

**Elena G. Irwin**  
*Curriculum Vita*

Department of Agricultural, Environmental, and Development Economics  
The Ohio State University  
2120 Fyffe Road  
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**Professional Experience**

Associate Professor, Dept. of Agricultural, Environmental and Development Economics, Ohio State University. October 2005-present.

Appointment split: July 2005 – present: 35% Extension; 21% Teaching; 14% Research

Assistant Professor, Dept. of Agricultural, Environmental and Development Economics, Ohio State University. November 1998 – September 2005.

Appointment split: Nov 1998 – Sept 2002: 50% Extension; 30% Teaching; 20% Research;  
Oct 2002 – June 2005: 25% Extension; 15% Teaching; 10% Research

**Teaching**

AED Economics 680: The Economics of Growth and Sprawl in America's Countryside

AED Economics 713: Public Policy and Market Regulation in Agricultural, Environmental, and Development Economics

AED Economics 694/Evolution, Ecology and Organismal Biology 694: "Large Lake Biocomplexity and Coupled Human-Nature Interactions"

AED Economics Independent Study: Spatial Econometrics

**Education**

University of Maryland, College Park, MD. August 1993 – October 1998. Ph.D., Agricultural and Resource Economics. Dissertation Title: "Do Spatial Externalities Matter? The Role of Endogenous Interactions in the Evolution of Land Use Pattern." Advisor: Nancy Bockstael.

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

**Areas of Interest**

Regional and Urban Economics; Land Use Modeling; Ecological-Economic Modeling; Applied Spatial Analysis, Spatial Econometrics and Geographic Information Systems; Amenity-Driven Regional Growth

**Honor and Awards**

2008 Hewings Award for distinguished young scholar, North American Regional Science Council;  
2004 Best Paper, 1<sup>st</sup> Runner-Up, North American Association for Computational Social and Organizational Science Conference;  
2003 Article of the Year Award, Northeast Agricultural and Resource Economics Association;  
2002 Best Conference Paper on Housing and Community Development, American Collegiate Schools of Planning Conference;  
1994-1997, MacArthur Foundation Research Fellowship

## Publications

### Refereed Journal Articles

Clark, Jill K., Ron McChesney, Darla K. Munroe, Elena G. Irwin (forthcoming). "Spatial Characteristics of Exurban Settlement Pattern in the U.S." *Landscape and Urban Planning*.

Warren, Keith, Ciriya Jayaprakash and Elena G. Irwin (forthcoming) "The Interaction of Segregation and Suburbanization in an Agent-Based Model of Residential Location." *Environment and Planning B*.

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, Kan, 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.

### ***Book Chapters***

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," forthcoming 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," forthcoming 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, Hants, 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., Ciriya 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.

### ***Manuscripts and Papers in Progress***

Ara, Shihomi, Selim Aksoy and Elena Irwin (2008). "On the Use of Cluster Analysis for Market Segmentation." Manuscript.

Ara, Shihomi, Elena Irwin and Tim Haab (2007). "Measuring the Effects of Lake Erie Water Quality Using Spatial Hedonic Price Models." Manuscript.

Carrion-Flores, Carmen and Elena G. Irwin. (2008) "Identifying Spatial Interaction Effects in the Presence of Spatially Error Autocorrelation: An Application to Land Use Spillovers" (in review, *Energy and Resource Economics*).

Carrion, Carmen and Elena G. Irwin (2008) "Using Regression Discontinuity Design to Identify the Effect of Zoning on Rural Land Conversion." Manuscript.

Chen, Yong, Elena G. Irwin, Ciriya Jayaprakash (2008). "A Dynamic Model of Household Location, Regional Growth and Endogenous Natural Amenities with Cross-Scale Interactions" (in review, *Ecological Economics*).

Irwin, Elena G., Kathleen P. Bell, Nancy E. Bockstael, David Newburn, Mark D. Partridge, JunJie Wu (2008). "The Economics of Urban-Rural Space." Invited paper under review, *Annual Review of Resource Economics*.

Irwin, Elena G., Ciriya Jayaprakash and Yong Chen (2008). "Regional Growth and Endogenous Natural Amenities." Manuscript.

Irwin, Elena G., Ciriya Jayaprakash and Darla K. Munroe (2008). "Towards a Comprehensive Model of Urban Spatial Dynamics" (in review, *Landscape Ecology*).

Maldonado, Jorge and Elena G. Irwin. "The Value of Proximity to Metropolitan Parks: A Case Study of Housing Values and Parkland in Montgomery County, Ohio" (in review, *Land Use Policy*).

