et al. (eds *Science for the Sustainable City: Empirical Insights from the Baltimore School of Urban Ecology*. New Haven and London: Yale University Press.

Irwin, E.G., G. Buckley, M. Gnagey, D. Newburn, E. Pierce, D. Wrenn. 2019. “Land Dynamics: Regulations and Norms.” S. Pickett, et al. (eds.), *Science for the Sustainable City: Empirical Insights from the Baltimore School of Urban Ecology*. New Haven and London: Yale University Press.

Irwin, E.G., T. Jacquet, A. Faggian. 2017. Regional Sustainability and Resilience: Recent Progress and Future Directions,” In R. Jackson, P. Schaeffer (eds) *Regional Research Frontiers*. Springer.

Irwin, E.G. and D. Wrenn. 2014. “An assessment of empirical methods for modeling land use." in J.M. Duke and J. Wu (eds.), *The Oxford Handbook of Land Economics*. London: Oxford University Press.

Helmut Haberl, Cheikh Mbow, Xiangzheng Deng, Elena G. Irwin, Suzi Kerr, Tobias Kuemmerle, Ole Mertz, Patrick Meyfroidt, and B.L. Turner II I. 2014. “Finite Land Resources and Competition.” In Karen Seto and Annette Reenberg (eds.) *Rethinking Global Land Use in an Urban Era,* Ernst Strüngmann Forum Report. Cambridge, MA: MIT Press, pp. 35-70.

Irwin, E., Randall, A. J., and Chen, Y. (2007). "Environmental Amenities as a Driver of Regional Growth." in *Frontiers in Resource and Rural Economics: Human-Nature, Rural-Urban Interdependencies*, edited by JunJie Wu, Paul W. Barkley, and Bruce A. Weber, J. Wu, P. Barkley and B. Weber, eds. 2007. RFF Press. Ch 6.

Irwin, Elena G. and Nancy Bockstael (2006). "The Spatial Pattern of Land Use in the U.S.," pp. 77-94, in A Companion to Urban Economics, R. Arnott and D. McMillen, eds. Blackwell Publishers

Irwin, Elena G., Kathleen Bell and Jacqueline Geoghegan (2006). "Forecasting Residential Land Use Change," in Economic Advances in Land Use Policy: Implications of Emerging Research for Conservation of Farm, Forest, and Rural Character, R. Johnson and S. Swallow, eds. Resources for the Future Press.

Irwin, Elena G. and Kathleen Bell (2006). "Modeling and Managing Urban Growth at the Rural Urban Fringe: Evidence from Residential Land Use Change in Central Maryland," in The Economics of Land Use Change, K. Bell, K. Boyle, A. Plantinga, J. Rubin, and M. Teisl, eds. Ashgate Press

Plantinga, Andrew J. and Elena G. Irwin (2006). "Overview of Empirical Methods and Models of Land Use," in The Economics of Land Use Change, K. Bell, K. Boyle, A. Plantinga, J. Rubin, and M. Teisl, eds. Ashgate Press.

Segerson, Kathleen, Andrew J. Plantinga, and Elena G. Irwin (2006). "Theoretical Background," in in The Economics of Land Use Change, K. Bell, K. Boyle, A. Plantinga, J. Rubin, and M. Teisl, eds. Ashgate Press.

Irwin, Elena G. (2005). Contributor to Our Earth's Changing Land. An Encyclopedia of Land-Use and Land-Cover Change, H. Geist, ed., Greenwood Press, pp. 394-5 (Leapfrogging), pp. 576-9 (Suburbanization); 625-6 (Urban sprawl); 630-2 (Urban-rural fringe).

Irwin, Elena G. and Nancy E. Bockstael (2004). "Endogenous Spatial Externalities: Empirical Evidence and Implications for Exurban Residential Land Use Patterns," in Advances in Spatial Econometrics, L. Anselin and R. Florax, editors. Berlin: Springer-Verlag.

Libby, Larry W. and Elena G. Irwin (2003). "Rural Amenities and Farmland Values." Forthcoming in Government Policy and Farmland Markets: The Maintenance of Farmer Wealth, Charles B. Moss and Andrew Schmitz, eds. Iowa State University Press.

Irwin, Elena G. and Nancy E. Bockstael (2003). "Interacting Agents, Spatial Externalities, and the Endogenous Evolution of Residential Land Use Pattern." (Reprinted with permission). In Economics of Land Use, International Library of Environmental Economics and Policy, P.J. Parks and I.W. Hardie, eds. Aldershot: Ashgate Publishing Limited, Hauts, England.

Bockstael, Nancy E. and Elena G. Irwin (2000). "Economics and the Land Use-Environment Link," The International Yearbook of Environmental and Resource Economics: Edward Elgar Publishing, H. Folmer and T. Tietenberg, editors.

Proceedings

Irwin, Elena G., Ciriyam Jayaprakash and Keith Warren (2004). "The Emergence of Racial Segregation in an Agent-Based Model of Residential Location: the Role of Competing Preferences." Proceedings from the North American Association for Computational Social and Organizational Science Conference, Pittsburgh, PA, June 27-29, 2004.

Irwin, Elena G. and Nancy E. Bockstael (2000). "Interacting Agents, Spatial Externalities and the Evolution of Residential Land Use Pattern," Western Regional Research Publication. W-133 Benefits and Costs of Resource Policies Affecting Public and Private Land, 13th Interim Report, June 2000.

Geoghegan, Jacqueline, Nancy Bockstael, Kathleen Bell and Elena G. Irwin (1996). "An Ecological Economics Model of the Patuxent Watershed: The Use of GIS and Spatial Econometrics in Prediction" in Geographic Information Systems in Environmental Resources Management. Proceedings of the Conference Sponsored by the Air & Waste Management Association. Reno, NV, March 13-15, 1996.

National Reports

Advisory Committee for Environmental Research and Education. 2018. Sustainable Urban Systems: Articulating a Long-Term Convergence Research Agenda. A Report from the NSF Advisory Committee for Environmental Research and Education. Prepared by the Sustainable Urban Systems Subcommittee. https://www.nsf.gov/ere/ereweb/ac-ere/sustainable-urban-systems.pdf. Sub-committee members: A Ramaswami (chair), L Bettencourt, A Clarens, S Das, G Fitzgerald, EG Irwin, D Pataki, S Pincetl, K Seto, P Waddell.

National Research Council. 2014. Advancing Land Change Modeling: Opportunities and Research Requirements. Washington, DC: The National Academies Press. https://doi.org/10.17226/18385. Committee: D Brown (chair), L Band, K Green, EG Irwin, A Jain, E Lambin, R Pontius, K Seto, BL Turner, P Verberg

Manuscripts

Gore, C, A Carrel, EG Irwin. What drives battery electric vehicle adoption? The impact of regional differences in carbon dioxide emissions on consumer decisions. Manuscript.

Irwin, EG, N Irwin, W Lai, B Cultice. Boom-bust cycles of urban sprawl and potential consequences for U.S. residential land. Manuscript.

Irwin, E., B. Bakshi, J. Bielicki, Y.Cai, S. Chun, B. Cultice, M. Doidge, Z. Gong, Z. Guo, D. Jackson-Smith, M. Jones, J. Kast, J. Martin, A. Randall, C.D. Shaffer-Morrison, I. Sheldon, R. Wilson, Y. Xue. A Regional Integrated Assessment Modeling Framework to Assess the Sustainability of the Great Lakes Economy and Food, Energy, Water Systems. Manuscript.

Randall, A., M. Jones, EG Irwin. Weak Sustainability at Regional Scales. Manuscript.

External Research Funding

Current

“Enabling Farmer Discovery and Managing Critical Tradeoffs with the Emergence of National Scale Carbon Markets.” Amount: $10,000,000. PI: B. Sohngen. Co-PI: E. Irwin. Dates: 02/2025-01/2030.

“NRT-HDR: Convergent Graduate Training and EmPOWERment for a Sustainable Energy Future.” NSF National Research Traineeship (NRT) Program. Amount: $3,000,000. PI: J. Bielicki. Co-PI: E. Irwin. Dates: 09/2019-08/2025.

Past

“Building a Sustainable and Resilient Agroecosystem through an Understanding of Climate and Farmer Behavioral Variability.” USDA National Institutes of Food and Agriculture Amount: $1,199,396. PI: R. Wilson. Co-PI: E. Irwin. Dates: 09/2018 – 08/2024.

“Impacts of Deglobalization on the Sustainability and Resilience of Regional Food, Energy, Water Systems.” NSF Innovations at the Nexus of Food Energy Water Systems (INFEWS). Amount: $2,431,141. E. Irwin, PI. Dates: 09/2017 – 08/2023.

“Convergence around a sustainable world without waste.” NSF 2026 Program. Amount: $100,000. E. Irwin, Co-PI (PI: B. Bakshi). Dates: 09/2020-08/2022.

“EV Mobility Afford.” Ford Motor Company OSU Alliance Project. Amount: $211,000. E. Irwin, Co-PI (A. Carrell, PI). Dates: 06/2018-05/2020.

“Baltimore Ecosystem Study: Dynamic heterogeneity: Investigating outcomes and drivers of ecological change in urban ecosystems.” NSF Long Term Ecological Research Program. E. Irwin, Co-PI. Irwin subaward: $150,000. Dates: 11/01/2016-10/31/2018.

"Conference on environmental change, migration, and resilience of regional food, water and energy systems." National Science Foundation Behavioral and Cognitive Sciences Division. Irwin (PI). Amount: $62, 496. Dates: 07/01/15 - 12/31/17.

"Linking Agricultural Production and Great Lakes Ecosystem Services: Modeling and Valuing the Impacts of Harmful Algal Blooms in Lake Erie." NOAA/Ohio Sea Grant program. PIs: Elena G. Irwin, Jay Martin, Wendong Zhang, Seyoum Gebremariam, Michael Fraker. Amount: $199,000. Dates: 2/2014-1/2016.

"Co-Evolution of Upstream Human Behavior and Downstream Ecosystem Services in a Changing Climate." National Science Foundation Coupled Human and Natural Systems program. PIs: Jay Martin, Carlo DeMarchi, Elena G Irwin, Stuart Ludsin, Eric Toman, Robyn Wilson. Amount: $1.5 million. Dates: 9/2011 – 8/2015.

"Spatial dynamic modeling of exurban land markets and land use patterns." National Science Foundation Geography and Spatial Sciences program. PIs: Elena Irwin, Yong Chen, Ciriyam Jayaprakash. Amount: $230,000. Dates: 9/2011 – 8/2014.

"Linkages and Feedbacks Between Regional Climate Variability and Patterns of Urban Development – Impacts on the Urban Water Cycle and Nutrient Export." National Science Foundation Water Sustainability and Climate Program. PI: Claire Welty. Co-PIs include Irwin. Amount: $5.0 million. Dates: 1/2011 – 12/ 2015.

"Development of empirical analyses and simulation models of urban household and firm location behaviors and landscape outcomes." Cooperative Agreement, U.S. Forest Service USDA Northern Research Station and the Baltimore Ecological Study (BES) Long-Term Ecological Research program. PI: Elena G. Irwin. Amount: $150,000. Dates: 10/2010 – 9/2016.

"Multiscale dynamics and emergent patterns in urban spatial systems," James S. McDonnell Foundation, Study of Complex Systems Program, 2008-2012. PI's: Elena G. Irwin and Ciriyam Jayaprakash. Amount: $406,834. Dates: 9/2008 – 8/2013.

"Leveraging natural amenities for sustainable development in the Great Lakes region." NOAA/Ohio Sea Grant, 2010-2012. PIs: Mark Partridge, Elena G. Irwin and Heather Stephens. Amount: $177,313. Dates: 2/2010 – 12/ 2012.

"Designing effective land management policies for the 21st century Ohio River Basin," Ohio State University Climate-Water-Carbon Initiative, 2009- 2013. PI's: Charles Goebel, Elena G. Irwin, Richard Moore, Robyn Wilson. Amount: $1.3 million. Dates: 9/2008 – 8/2012.

"Construction of property tax database." Cooperative Agreement, Economic Research Service, USDA 2008-2009. PI's: Michael Brady, Elena G. Irwin, Cindy Nickerson, Charles Towe. Amount: $137,500. Dates: 9/2008 – 12/2011.

"Analysis of the patterns and causes of fragmented urban development into rural areas using geocoded parcel data." Cooperative Agreement, Economic Research Service, USDA 2008-2009. PI's: Elena G. Irwin and Michael Brady. Amount: $18,002. Dates: 9/2008 – 12/2011.

"Using surveys, experiments and agent-based models to better understand recreation and tourism decision in the Lake Erie region." NOAA/Ohio Sea Grant, 2006-2010. PIs: Elena G. Irwin and Tim Haab. Amount: $117,193.

"Large lake ecosystems: Modeling the interactions among human, biological and physical processes." NSF Biocomplexity Program, 2004-2008. PI: David Culver. Co-PI's: Elena Irwin, Alan Randall, Jeff Reutter. Amount: $1.4 million.

"Agricultural adaptation at the rural-urban interface: Can communities make a difference?" National Research Initiative Competitive Grants Program, US Department of Agriculture, Sept. 2004 – Aug 2007. Principal investigator: Jeff Sharp. Co-PIs: Doug Jackson-Smith, Larry Libby, Elena Irwin.

"The influence of water quality and lake amenities on the demand for residential development around Lake Erie." NOAA/Ohio Sea Grant, 2004-2006. PI's: Elena Irwin and Tim Haab. Amount: $107,000.

"The value of parkland in Montgomery County, Ohio." Montgomery County Five Rivers MetroParks and Miami Valley Regional Planning Commission, 2004. PI: Elena Irwin. Amount: $20,000.

"Developing a spatial watershed model to predict the effects of watershed policies on coastal water quality and habitat change." NOAA/Ohio Sea Grant, 2003-2005. Principal Investigators: Jay Martin, Elena Irwin, Tim Granata, William Mitch. Amount: $94,000.

"The impact of the September 11th terrorist attacks on factors that influence the decision to stay, remodel or move among American metropolitan households." Short Grant Exploratory Research, National Science Foundation, 2001. Principal Investigators: Hazel Morrow-Jones and Elena G. Irwin. Amount: $40,000.

"Understanding the links between policy and patterns of land use change in urbanizing watersheds: A spatial economic model of land use conversion." NOAA/Ohio Sea Grant, 20002002. Principal Investigator: Elena Irwin. Amount: $64,000.

Internal Funding

Past

"Smart Columbus impacts assessment," Smart@OhioState Initiative. PI: Akar, G. Co-PIs: Irwin, E., Miller, H.J. Amount: $333,515

"Urbanization and Lake Erie tributary water quality: A dynamic spatial model with policy scenarios." OARDC Interdisciplinary Grants Program. PIs: Elena G. Irwin and Jay Martin. Amount: $100,000.

"Assessing the impact of animal agriculture on exurban property values using a spatially explicit hedonic analysis." Center for Urban and Regional Analysis, Ohio State University, 2002-2003. PI's: Brian Roe, Jon Rausch, Elena Irwin. Amount: $28,000.

"Understanding exurban change in Ohio and the Midwest." Ohio Agricultural Research and Development Center Seed Grant, 2002-03. PI: Elena Irwin. Collaborators: Jeff Sharp, Larry Libby. Amount: $25,000.

"Model development: The human and social dimensions of biocomplexity." Seed grant from the Environmental Policy Initiative (EPI) in support of the EPI biocomplexity working group, June 2001. PI's: Elena Irwin and Keith Warren. Amount: $25,000.

"Using conjoint analysis to identify household preferences for open space and neo-traditional neighborhoods," Funding received from OSU Swank Program in Rural-Urban Policy, 2001. Principal Investigators: Elena Irwin and Hazel Morrow-Jones. Amount: $8,000.

"Exurban regional change program," Funding received from Project Reinvent and OSU Swank Program in Rural-Urban Policy, 2000. Principal Investigators: Jeff Sharp and Elena Irwin. Amount: $37,000.

"Exurban regional change program," Funding received from the OSU Agro-Ecosystems Management Program, 2000. Principal Investigators: Jeff Sharp and Elena Irwin. Amount: $18,000.

"Assessing the role of public services in households' relocation decisions," Funding received from the OSU Committee on Urban Affairs, 2000. Principal Investigator: Elena Irwin. Amount: $17,000.

"Moving and staying among American homeowners: Implications for regional growth and governance," Funding received from OSU Committee on Urban Affairs, 2000. Principal Investigators: Hazel Morrow-Jones and Elena Irwin. Amount: $17,000.

"To move or not to move: Household relocation decisions and causes of suburbanization." Funding received from the University Seed Grant Program, 2000. Principal Investigator: Elena Irwin. Amount: $20,000.

"Predicting patterns of land use change: A spatial economic model of land use conversion." Seed funding received from Environmental Policy Institute, OSU, 1999. Principal Investigator: Elena Irwin. Amount: $7,000.

Invited Talks, Panels, Seminars

Irwin, E.G. "Modeling and assessing regional sustainability with an application to the Great Lakes region." Invited seminar. University of Minnesota Department of Applied Economics, Minneapolis, MN, October 25, 2024.

Irwin, E.G. "A Dynamic Regional Food-Energy-Water Systems Integrated Assessment Model (DRFEWS): Highlights and Challenges." Midwest Food-Energy-Water Conference, Iowa State University, June 2-4, 2024.

Irwin, E.G. "What is sustainability science?" Invited talk. Carbon Farming Alliance for Research and Management (C-FARM) Annual Conference, April 5, 2023.

Irwin, E., B. Cultice. 2022. "Spatially explicit economic interactions within and across sub-national regions." Invited presentation. GLASSNET Workshop on Managing the Global Commons: Sustainable Agriculture and Use of the World's Land and Water Resources. Purdue University, April 7-8, 2022.

Irwin, E.G. 2021. "Resilience Theory and Thinking Applied to Human-Natural-Engineered Systems." Keynote presentation at the Enterprise and Infrastructure Workshop, Association of Chemical Engineers, September 28, 2021. Virtual session.

Irwin, E.G. 2020. Invited panelist. "Downscaling sustainability theory and measurement to subnational regional scales." National Academies Panel on Measuring Progress toward Sustainable Development, November 30, 2020. Virtual session.

Irwin, E.G. 2020. Invited panelist. Diversity and Inclusion in Agricultural and Applied Economics, CWAE-COSBAE AAEA Tract Session, 2020 AAEA Virtual Annual Meeting, August 27, 2020. Virtual session.

Irwin, E.G. 2020. Invited panelist. Gordon Rausser Keynote Panel on "Sustainability: the interface of food, agriculture, and the environment." AAEA Annual Meeting, August 10, 2020. Virtual session.

Irwin, E.G. 2019. The Role of Economics and Integrated Modeling for Sustainability Science. Invited keynote talk, Heartland Environmental and Resource Economics Workshop, University of Illinois, September 28-29, 2019

Irwin, E.G. 2019. An Integrated Economic-Hydrological Model of the Western Lake Erie Basin. Presented at the Resource Economics and Management Department, Davis College of Agriculture, Natural Resources and Design, West Virginia University, November 8, 2019

Irwin, E.G. 2019. Reflecting on the Multidisciplinary Enterprise. Invited talk, AAEA Multi-disciplinary Research Leaders Conference, Boston, MA, June 14, 2019

Irwin, E.G. 2018. Interdisciplinary Research Organizations: Pathways to Success Workshop 2. Invited participant. National Socio-Environmental Synthesis Center SESYNC and University of Michigan. Ann Arbor, MI, November 15-17, 2018.

Irwin, E.G. 2018. "Economics of Well-Being: An Applied Economist Perspective." Invited panelist, Integrating Philosophical and Economic Perspectives on Well-Being Ohio State University, November 2, 2018.

Irwin, E.G. 2018."Integrated Economic-Ecological Modeling of Land Water Systems." Invited presentation, Iowa State University, Integrated Assessment Modeling Workshop, April 15-16, 2018.

Irwin, E.G. 2018. "A Spatially Integrated Economic-Ecological Model of Farmers' Land Management Decisions and Water Quality Outcomes in Lake Erie." Invited seminar, National Socio-Environmental Synthesis Center SESYNC. Annapolis, MD, February 13, 2018.

Irwin, E.G. 2017. Human Adaptations in Food, Energy and Water Systems. Invited presentation given at the FEWSTERN Research Challenge Meeting, University of Tennessee, December 7-9, 2017.

Irwin, E.G. 2017. The expanding ethanol market and farmland values: Identifying the changing influence of proximity to agricultural market channels." Paper with Wendong Zhang. Invited seminar presented at the University of Kentucky Department of Economics, Lexington, KY, October 13, 2017.

Irwin, E.G. 2017. Agent-based modeling workshop, San Diego CA, March 20-21, 2017.

Irwin, E.G. 2017. "Impacts and effectiveness of spatial planning policies: Evidence from the U.S." Invited presentation for the Special Session on Geospatial Data of the Environment Policy Committee, Organization for Economic Cooperation and Development (OECD), Paris, France, February 7-8, 2017

Irwin, Elena G. "U.S. Trends in Urban Expansion." Plenary Session 2: Urban Sprawl, A Remaining Challenge, OECD Green Growth And Sustainable Development Forum, November 9-10, 2016.

Irwin, Elena G. "Accounting for Natural Capital." Prepared for the Tools for Measuring Sustainability Workshop, Ohio State University, May 19, 2016.

Irwin, Elena G. "Wealth, Welfare and Sustainability." Environmental Economics Workshop, Department of Economics, Iowa State University, April 5, 2016

Irwin, Elena G. "Sustainability Science" College of Agriculture and Life Sciences (CALS) Sustainability Lecture Series, Iowa State University, April 4, 2016

Irwin, Elena G. "Integrated Modeling of Agricultural Landscapes and Ecosystem Services: The Lake Erie Coupled Human and Natural Systems Project." Presented at "THIS IS A TEST: Landscape As A Site for Research" Symposium, Ohio State University April 1-2, 2016

Irwin, Elena G. "Land Use Change and Integrated Modeling for Sustainability Analysis." Presented at the Seeking Sustainable Pathways for Land Use in Latin-America" Conference, South American Institute for Sustainability and Resilience Studies (SARAS) March 1-4, 2016, Maldonado Uruguay.

Irwin, E.G. "Integrated modeling of agricultural land management decisions and Lake Erie ecosystem services." Invited presentation given at the Iowa State Food-Energy-Water Workshop, October 12-14 2015.

Zhang, W. and E.G. Irwin. 2015. "Alternative Nutrient Management Policies and the Trade-offs between Agricultural Profits and Water Quality Improvements." Selected paper presented at the American Agricultural Economics Association annual meeting, San Francisco CA, July 26-28, 2015

Pickett, S.T.A., E.J. Rosi-Marshall, M.L. Cadenasso, P.M. Groffman, J.M. Grove, E.G. Irwin, S.L. LaDeau, C.M. Swan. "The Baltimore Ecosystem Study: Urban Dynamic Heterogeneity." Selected paper presented at the Long Term Ecological Research (LTER) All Scientists Meeting, Rocky Mountain National Park, CO, Aug 30-Sept 2, 2015.

Irwin, Elena G. "Land Change Modeling for Sustainability Analysis." The Gellner Endowed Lecture, Clark University, Worcester MA September 30, 2014.

Irwin, Elena G. "Land Change Modeling for Policy Scenarios," Keynote talk, Northeast Agricultural and Resource Economics Association (NAREA), Morgantown WV, June 3, 2014.

Irwin, Elena G. "Land Use Regulations and Urban Sprawl?" Invited seminar, George Washington University Sustainable Urban Planning Research Symposium, Washington DC. December 6, 2013.

Irwin, Elena G. "Sustainability of Lake Erie and its Watershed: Linking Economics, Land Use and Water Quality." Invited seminar, Gosnell Lecture Series, Department of Economics, Rochester Institute of Technology, October 7, 2013.

Irwin, Elena. "Measuring and Modeling the Sustainability of Socio-Ecological Systems." Invited seminar, John Glenn School of Public Policy, Ohio State University, February 25, 2013.

Irwin, Elena G. “A Spatial Model of Exurban Development.” Invited seminar, Department of Applied Economics, University of Minnesota, April 16, 2012.

Irwin Elena G. “Is Sprawl Dead?” J.W. Fanning Lecture, Department of Agricultural and Applied Economics, University of Georgia, January 19, 2012.

Irwin E. “The Effects of Spatial Heterogeneity and Regulatory Uncertainty on Residential Subdivision Development.” Invited seminar given at the Department of Agricultural and Resource Economics, Oregon State University, December 3, 2011.

Irwin E. “Research on Urbanization Processes and Patterns.” Invited presentation given at the Center for Urban and Regional Analysis, Ohio State University, November 7, 2011.

Irwin, E. “Agent-Based Modeling of Exurban Land Markets.” Invited seminar given at the Triangle Resource and Environmental Economics (TREE) Seminar Series, hosted by Resource Triangle Institute, Duke University and North Carolina State University, April 29, 2011.

Irwin, E. “Explaining the Persistence of Scattered Urban Land Development.” Invited seminar given at the Resources Research Institute, West Virginia University, March 31, 2011.

Irwin, E. “Farming people versus farming cows: Causes and consequences of urban development in rural places.” Invited keynote lecture given at the Lakes Water Quality Society Symposium, New Zealand, April 7, 2011.

Irwin, Elena G. “Economic models of land use change.” Invited seminar given at University of Nebraska, Lincoln, NE, October 8, 2009. Also given at the Center for Urban Environmental Research at University of Maryland Baltimore County, MD, April 23, 2010 and Department of Economics, Otterbein College, April 30, 2010.

Irwin, Elena G. “Social-ecological systems (SES’s) research: some perspectives on the good, the bad and the ugly.” Invited seminar given at the University of Maine, Sustainability Solutions Initiative, September 10, 2009.

Irwin, Elena G. “Spatial dynamics and economic models of land use change.” Invited presentation given at the “Economics of Land Use Change: Advancing the Frontiers” workshop, Washington D.C., June 25-26 2009.

Irwin, Elena G. “New directions for urban economic models of land use change: incorporating spatial heterogeneity and transitional dynamics.” Invited paper given at the 50th Anniversary Journal of Regional Science Conference, Federal Reserve Bank of New York, New York City, NY, April 23-24, 2009. Also to presented as an invited seminar at the Smart Growth Center, University of Maryland, College Park, MD, April 17, 2009.

Irwin, Elena G. and Darla K. Munroe. “Urban-Rural Land Use Change in the U.S.” Invited presentation at “Tough Choices - Land Use under a Changing Climate” joint German-U.S. Conference on Climate Change, Berlin, Germany, October 3-4, 2008.

Irwin, E. and Carrion-Flores, C. 2008. “Identifying Spatial Interaction Effects in the Presence of Spatially Error Autocorrelation: An Application to Land Use Spillovers.” Presented at INRA-Paris, Workshop on Spatial Econometrics, June 2008 and by Carrion-Flores at University of Wyoming, Workshop on Spatial Environmental Economics, September 2008.

Irwin, E. “Developing process-based spatial models of land use change using economic theory and empirical modeling,” Invited presentation at the Global Land Project Workshop on “The design of integrative models of natural and social systems in land change science,” February 28-March 2, 2008.

Irwin, Elena G. “Measuring and Modeling Land Fragmentation.” Seminar presented at the Institute of Environmental Decisionmaking, ETH Zurich, Switzerland, November 13, 2007 and Department of Geography, University of Zurich, May 2008.

Irwin, Elena G. “Thinking spatially: Economic models of urban land use change.” Invited presentation given at the workshop ‘Spatial Thinking in the Social Sciences and Humanities,’ National Center for Supercomputing Applications, University of Illinois at Urbana-Champaign, December 18-19, 2006.

Irwin, Elena G. “Determinants of Land-Cover and Land-Use Change at Different Spatial Scales.” Invited presentation, *Urban Ecology Workshop*, Duluth, MN, May 18-20, 2006.

Irwin, Elena G. “The Effects of Open Space on Nearby Property Values.” Invited presentation, Workshop on Impact of Land Use Designations on Neighboring Property Values, Lincoln Institute for Land Policy, Boston, MA, November 7, 2005.

Irwin, Elena G., Alan Randall and Yong Chen. “Environmental Amenities as a Driver of Regional Growth.” Invited presentation, Workshop on Frontiers in Resource and Rural Economics: Rural-Urban and Nature-Human Interactions, Oregon State University, October 5-7, 2005.

Bayoh, Isaac, Elena Irwin and Tim Haab. “Determinants of Residential Location Choice: How Important Are Local Public Goods in Attracting Households to Central City Locations.” Invited paper presented at the Critical Issues Symposium on State and Local Government Regulations and Economic Development, Florida State University, Tallahassee, Florida, March 4, 2005 and at the Brown Bag Seminar in City and Regional Planning, Ohio State University, April 22, 2005.

Irwin, Elena G., Jeff Sharp and Jill Clark. “Spatial Patterns of Exurbanization in Ohio: A Test of the Urban Bid Rent Model.” Presentation given at the Ohio State University Center for Urban and Regional Analysis Roundtable, Columbus, OH, July 2004.

Irwin, Elena G., Isaac Bayoh and Brian Roe. “Assessing the Impact of Animal Agriculture on Exurban Property Values Using a Spatially Explicit Approach.” Presentation given at the Ohio State University Center for Urban and Regional Analysis Roundtable, Columbus, OH, April 2004.

Irwin, Elena G. “Modeling Agent Interactions and the Formation of Land Use Patterns: The Problem of Empirical Identification.” Paper presented at University of Michigan, Center for the Study of Complex Systems, Ann Arbor, MI, October 24, 2002.

Irwin, Elena G. and Nancy E. Bockstael. “Urban Sprawl as a Spatial Economic Process.” Paper presented at the Department of Agricultural and Applied Economics, University of Wisconsin, April 25, 2002 and the Department of Agricultural Economics, University of Missouri, April 18, 2002.

Bell, Kathleen and Elena G. Irwin, “Modeling the Rural-Urban Interface; Data-Rich Environments,” Invited paper and hands-on learning module presented at the Learning Workshop on Spatial Data Analysis at the American Agricultural Economic Association Meeting, Chicago, IL, August 4, 2001; also presented at the Spatial Analysis Learning Workshop, International Association of Agricultural Economics, Berlin, Germany, August, 2000.

Irwin, Elena G. “Identifying Interaction Effects among Spatially Distributed Agents: An Application to Land Use Spillovers.” Paper presented at the Workshop on Economic Policy and Public Finance, Department of Economics, University of Chicago, May 10, 2001. Also presented at the Environmental Policy Workshop, North Carolina State and Research Triangle Institute, February 20, 2001 and the Econometrics Workshop, Department of Economics, Ohio State University, May 15, 2001.

Irwin, Elena G. “Explaining the Evolution of 'Sprawl' Land Use Patterns at the Urban-Rural Fringe.” Seminar given at the Regional Research Institute, West Virginia University, February 2000.

Irwin, Elena G. “Explaining the Evolution of Land Use Patterns at the Urban-Rural Fringe: The Role of Spatial Externalities.” Seminar given at the City and Regional Planning Department, Ohio State University, February 2000.

Irwin, Elena G. “Modeling Urban Growth at the Urban-Rural Fringe: A Case Study of Residential Land Use Change in Central Maryland,” Invited presentation given at the “Rural Land-Use Change Workshop,” University of Maine, July 1999.

Irwin, Elena G. “Explaining Patterns of Exurban Residential Land Use,” Presentation given at the Ohio State University Urban Regional Initiative Roundtable, Columbus, OH, May 1999.

Irwin, Elena G. “Spatial Externalities and the Evolution of Land Use Pattern. An Application of GIS.” Seminar given at the Dipartimento di Scienze Economiche, Verona, Italy, June 1998.

Irwin, Elena G. “Modeling Change in the Pattern of Land Use: A Discussion of Spatial Models and Models of Spatial Processes.” Nancy E. Bockstael and Elena G. Irwin. Seminar given at the Division of Resource Management, West Virginia University, Morgantown, WV, May 1997. Paper first presented by Nancy Bockstael at the Conference on Research Transformations in Environmental Economics: Policy Design in Response to Global Change, sponsored by the Center for Environmental and Resource Economics and NOAA, Duke University, Durham, NC, May, 1997.

Irwin, Elena G. “An Ecological Economics Model of the Patuxent Watershed.” Workshop on Ecosystem Valuation, sponsored by the Economic Research Service, United States Department of Agriculture, Washington, DC, March 1997.

Conference Presentations
*(*indicates current or former student presenter)*

Irwin, E.G. 2024. “Integrating Sustainability Education Across the University.” Panel organizer and moderator, National Sustainability Society Annual Meeting, Seattle, WA. September 9-12, 2024.

Irwin, E.G. 2023. Assessing Sustainability at Regional Scales. Presentation given as part of an AAEA symposium on “Operationalizing Sustainability Measures at National and Sub-National Scales: Progress, Challenges, and Opportunities,” Agricultural and Applied Economics Association (AAEA) Annual Meeting, Washington D.C. July 28-31, 2023.

Jones, M.*, A. Randall, E. Irwin, B. Bakshi, Y. Xue. 2022. Weak and Strong Sustainability Assessment at Regional Scale: A Contribution to Regional Integrated Assessment Modeling with an Application to the Great Lakes Region. Selected presentation, Association of Environmental and Resource Economists (AERE) Annual Meeting. Miami, FL. June 1-3, 2022.

Irwin, E. Advances in Social-Biophysical FEW Nexus Data and Modeling. Panel moderator and presenter. INFEWS PI NSF Workshop, Princeton University (virtual), February 9-11, 2023.

Irwin, E. Developing a Shared Perspective on Circularity: Models, Metrics, and Methods. Panelist. Building Interdisciplinary Collaboration to Transform Food and Agricultural Circular Systems: A Mid-Career Mentoring Workshop, Kansas City Marriott Downtown, Kansas City, KS, June 6-8, 2022

Irwin, E., B. Bakshi, J. Bielicki, Y.Cai, S. Chun, B. Cultice, M. Doidge, Z. Gong, Z. Guo, D. Jackson-Smith, M. Jones, J. Kast, J. Martin, A. Randall, C.D. Shaffer-Morrison, I. Sheldon, R. Wilson, Y. Xue. 2022. A Regional Integrated Assessment Modeling Framework to Assess the Sustainability of the Great Lakes Economy and Food, Energy, Water Systems. Selected presentation, Association of Environmental and Resource Economists (AERE) Annual Meeting. Miami, FL. June 1-3, 2022.

Cultice, B,* Z Gong, M Jones, E Irwin, Y Cai, J Bielicki, D Jackson-Smith, I Sheldon. "Linking Local Land Use and the Regional Economy in an Integrated Assessment Model of the US Great Lakes." Selected paper, Agricultural and Applied Economics Association (AAEA) Annual Meeting. Anaheim, CA. July 30 – Aug 2, 2022.

Irwin, E. Session organizer and moderator. “Integrated modeling of sustainable food, energy, and water systems from regional to global scales.” Agricultural and Applied Economics Association (AAEA) Annual Meeting ENV Tract Session, AAEA Virtual Meeting, August 19, 2020.

Gore, C*., A. Carrel, E.G. Irwin. “What drives battery electric vehicle adoption? The impact of regional differences in carbon dioxide emissions on consumer decisions. Selected Presentation, North American Regional Science Council Annual Meeting, Pittsburgh, PA, November 14, 2019.

Liu, H*., W. Zhang, E. Irwin, J. Kast, N. Aloysius, J. Martin, M. Kalkic. “Economic Incentives for Best Management Practices and Downstream Water Quality: A Spatially Integrated Economic-Hydrological

Model of the Lake Erie Water Basin." Presented at Workshop on Integrated Assessment Models and the Social Costs of Water Pollution, Cornell University, David R. Atkinson Center, Ithaca, NY, April 3-5, 2019. Also presented by H. Liu at: Heartland Environmental and Resource Economics Workshop at Illinois, Sep. 28 -29, 2019.

Irwin, E.G. 2018. Extending the Theory of Sustainability: Discussant comments on institutions and governance in the context of sustainability. DySoC/NIMBioS Investigative Workshop, University of Tennessee, December 5-7, 2018

Liu, H*., W. Zhang, E. Irwin, N. Aloysius, J. Martin. 2018. "A Spatially Integrated Economic-Ecological Model of Farmers Land Management Decisions and Water Quality Outcomes in Lake Erie." Selected presentation at the World Congress of Environmental and Resource Economists. Gothenberg, Sweden, June 25-27, 2018; selected presentation at the 2018 Annual Meeting of the Agricultural and Applied Economics Association (AAEA), August 5th-7th, 2018, Washington, D.C. and selected presentation at the Northeast Agricultural and Resource Economics Association (NAREA) Annual Meeting, June 10th to June 12th, 2018, Philadelphia, PA

Irwin, E.G. 2018. "Overview: Impacts of Deglobalization on the Sustainability and Resilience of Regional Food, Energy, Water Systems." Innovations at the Nexus of Food, Energy, and Water Systems (INFEWS) 2018 Principal Investigator Workshop, Washington, DC., May 16-18, 2018 and presented at the SESYNC Boundary Spanning Symposium, National Socio-Environmental Synthesis Center (SESYNC), June 11-13, 2018.

Ramaswami, A. et al. "Sustainable Urban Systems: Articulating a Long-Term Convergence Research Agenda" Report from the NSF Advisory Committee for Environmental Research and Education. Prepared by the Sustainable Urban Systems Subcommittee. Panel Presentation at the National Council on Science and the Environment (NCSE) Annual Meeting, Washington DC, January 23-25, 2018 and at the National Science Foundation Program Officers Meeting, January 25, 2018.

Irwin, E.G., 2017. The effects of the housing boom and Great Recession on residential land and housing markets in the U.S. Paper with Nicholas Irwin, Wangyang Lai. Selected paper presented at the North American Regional Science Council Annual Meeting, Vancouver, CA, November 8-10, 2017.

Irwin, E.G., N. Irwin, W. Lai. 2017. "What about sprawl? The effects of the housing boom and Great Recession on residential land consumption in the U.S." 2017 AERE Conference Pittsburgh, PA, May 31-June 2, 2017.

Chen, Y.*, E.G. Irwin, C. Jayaprakash, D. Shaffer. 2015. "Market Thinness, Income Sorting and Leapfrog Development Across the Urban-Rural Gradient." Selected paper presented at the North American Regional Science Council annual meeting, Portland OR November 11-14, 2015.

"The Baltimore Ecosystem Study: Urban Dynamic Heterogeneity." Pickett, S.T.A., E.J. Rosi-Marshall, M.L. Cadenasso, P.M. Groffman, J.M. Grove, E.G. Irwin, S.L. LaDeau, C.M. Swan. Poster presented at the Long Term Ecological Research (LTER) All Scientists Meeting, Rocky Mountain National Park, CO, Aug 30-Sept 2, 2015.

Zhang, W.* and E.G. Irwin. 2015. "Alternative Nutrient Management Policies and the Trade-offs between Agricultural Profits and Water Quality Improvements." Selected paper presented at the American Agricultural Economics Association annual meeting, San Francisco CA, July 26-28, 2015

Irwin, N.*, H.A. Klaiber, E.G. Irwin. 2015. "The Potential for Co-Benefits from Stormwater Management for Suburban Households." Selected paper presented at the Association for Environmental and Resource Economists Annual Meeting, San Diego, CA June 2015.

"Modelling Optimal Household Location in Thin Markets: An Alternative Explanation for Leapfrog," Yong Chen*, Elena G. Irwin, Ciriyam Jayaprakash. North American Regional Science Council Annual Meeting. Washington DC, Nov. 13-15, 2014.

"A Coupled Spatial Economic-Hydrological Model of Cropland Transitions and Environmental Impacts" Zhang, Wendong*, S. Gebremariam, J. F. Martin, E. G. Irwin, and N. Chen. Applied and Agricultural Economic Association, Minneapolis, MN, July 2014.

Elena G. "The Economics of Natural Infrastructure: The Importance of Public-Private Partnerships." 3rd Annual World Business Council Sustainable Development Midwest Conference, Fisher College of Business. Columbus, OH. Dec. 2013.

Irwin, Elena G and Doug Wrenn*. The Structural Effects of Zoning in Residential Land Markets. North American Regional Science Council Annual Meeting. Atlanta GA. Nov. 8-11, 2013

Chen, Yong* and Elena G Irwin. A Model of Exurban Land Development. North American Regional Science Council Annual Meeting. Atlanta GA. Nov. 8-11, 2013

Stephens, Heather*, Elena G Irwin, Mark Partridge. "How do pollution and other environmental disamenities affect business location?" North American Regional Science Council Annual Meeting. Atlanta GA. Nov. 8-11, 2013

"From Farmer Management Decisions to Watershed Environmental Quality: A Spatial Economic Model of Crop and Tillage Choices." Zhang, Wendong* and E. G. Irwin. Selected paper presented at the Heartland Environmental and Resource Economics Workshop at Champaign, IL, November 2013.

Irwin, Elena G. "Locational choice and land use dynamics across the Baltimore city-suburban-exurban system." Baltimore Ecosystem Study Annual Meeting. Baltimore, MD. Oct. 22, 2013.

Wrenn, Doug* and EG Irwin (2013). The Structural Effects of Zoning in Residential Land Markets. Association of Environmental and Resource Economists. Banff CA. June 6-8, 2013.

Irwin, EG, Doug Wrenn (2013). Evaluating the Impact of Alternative Land Use Policies on Residential Land Development. European Regional Science Association Annual Meeting. Palermo, Italy. August 28-30, 2013.

Zhang, Wendong*, Elena G. Irwin. "From Farmers' Management Decisions to Watershed Water Quality: A Spatial Economic Model of Land Management Choices." Selected paper presented at the Annual Meeting of the Applied and Agricultural Economic Association, Washington D.C., August 2-4, 2013.

Zhang, Wendong, Douglas Wrenn, Elena G. Irwin. "Tests of the urban economic model using a new measure of leapfrog development." Selected paper for the Urban Economics Association sessions at the 59th Annual North American Meetings of the Regional Science Association International, Ottawa, Canada, November 7-10, 2012.

Gnagey, Matt* and Elena G. Irwin. "Does Distance Still Matter? Evidence from a Semi-Parametric Analysis of Land Prices." Selected paper for the Urban Economics Association sessions at the 59th Annual North American Meetings of the Regional Science Association International, Ottawa, Canada, November 7-10, 2012.

Wrenn, Douglas* and Elena G. Irwin. "Time Is Money: An Empirical Examination of the Dynamic Effects of Regulatory Uncertainty on Residential Subdivision Development." Selected paper for the Urban Economics Association sessions at the 59th Annual North American Meetings of the Regional Science Association International, Ottawa, Canada, November 7-10, 2012.

Stephens, Heather* M., H. Allen Klaiber, and Elena Irwin. "Housing Values and Natural Amenities in the Great Lakes Region." Selected paper for the Urban Economics Association sessions at the 59th Annual North American Meetings of the Regional Science Association International, Ottawa, Canada, November 7-10, 2012.

Wrenn, Douglas and Elena G. Irwin. "Integrating Economics Into Land Use Change Models to Simulate Policy Scenarios and Assess Sustainability." Selected presentation for the 4th International EcoSummit, Columbus, Ohio, September 30th-October, 5th, 2012.

Zhang, Wendong*, Elena G. Irwin and Cynthia Nickerson. “The Expanding Ethanol Market and Farmland Values: Identifying the Changing Influence of Proximity to Agricultural Delivery Points.” Selected paper presented at the Annual Meeting of the Applied and Agricultural Economic Association, Seattle, Washington, August 12-14, 2012.

Wrenn, Douglas*, Abdoul Sam and Elena G. Irwin. “Searching for the Urban Fringe: Exploring the Spatiotemporal Determinants of Land Use Using a Conditionally-Parametric Duration Model." Selected paper presented at the Annual Meeting of the Applied and Agricultural Economic Association, Seattle, Washington, August 12-14, 2012.

Konar, Avishek*, Roe, Brian E. and Irwin, Elena G. 2012. “Do Farmers Have Heterogeneous Preferences for the Environment and Does It Matter? A Latent-Class Approach to Explaining Field-Level Tillage Choices,” Selected Paper, Agricultural and Applied Economics Association Annual Meetings, Seattle, Washington, August 12-14.

Konar, Avishek*, Roe, Brian E. and Irwin, Elena G. 2012. “Do Farmers Have Heterogeneous Preferences for the Environment and Does It Matter? A Latent-Class Approach to Explaining Field-Level Tillage Choices,” Selected Paper, Association of Environmental and Resource Economists, Asheville, NC, June 3-5.

Chen, Yong*, Elena G. Irwin, Ciriyam Jayaprakash. “A Spatial Model of Exurban Land Development.” Selected paper presented at the Allied Social Science Association (ASSA) meetings, Association of Environmental and Resource Economists (AERE) session, Chicago, IL, January 6-8, 2012.

Wrenn, D.*, E. Irwin. “Heterogeneous Effects of Regulation: A Nonparametric Model of Residential Land Development." Selected paper presented at Camp Resources XVIII for Environmental Economists, Wrightsville Beach, North Carolina, August 2011 and the North American Regional Science Council Annual Meeting, Miami, FL, November 2011.

Chen, Y., E. Irwin, C. Jayaprakash. “An Agent-Based Model of Exurban Land Development.” Selected paper presented at the Association of Environmental and Resource Economists Annual Conference, Seattle, WA, June 2011 and the Agricultural and Applied Economics Association Annual Meeting, Pittsburgh, PA, July 2011.

Towe, C., A. Klaiber, D. Wrenn, D. Newburn. E. Irwin. “Exploiting Spatial and Temporal Variations in Residential Subdivision Development to Identify Urban Growth Spillovers." Selected paper presented the Association of Environmental and Resource Economists Annual Conference, Seattle, WA, June 2011 and the Agricultural and Applied Economics Association Annual Meeting, Pittsburgh, PA, July 2011.

Irwin, E. “The Ecological Economics of Sustainability and Resilience.” Presentation given at the Baltimore Ecosystem Study Quarterly Meeting, University of Maryland Baltimore County, January 2011.

Irwin, E., D. Wrenn and W. Zhang. “Exurban Development in Carroll County, MD.” Presentation given at the Baltimore Ecosystem Study Annual Meeting, University of Maryland Baltimore County, October 2010.

Wrenn, Doug* and E.G. Irwin. “A Competing Risks Model of Exurban Land Development in the Presence of Multiple Options.” Selected paper, North American Regional Science Council Annual Meeting, Denver, CO, November 2010.

Carrion-Flores, C.* and E.G. Irwin. “A Fixed Effects Model of Rural Land Conversion and Zoning.” Selected paper, North American Regional Science Council Annual Meeting, Denver, CO, November 2010.

Chen, Y.*, Irwin E., Jayaprakash, C. “Urban Land Development Patterns with Short Run Dynamics.” Selected paper, North American Regional Science Council Annual Meeting, Denver, CO, November 2010.

Irwin, E.G., D. Wrenn and W. Zhang. “Exurban Development in Carroll County, MD.” Baltimore Ecosystem Study Annual Meeting, University of Maryland Baltimore County, October 2010.

Ara, Shihomi, Elena Irwin and Tim Haab. “Measuring the effects of Lake Erie water quality using spatial hedonic price models.” Paper presented at the Federal Reserve Bank of Cleveland Green Recovery Applied Research Seminar, Cleveland, OH, April 8, 2010.

Chen, Y., Irwin E., Jayaprakash, C. “Quantifying and explaining spatio-temporal patterns of fragmentation in the Baltimore region.” Selected paper, North American Regional Science Council Annual Meeting, San Francisco, CA, November 2009. Also presented at the European Regional Science Annual Meeting, Lodz, Poland, August 2009.

Chen, Y., Irwin, E., Jayaprakash, C. “Managing Regional Growth in a Coupled Ecological-Economic Model.” Selected paper, North American Regional Science Council Annual Meeting, New York, NY, November 2008.

Jeante, P.W.*, Partridge, M, Irwin, E., “Estimation of a Spatially Interdependent System of Migration and Housing Price Dynamics.” Selected paper, Spatial Econometrics Association, November 2008.

Chen, Yong*, Elena Irwin and Ciriyam Jayaprakash. “Ecological Feedbacks and Fast-Slow Dynamics in a Model of Amenity-Driven Regional Growth.” Selected paper presented in the AERE session at the American Agricultural Economics Association Meeting, Orlando, FL, July 26-28, 2008.

Irwin, Elena G., Ciriyam Jayaprakash and Yong Chen. “A Dynamic Model of Household Location, Regional Growth and Endogenous Natural Amenities with Cross-Scale Interactions.” Selected paper presented at the “Frontiers of Environmental Economics” conference, Resources for the Future and US Environmental Protection Agency, Washington D.C., February 26-27, 2007. Also presented at seminars at Purdue University (March 23, 2007); University of Illinois (April 12, 2007); Ohio State (March and May 2007); and ETH Zurich (October 5, 2007).

Irwin, Elena, Nancy Bockstael and Hyun Jin Cho. “Measuring Sprawl and Exurban Development: Now You See It, Now You Don’t.” Selected paper presented at the American Association of Agricultural Economics, Allied Social Sciences Association Annual Meeting, Chicago, IL, January 5-7, 2007.

Irwin, Elena, Nancy Bockstael and Hyun Jin Cho. “Measuring and Modeling Urban Sprawl: Data, Scale and Spatial Dependencies.” Invited paper presented at the Urban Economics Sessions, 53rd Regional Science Association International Annual Meeting, Toronto, November 16-18, 2006.

Clark, Jill, Darla Munroe and Elena G. Irwin. “Exurban Settlement Patterns and the Exurban Condition: A Typology of U.S. Metropolitan Areas.” Paper presented at the 53rd Regional Science Association International Annual Meeting, Toronto, November 16-18, 2006.

Ara, Shihomi*, Elena G. Irwin and Tim Haab. “The Influence of Water Quality on Housing Prices around Lake Erie.” Selected paper, American Agricultural Economics Association Annual Meeting, Long Beach, CA, July 2006 and Third World Congress for Environmental and Resource Economists, Kyoto, Japan, July 3-7, 2006.

Clark, J.K., R. McChesney, D. Munroe, and E. Irwin. "Emerging Exurbia: Spatial Characteristics of Exurban Settlement." Prepared for 52nd Annual North American Meetings of the Regional Science Association International. Las Vegas, NV, November 10-12, 2005.

Munroe, D., J. Clark and E. Irwin. "Regional Determinants of Exurban Land Use in the US Midwest." Paper prepared for the 52nd Annual North American Meetings of the Regional Science Association, Las Vegas, NV, November 12, 2005.

Clark, J. K., E. Irwin and R. McChesney. "Emerging Exurbia: A comparative analysis of exurban settlement patterns across the US." Prepared for the Emerging Issues Along Urban/Rural Interfaces: Linking Science and Society. Atlanta, GA, March 13-16, 2005.

Carrion, Carmen* and Elena G. Irwin. “Using Regression Discontinuity Design to Identify the Effect of Zoning on Rural Land Conversion.” Selected paper presented at the American Agricultural Economics Association Annual Meeting, Providence, RI, July 24-27, 2005.

Irwin, Elena G. and David Culver. “Biocomplexity of Large Lake Ecosystems.” Invited poster presentation, National Science Foundation 5th Annual Biocomplexity Conference, Washington, D.C., March 21-22, 2005 and at the Ohio Sea Grant Investigators Program, Ohio State University, August 21, 2005.

Moreno, Rocio* and Elena G. Irwin. “Does Distance Make Good Neighbors? The Role of Spatial Externalities and Income in Residential Development Patterns.” Selected long paper presented at the American Agricultural Economics Association Meeting, Denver, CO, August 1-4, 2004.

Bayoh, Isaac*, Elena G. Irwin, and Brian Roe. “The Value of Clean Dairy Air: Accounting for Endogeneity and Spatially Correlated Errors in a Hedonic Analysis of the Impact of Animal Operations on Local Property Values.” Selected long paper presented at the American Agricultural Economics Association Meeting, Denver, CO, August 1-4, 2004.

Irwin, Elena G., Ciriyam Jayaprakash, and Keith Warren. “The Emergence of Racial Segregation in an Agent-Based Model of Residential Location: the Role of Competing Preferences.” Selected paper presented at the North American Association for Computational Social and Organizational Science Conference, Pittsburgh, PA, June 27-29, 2004.

Irwin, Elena G. and Jeff Sharp. “Heterogeneity in the Hinterland: A Typological Analysis of Ohio Exurban Areas.” Selected paper presented at the American Agricultural Economics Association Meeting, Montreal, Canada, July 27-30, 2003.

Wu, Junjie and Elena G. Irwin. “Human-Nature Interactions and the Spatial Pattern of Land Use.” Selected paper presented at the 2003 AERE Workshop, “Spatial Theory, Modeling, and Econometrics in Environmental and Resource Economics,” Madison, Wisconsin, June 15-17, 2003.

Morrow-Jones, Hazel, Elena Irwin and Brian Roe. “The Demand for Neotraditional Neighborhoods Characteristics: How Damning is Density?” Selected Paper, Annual American Collegiate Schools of Planning Conference, November 21-24, 2002, Baltimore, Maryland.

Irwin, Elena G., Brian Roe, and Hazel Morrow-Jones. “Estimating the Benefits of Farmland Preservation to Homeowners: Results of a Conjoint Analysis of Housing Choice.” Selected paper presented at the American Agricultural Economics Association Meeting, Long Beach, CA, July 28-31, 2002.

Bayoh, Isaac*, Elena G. Irwin and Timothy Haab. “Flight from Blight vs. Natural Evolution: Determinants of Household Residential Location Choice and Suburbanization.” Selected paper presented at the American Agricultural Economics Association Meeting, Long Beach, CA, July 28-31, 2002.

Bell, Kathleen and Elena G. Irwin. “Public Preferences for Open Space: Evidence from Land Preservation Ballot Initiatives.” Selected paper presented in the AERE Session at the American Agricultural Economics Association Meeting, Long Beach, CA, July 28-31, 2002.

Munroe, Darla and Elena G. Irwin. “Estimating Econometric Models of Spatial Land Use Processes: Separating Fact from Fiction.” Paper presented as part of an organized symposium on “New Techniques for Land Use Modeling,” at the American Agricultural Economics Association Meeting, Long Beach, CA, July 28-31, 2002.

Irwin, Elena G. and Nancy E. Bockstael. “Urban Sprawl as a Spatial Economic Process.” Selected paper presented at the 2002 Lincoln Institute of Land Policy seminar on “Analysis of Urban Land Markets and the Impact of Land Market Regulation,” Cambridge, MA, July 10-12, 2002. Also presented at the 2nd World Congress of Environmental and Resource Economists, Monterey, CA June 27, 2002.

Irwin, Elena G. and Mark Fleming. “Spatial Issues in the Economics of Modeling Land Use Change.” Invited presentation at "The Economics of Urban Sprawl and Land Use Change” short course, University of California, Santa Barbara, CA, June 22, 2002.

Libby, Larry and Elena G. Irwin. “Rural Amenities and Farmland Values,” Invited paper presented at “Government Policy and Farmland Markets: Implications for the New Economy,” USDA/ERS, Washington D.C., May 6, 2002.

Irwin, Elena G. “The Effects of Open Space on Residential Property Values.” Paper presented at the Regional Science Association International Meeting, Charleston, SC, November 15-16, 2001.

Carrion, Carmen* and Elena G. Irwin. “Using a Spatial Economic Model to Explain Residential Sprawl.” Paper presented at the Regional Science Association International Meeting, Charleston, SC, November 15-16, 2001.

Hsieh, Wen-hua*, Elena G. Irwin and Lawrence Libby. “The Effect of Rural Zoning on the Allocation of Land Use in Ohio.” Selected paper presented at the 2001 American Agricultural Economics Association Meeting, Chicago, IL, August 3-7, 2001.

Ozturk, Erdogan* and Elena G. Irwin. “Explaining Household Location Choices Using a Spatial Probit Model,” Selected paper presented at the 2001 American Agricultural Economics Association Meeting, Chicago, IL, August 3-7, 2001.

“The Problem of Identifying Land Use Spillovers: Measuring the Effects of Open Space on Residential Property Values,” Elena G. Irwin and Nancy Bockstael. Selected paper presented at 2001 Allied Social Sciences Association Meeting, New Orleans, January 4-7, 2001.

"Spatial Dependence among County-Level Land Use Changes." Hsieh, W.H.*, Elena G. Irwin and Lynn Forster. Selected paper presented at the 2000 American Agricultural Economics Association Annual Meeting, Tampa, FL. July 30-August 2, 2000.

"An Application of Split Population Duration Model to Land Use Transitions." Hsieh, W.H.* and Elena G. Irwin. Selected paper presented at 2000 Canadian Agricultural Economic Society Annual Meeting, Vancouver, B.C., June 1-3, 2000.

“Using Spatial Data and Methods to Study Rural-Urban Change,” Elena G. Irwin. Invited paper presented at “Rural Policy: Issues, Data Needs, and Data Access,” AAEA Rural Policy Conference, Washington, DC, March 2000.

"Theory, Data, Methods: Developing Spatially-Explicit Economic Models of Land Use Change," Elena G. Irwin and Jacqueline Geoghegan. Invited paper presented at an international workshop on “Current progress in quantifying spatially explicit causes and effects of land use/cover change, ” Wageningen University, The Netherlands, December 1999.

"Moving Up and Out or Flight from Blight: Evidence of the Causes of Sprawl at the Urban-Rural Fringe," Elena G. Irwin. Selected paper presented at the 1999 Agricultural Economics Association Meeting, Nashville, TN, August 1999.

"Endogenous Spatial Externalities: Empirical Evidence and Implications for Exurban Residential Land Use Patterns," Elena G. Irwin and Nancy E. Bockstael. Selected paper presented at the North American Meetings of the Regional Science Association International, Santa Fe, NM, November 1998.

"Interacting Agents, Spatial Externalities, and the Endogenous Evolution of Land Use Pattern," Elena G. Irwin and Nancy E. Bockstael. Selected paper presented at the NBER Summer Institute 1998, Workshop on Public Policy and the Environment, Cambridge, MA, August 1998.

"The Role of Spatial Externalities in the Evolution of Urban Sprawl," Elena Irwin. Selected paper presented at the World Congress of Environmental and Resource Economists, Venice, Italy, June 1998.

"Using GIS to Model Rural to Urban Land Conversion: A Case Study in the Patuxent Watershed, MD," Elena G. Irwin. Paper presented at the International Association of Agricultural Economists Annual Meeting, Sacramento, CA, August 1997.

"Exurban Patterns of Development," Elena Irwin. Panel discussion in the symposium on "Real World Applications of GIS in Agricultural Economics," Agricultural Economics Association Meeting Toronto, Ontario, July 1997.

"Valuation of Ecosystems," Elena G. Irwin. Invited presentation at the Society for Conservation Biology and Ecological Society of America Annual Meeting, Providence, RI, August 1996.

"Land Use Conversion and Optimal Scale of the Economy," Elena G. Irwin. Presentation at the International Society of Ecological Economics Meeting, Boston, MA, August 1996.

"A Spatial Analysis of Externalities and Increasing Returns in Land Use Conversion," Elena G. Irwin. Selected paper presented at the Association of Environmental and Resource Economists Meeting, San Antonio, TX, July 1996.

"Safe Minimum Standards for Ecosystems," Elena G. Irwin. Selected paper presented at the American Agricultural Economics Association Annual Meeting, Indianapolis, IN, August 1995.

Post Doctoral Scholars Mentoring

Seung Chung, Co-Mentor, 2019-2023

Atar Herziger, Co-Mentor, 2018-2021

Tim Jacquet, Supervisor, 2019-2021

Irwin, Nicholas, Supervisor, 2016-2017

Wrenn, Douglas, Supervisor, 2013-2014

Graduate Students Supervised

Malik, Khyati. Pathways to a Low-Carbon Future: Analyzing Land Use, Carbon Sequestration, and Renewable Energy Integration. June 2025. (Co-Advisor with Sathya Gopalakrishnan)

Wang, Yixuan. Three Essays on Urban and Environmental Economics. PhD Thesis. May 2025.(Co-Advisor with Yao Wang)

Mackenzie Jones. Three Essays on Inclusive Wealth and the Sustainability of Regions. PhD Thesis. July 2023.

Christina Gore. Economic Analysis of Reducing Emissions in Transportation and Energy Production. PhD Thesis. May 2022. (Co-Advisor with Andre Carrel)

Chung, Seung. Three Essays on Regional Development. PhD Thesis. August 2019. (Co-Advisor with Mark Partridge)

Jaquet, Tim. The Great Recession and Economic Resilience in U.S. Regions. PhD Thesis. July 2019.

Ahn, Jae-Wan. Three Essays on Housing Markets, Urban Land Use, and the Environment. PhD Thesis. May 2019.

Collins, Laporchia. Three Essays Examining Household Demand for Healthy Foods. PhD Thesis. July 2016.

Baron, Aneil. PhD Thesis. Three Essays on the Applications of Housing Transactions. PhD Thesis. July 2016.

Irwin, Nicholas. Essays on Environmental Regulation and Urban Redevelopment. PhD Thesis. December 2015.

Zhang, Wendong. “Three Essays on Land Use, Land Management, and Land Values in the Agro-Ecosystem.” PhD Thesis. July 2015.

Konar, Avishek. “The Importance of Non-Pecuniary Factors and Heterogeneity of Farmers in Tillage Choices.” PhD Thesis. January 2015.

Gnagey, Matt. “Three Essays on Residential Land Prices, and Land Use Patterns and Regulations.” PhD Thesis. June 2014.

Valentino, Vincent. June 2013. M.S. Non-thesis option.

Wrenn, Douglas. “Three Essays on Residential Land Development" PhD Thesis. December 2012.

Stephens, Heather. “Three Essays in Regional Economics.” PhD Thesis. June 2012.

Rice, Jamie. “Averting Expenditures of Bottled Water by Rural Households During a Power Outage.” M.S. Thesis. December 2012.

Fath, Linnae. “Measuring the Economic Benefits of Water Quality Change: Literature Review and Meta Analysis.” Non-thesis M.S. December 2010.

Bayoh, Isaac. “Accounting for Endogeneity and Spatially Correlated Errors in Hedonic Analyses with an Application to the Effects of Livestock Operations on Residential Property Values.” PhD Thesis. May 2010.

Chen, Yong. “Three Essays on the Interaction between Regional Development and Natural Amenities.” PhD Thesis. July 2009.

Ara, Shihomi. “The Influence of Water Quality on the Demand for Residential Development around Lake Erie,” PhD Thesis. May 2007.

John, Mauricia. “Natural Amenities and Population Growth Rates,” Non-thesis M.S. May 2006.

Miyata, Takeshi. “A Simultaneous Model of Residential Zoning and Rural Land Conversion.” M.S. Thesis. June 2005.

Moreno, Rocio. “The Role of Spatial Externalities and Income in Residential Development Patterns.” M.S. Thesis. August 2004.

Ozturk, Erdogan. “Accounting for Space in Intrametropolitan Household Location Choices.” Ph.D. Dissertation. June 2003.

Bayoh, Isaac. “Estimating the Determinants of Household Residential Location Choice Using a Multinomial, Discrete Choice Model,” M.S. Thesis. 2001.

Carrion, Carmen. “A Spatial Economic Model of Residential Land Use Conversion,” M.S. Thesis. June 2001.

Current students: Brian Cultice (PhD)

Short Courses

Irwin E. “Spatial modeling of land markets and land use change.” XII Biannual Short Course sponsored by LACEEP (Latin American and Caribbean Environmental Economics Program) and CATIE (Solutions for Environment and Development), Panama City, Panama, September 30 – October 2, 2011.

Irwin E. “Land Use Economics Workshop.” Short Course sponsored by the Professorship of Environmental Policy and Economics, Institute for Environmental Decisions, ETH Zürich, Switzerland, May 5-6, 2008.

Irwin E. “Introduction to Spatial Econometrics.” Short course sponsored by the Department of Geography, University of Zürich, Switzerland, April 2-4, 2008.

Technical Reports / Bulletins

Zhang, Wendong; Irwin, Elena; Ward, Barry, "Trends and Determinants of Farmland Sale Prices in Western Ohio 2001– 2010". Edited by: CFAES. Forthcoming. OSU Extension Bulletin.

Irwin, Elena G., Nicholas Irwin, Jay Martin, Linnae Fath, Mark D. Partridge. “The Benefits and Costs of Constructed Wetlands for Improving the Water Quality of Selected Ohio Lakes.”

Burnett, E.A., R. S. Wilson, B. E. Roe, G. Howard, E. G. Irwin, W. Zhang, and J. Martin. 2015. Farmers, phosphorus and water quality: Part II. A descriptive report of beliefs, attitudes and best management practices in the Maumee Watershed of the western Lake Erie Basin. Columbus, OH: The Ohio State University, School of Environment & Natural Resources
Irwin, Elena G. and Jill K. Clark. “The Local Costs and Benefits of Wal-Mart,” Department of Agricultural, Environmental, and Development Economics and Ohio State Extension, February 2006. Online at: http://www.aede.osu.edu/programs/ComRegEcon/walmart.htm

Clark, Jill K. and Elena G. Irwin. "Retail Market Analysis: Richland County, City of Mansfield, City of Shelby, City of Ontario, Village of Lexington, and Main Street Mansfield." Department of Agricultural, Environmental, and Development Economics and Ohio State Extension, December 2004.

Clark, Jill K. and Elena G. Irwin. “Retail Market Analysis: The City of Ashtabula.” Department of Agricultural, Environmental, and Development Economics and Ohio State Extension, September 2004.

Clark, Jill K. and Elena G. Irwin. “Retail Market Analysis: Ashtabula County.” Department of Agricultural, Environmental, and Development Economics and Ohio State Extension, September 2004.

Clark, Jill K. and Elena G. Irwin. "Retail Analysis: New Richmond, Ohio." Department of Agricultural, Environmental, and Development Economics and Ohio State Extension, June 2004.

Clark, Jill K. and Elena G. Irwin. “Retail Market Analysis: City of Oxford, Ohio.” Department of Agricultural, Environmental, and Development Economics and Ohio State Extension, June 2004.

Clark, Jill K. and Elena G. Irwin. “Retail Market Analysis: London, Ohio.” Department of Agricultural, Environmental, and Development Economics and Ohio State Extension, October 2003.

Clark, Jill K., Jeff Sharp, Elena G. Irwin, and Larry Libby. “Growth and Change at the Rural-Urban Interface: An Overview of Ohio's Changing Population and Land Use.” Exurban Change Project Report, March 2003.

Irwin, Elena G. and Jason Reece. “Ohio Urbanization Trends: Tracking Ohio’s Urban Growth and Land Use Change,” The Exurban Change Project Report Number EX-4, August 2002.

Reece, Jason and Elena G. Irwin. “Retail Market Analysis: Logan, Ohio,” Department of Agricultural, Environmental, and Development Economics and Ohio State Extension, May 2002.

Reece, Jason and Elena G. Irwin. “Land Cover in Ohio’s Townships: An Analysis of Township Land Cover and Population Change.” The Exurban Change Project Report Number EX-3, March 2002.

Irwin, Elena G. and Jason Reece. “Retail Market Analysis: Mechanicsburg, Ohio,” Department of Agricultural, Environmental, and Development Economics and Ohio State Extension, February 2002.

Irwin, Elena G. and Jason Reece. “Retail Market Analysis: Marietta, Ohio,” Department of Agricultural, Environmental, and Development Economics and Ohio State Extension, September 2001.

Irwin, Elena G. “Retail Market Analysis: St. Paris, Ohio,” Department of Agricultural, Environmental, and Development Economics and Ohio State Extension, July 2001.

Irwin, Elena G. and Jason Reece. “Retail Market Analysis: Monroe County, Ohio,” Department of Agricultural, Environmental, and Development Economics and Ohio State Extension, July 2001.

Irwin, Elena G. and Jason Reece. “Retail Market Analysis: Noble County, Ohio,” Department of Agricultural, Environmental, and Development Economics and Ohio State Extension, July 2001.

Irwin, Elena G. and Erdogan Ozturk. “Retail Market Analysis: Van Wert City, Ohio,” Department of Agricultural, Environmental, and Development Economics and Ohio State Extension, September 2000.

Irwin, Elena G. “Explaining Sprawl in Exurban Areas: The Role of Open Space.” Community Economics Briefing, OSU AEDE Regional and Community Economics Website, December 1999.

Irwin, Elena G. “Introduction to Using GIS as an Economic Development Tool: An Introductory Guide for Community and Economic Development Practitioners.” Training Manual, October 1999.

Irwin, Elena G. “Using Geographic Information Systems (GIS) in Economic Development: An Introduction to Applications, Terminology, and Software.” Community Economics Briefing, OSU AEDE Regional and Community Economics Website, September 1999.

Irwin, Elena G. and David S. Kraybill. “The Costs and Benefits of New Residential Development.” Community Economics Briefing, OSU AEDE Regional and Community Economics Website, August 1999.

Selected General Press Articles and Interviews

Reuters. March 2021. Wary US farmers weigh up joining Biden's climate fight. https://www.reuters.com/article/us-usa-agriculture-climate-change/wary-us-farmers-weigh-up-joining-bidens-climate-fight-idUSKBN2B71A9

WOSU Interview. New study will track how trade wars affect the Midwest. Dec 2018. Online: http://radio.wosu.org/post/ohio-state-wins-grant-study-impact-tariffs-midwest#stream/0

“Life in a deglobalized world: What would trade wars mean for food, energy and water systems?” OSU Communications Paid Content in *The Chronicle of Higher Education* (May 2018): https://www.chronicle.com/paid-article/life-in-a-deglobalized-world/92

Irwin, Elena G., Douglas Wrenn (2012). “Developing Spatially Disaggregate Models of Land Change for Policy Simulation." UGEC Viewpoints, No. 8. November, 2012. Published by the Urbanization and Global Environmental Change Project, International Human Dimensions Programme.

“Sprawl Continues to Gobble Up Land,” Dec 07-Jan 08. Interview on urban sprawl results published in PNAS Dev 2007, reported by United Press International (http://www.upi.com/NewsTrack/Science/2007/12/18/ study_us_urban_sprawl_still_increasing/5781/), Science Daily (http://www.sciencedaily.com/releases/2007/12/071217171404.htm), Conservation Magazine (http://journalwatch.conservationmagazine.org/2007/12/21/seeing-the-wood-for-the-trees/), Environmental News Network (http://www.enn.com/ecosystems/article/27647) and other online science news sites. Also featured on National Science Foundation’s website (http://nsf.gov/news/news_summ.jsp?cntn_id=110911&org=NSF&from=newsField).

Interview for "Boxed In?" (article on big-box retail development). Columbus CEO Magazine, December 2007. http://www.columbusceo.com/article2.html

“Seeing Clean Water as a Home – Buying Amenity in Ohio.” *Coastal Services*, May/June 2007. Online: http://www.csc.noaa.gov/magazine/2007/03/article1.html .

“Hot Commodity: Cleaner Water Increases Lake Erie Waterfront Property Values,” by Jill Jentes Banicki, Ohio Sea Grant Program’s *Twineline*, June 2007. Also featured by the National Oceanic and Atmospheric Administration (NOAA) , *In the Spotlight*: http://www.oar.noaa.gov/spotlite/2007/spot_hotcommodity.html.

“New Wal-Mart in town? Ohio State University study shows community impact likely to be mixed,” *National Association of Counties (NaCo) Magazine*, Summer 2006. Online: http://www.naco.org/.

Selected Outreach Presentations and Engagements

Irwin, E.G. “Ohio Pathways to Sustainability: Are We Consuming Too Much?” Presenter at the AEDE Annual Extension Spring Conference, Ohio State University, May 8, 2024.

Irwin, E.G. “Green is the New Growth: Central Ohio’s Sustainable Future.” Panelist at the Columbus Metropolitan Club Forum, Columbus, OH, May 1, 2024.

Irwin, E.G. “Sustainability and Phronesis: Does the "Ohio State Way" Help Us Live Well?” COMPAS Directions Panel, Center for Ethics and Human Values, Ohio State University, April 19, 2024.

Irwin, E.G. “Choosing Our Climate Legacy: Priorities for a More Equitable and Resilient Ohio.” Panelist for the Center for Urban and Regional Analysis Online Webinar, Ohio State University, April 29, 2022.

Irwin, E.G. “Community Resilience: Adapting to the COVID-19 ‘Wildfire’” Environmental Professionals Network (EPN) “Resiliency Through Fire” Panel, Ohio State University, September 14, 2021.

Irwin, E.G. “Resilience of Coastal Communities in the Great Lakes Region.” Panelist for the Nelson Institute for Environmental Studies Earth Day 2021 Day of Learning, University of Wisconsin, April 22, 2021.

Irwin, E.G. “Restoring the Carbon Cycle: A Coupled Human-Natural Systems Perspective.” Panelist for the Rattan Lal Center for the Management of Soil Carbon Earth Day Event: Restore Earth’s Carbon Cycle, Ohio State University, April 22, 2021.

Irwin, E.G. “Ohio Sustainability: Are We Sustainable? How Do We Know?” Keynote speaker at the AEDE Extension Virtual Workshop on the Sustainability of Ohio's Lands: Creating Value for People and the Environment, Columbus, OH, May 12, 2020.

Irwin, E.G. “Earth Day 2070: The Next Fifty Years.” Keynote speaker at the Ohio State Earth Day Virtual Event, Columbus, OH. April 15 2020.

Irwin, E.G. “The Urban Rural Continuum and Connections.” Invited keynote presentation, National Urban Extension Conference, May 20-23, 2019, Seattle, WA

Irwin, E.G. “Sustainable Urban Systems.” Invited Luncheon Speaker, Mid-Ohio Regional Planning Commission (MORPC) Summit on Sustainability, Columbus, OH, October 11, 2019

Irwin, E.G. Speaker and Co-Organizer. “Converging on Wicked Systems Problems” Board of Agriculture and Natural Resources (BANR) 75th Anniversary Lecture, 4H-Center, Ohio State University, November 18, 2019

“Collaboratory for Urban Sustainability and Partnerships,” Intersections Presentation, Ohio State University Advancement Program, August 15, 2019.

“Sustainable Urban Systems,” Presentation to the Ohio State Alumni Advisory Council, Longenberger House, Ohio State University, November 7, 2019.

Moderator, Climate Change and Cities Panel, Center for Real Estate, Fisher College of Business, Ohio State University, April 9, 2019.

Co-Chair, Ohio State 2019 Community Engagement Conference, Ohio State University.

“The Sustainable Economy: Challenges and Opportunities.” Presented at the OARDC/OSU Renewable Energy Workshop, Wooster OH, November 12, 2014.

“Sustainability Science for Materials Overview,” Presented at the Bioproducts World 2014 Showcase, Columbus, OH October 6, 2014.

“Defining Urban and Urban Sustainability,” Presented at OSU Extension in the City Workshop, Columbus OH, August 21, 2014.

“A Sustainability Science Approach to Lake Erie: Assessing the Linkages and Trade-Offs between Agricultural Land Management and Lake Ecosystem Services.” Presented at Stone Laboratory, Gibraltar Island, Lake Erie, July 10, 2014.

Invited panelist, “The Age of Sustainable Development,” Keynote Address by Jeffrey Sachs, Provost’s Discovery Themes Inaugural Lecture and COMPAS Spring Conference, April 4, 2014.

"What's the Bottom Line? Incentives for Getting Businesses to Work for Water Sustainability." Invited talk given as part of the Waters for Americas Tour, Ohio State University, February 11, 2014.

"The Trends and Determinants of Western Ohio Farmland Values 2001 – 2010," Ohio Chapter American Society of Farm Managers and Rural Appraisers Annual Meeting, Columbus OH, January 26, 2014.

"Water Quality: State and National Concerns and Consequences," Panelist, Farm Science Review. September 17, 2013.

"Sustainability, Smarter Cities and Big Data" Panelist, Fisher College of Business. Ohio State University. Columbus, OH. October 1, 2013.

"Is Sprawl Dead?" Invited presentation to be given at the 2009 McSweeney Land Use Planning Conference, September 2009.

"The Local Costs and Benefits of Wal-Mart." Presentation given at the 2006 County Commissioners Days, August 28, 2006; Ohio Association of County Commissioners Annual Meeting, June 2006; AEDE Extension Update, January 25, 2006.

"Farms, Factories, Fish and Sprawl: A Recent History of Land Use and Water Quality in the Lake Erie Region." Presentation with Jeff Reutter given at "The Future of Ohio's Lake Erie Basin: Balancing Land Use and Water Quality," Lorraine Co. Community College, December 1, 2005.

"Trends, Causes and Impacts of Growth in Rural-Urban Areas." Presentation given at the 2004 Planning and Zoning Tools for Land-Use Management Workshop, Hamilton County, OH, June, 2004.

"Are You Ready for a Change? Trends, Causes, Impacts of Growth in Rural-Urban Areas." Keynote address given at the 2003 McSweeney Land Use Planning Conference, November 2003.

"Who's Ready for Change? Ohio's Population and Land Use in Transition." Presentation given at the 2003 County Commissioners' Days, August 2003.

"Using GIS to Model Patterns of Rural-Urban Land Use Change." Presentation given at the 2003 Ohio Geospatial Technologies Conference for Agriculture and Natural Resources, Columbus, OH, March 24-26, 2003.

"Land Development at the Rural-Urban Interface: Trends, Causes, and Impacts." Presentation given at the National American Society of Farm Managers and Rural Appraisers (ASFMRA) annual meeting, Louisville, KY, December 2002.

"Urbanization Trends in Ohio." Presentation given at the Annual Planning and Zoning Workshop, Dayton, OH. Sponsored by the Miami Valley Ohio Planning Commission, December 2002.

"Growth at the Rural-Urban Fringe: Causes, Consequences, Responses." Presentation given to members of the Ohio Farm Bureau Federation, NeighborConnection Bus Tour 2002, July 2002 (joint with Jeff Sharp).

"Low Density Development in Ohio: Trends and Impacts." American Society of Farm Managers/Rural Appraisers, Ohio Chapter, May 2002 (joint with Jason Reece).

"The State of Sprawl in Ohio." Presented at the Ohio Urban University Program's Policy Forum, Columbus, OH, February 2002 (joint with Jason Reece).

"Retail Market Analysis for Mechanicsburg, OH," Presentation to the Mechanicsburg economic development committee, January 2002 (joint with Jason Reece).

"Hedonic Methods," Presentation to participants in the Benefit-Cost Analysis and Ohio's Environment Workshop, November 13, 2001.

"Overview of Retail Market Analysis." Presentation to Community Development Extension Agents, November 9, 2001.

“Population, Land Use, and Transportation in Ohio,” Presentation at the Simply Living Conference, October 2001.

“Retail Market Analysis for Monroe County, OH,” Presentation to the Monroe County economic development committee, July 2001.

“Retail Market Analysis for Noble County, OH,” Presentation to the Noble County economic development committee, July 2001.

“Overview of Central Ohio Growth and Change,” Presentation at the Simply Living Conference, October 2000 (joint with Jeff Sharp).

“Predicting Population Changes in the Proposed Darby Wildlife Refuge.” Presentation to the proposed Darby National Wildlife Refuge stakeholders group, July, 2000.

"Retail Market Analysis with GIS," Presentation given at the Northwest District In-service for Community Development agents, January 2000.

"U.S. Patterns of Development: Are We Consuming Too Much Land?" Keynote talk given at the Seneca County Regional Planning Commission Annual Meeting, January 2000.

"Changes in Exurban Land Use Patterns: The Role of Open Space," Presentation given at the Southwest Extension District In-Service, June 2000 and at the Extension Land Use Team meeting, December 1999.

"Introduction to GIS and Applications in Community Development," Presentation given to OSU Community Development Extension agents, Columbus, OH, November 1999.

"Introduction to Retail Trade Area Analysis for Champaign County," Presentation given to the St. Paris economic development committee, St. Paris, OH, November 1999.

"The Costs and Benefits of Development," Presentation given at the 1999 Ohio State University Extension Land Use conference, Columbus, OH, June 1999 (joint with David Kraybill).

"Community Economic Indicators for Washington County," Presentation given to Washington County "Take Charge" community group, Washington County, OH, June 1999.

Professional Service

Associate editor, American Journal of Agricultural Economics, 2010 – 2013.

Elected Councilor-at-large. North American Regional Science Council, 2010-2012.

Editorial board member, Letters in Spatial and Resource Science

Editorial board member, International Regional Science Review

Reviewer for the following economics journals: American Journal of Agricultural Economics, Computers, Environment and Urban Systems, Ecological Economics, Land Economics, International Journal of Regional Science, Journal of Economic Dynamics and Control, Environmental and Resource Economics, Journal of Economic Geography, Journal of Environment and Development Economics, Journal of Environmental Economics and Management, Journal of Law and Economics, Journal of Public Economics, Journal of Real Estate and Finance, Journal of Regional Analysis and Policy, Journal of Urban Economics, Papers in Regional Science, Regional Science and Urban Economics, Review of Agricultural Economics.

Reviewer for the following interdisciplinary journals: Agriculture Ecosystems and Environment, Ecosystems, Ecological Modeling, Growth and Change, Landscape and Urban Planning, Landscape Ecology, Proceedings of the National Academy of Sciences, Urban Studies.

Other reviewer activities: Handbook of Computational Economics, Web of Regional Science.

NSF Panelist for the following programs: Sustainable Regional Systems (SRS) Research Network Planning Grants, Innovations at the Nexus of Food, Energy and Water (INFEWS), Coupled Human-

Natural Systems, Geography and Spatial Sciences, LTER Review Team, Navigating the New Arctic, Geography and Regional Science Program, Coupled Human-Natural Systems Program. *Other panelist activities:* Department of Energy's Multisector Dynamics (MSD) research area, Earth and Environmental Systems Science Program; USDA NIFA.

Professional memberships: American Agricultural Economics Association; Association of Environmental and Resource Economists; North American Regional Science Council; Regional Science Association International.

Recent Departmental, College, and University Service

Member, President and Provost Advisory Council, 2024-current.

Member, Distinguished University Professor Selection Committee, 2024-current.

Member, University Senate Research Committee, 2024-current.

Chair, AEDE Awards Committee, 2023-current. Member, 2021-2022.

Member, AEDE Faculty Search Committees: Swank Chair, 2024-current. Urban/Regional Economics, June 2021-February 2022

Chair, Promotion, Evaluation and Advancement Committee (PEAC), 2019; member, PEAC, 2017-2018, 2025-current.

Member, EEDS Faculty Advisory Group, 2014-2019

Member, Distinguished Professor Selection Committee, College of Food, Agricultural and Environmental Sciences, 2020-2023

Member, Fellowship Review Committee, College of Food, Agricultural and Environmental Sciences, 2024-current.