Miyata, Takeshi, Elena G. Irwin and Taku Terawaki (2006). "A Simultaneous Model of Residential Zoning and Rural Land Conversion." Manuscript.

Pickett, S., and many co-authors (2008). "Modeling Urban Ecological Systems: Linking Biological, Physical and Socioeconomic Components in Metropolitan Areas." Invited paper, *Journal of Environmental Management*.

Roy, Eric D., Jay F. Martin, Elena G. Irwin, Joseph D. Conroy, David A. Culver. "Unstable Ecological-Economic Equilibria: The Effects of Invasive Species and Ecosystem Restoration on Nutrient Management Compromise in Lake Erie" (in review, *Ecology and Society*).

### **Invited Seminars and Workshops**

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**

Chen, Y. Irwin, E., Jayaprakash, C. "Managing Regional Growth in a Coupled Ecological-Economic Model." Selected paper, North American Regional Science Council Annual Meeting, 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 Ciriya 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., Ciriya 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, 53<sup>rd</sup> 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 53<sup>rd</sup> 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., Ciriya 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.

### **Research Funding**

"Multiscale dynamics and emergent patterns in urban spatial systems," James S. McDonnell Foundation, Study of Complex Systems Program, October 2008- September 2012. PI's: Elena G. Irwin and Ciriya Jayaprakash. Amount: \$406,834.

"Designing effective land management policies for the 21<sup>st</sup> century Ohio River Basin," Ohio State University Climate-Water-Carbon Initiative, July 2009-September 2013. PI's: Charles Goebel, Elena G. Irwin, Richard Moore, Robyn Wilson. Amount: \$1.3 million.

"Construction of property tax database." Cooperative Agreement, Economic Research Service, USDA 2008-09. PI's: Michael Brady, Elena G. Irwin, Cindy Nickerson, Charles Towe. Amount: \$137,500.

"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, 2008-09. PI: Elena G. Irwin. Amount: \$135,000.

"Analysis of the patterns and causes of fragmented urban development into rural areas using geocoded parcel data." Cooperative Agreement, Economic Research Service, USDA 2008-09. PI's: Elena G. Irwin and Michael Brady. Amount: \$18,002.

"Urbanization and Lake Erie Tributary Water Quality: A Dynamic Spatial Model with Policy Scenarios." OARDC Interdisciplinary Grants Program, 2008-2010. PIs: Elena G. Irwin and Jay Martin. Amount: \$100,000.

"Using Surveys, Experiments and Agent-based Models to Better Understand Recreation and Tourism Decision in the Lake Erie Region." NOAA/Ohio Sea Grant, 2006-2008. PIs: Elena G. Irwin and Tim Haab. Amount: \$117,193.

"Large Lake Ecosystems: Modeling the Interactions among Human, Biological and Physical Processes." National Science Foundation 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.

"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.

“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.

“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.

“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, 2000/2002. Principal Investigator: Elena Irwin. Amount: \$64,000.

“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.

### **Students Supervised**

Ara, Shihomi. “The Influence of Water Quality on the Demand for Residential Development around Lake Erie,” PhD Thesis, Ohio State University, May 2006 (Co-advisor).

John, Mauricia. “Natural Amenities and Population Growth Rates,” Non-thesis Master’s paper, Ohio State University, May 2006.

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

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

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

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

Carrion, Carmen. "A Spatial Economic Model of Residential Land Use Conversion," M.S. Thesis, Ohio State University, 2001.

Current students: Isaac Bayoh, (PhD student), Yong Chen,(PhD student), Hyun Jin Cho (PhD), Tripti Uprety (PhD), Chang Wang (PhD), Doug Wrenn (PhD)

### **Extension Programs**

"Exurban Change Project," Jeff Sharp, Elena Irwin and Jill Clark. Analyzes economic, social, agricultural and land use change throughout Ohio's townships, the Midwest region, and the Nation's exurban/rural landscape. Website: <http://exurban.osu.edu/index.htm>.

"Retail Market Analysis Program," Elena Irwin, Jill Clark and Greg Davis. Delivers analysis of local retail markets and assistance with retail economic development strategies for Ohio communities. Website: <http://aede.osu.edu/programs/ComRegEcon/retail.htm>

### **Extension Briefings and Manuscripts**

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 Popular Press Articles Based on Research and Outreach**

"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/](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](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 *Twinline*, 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](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 Extension Presentations**

"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.

### **Other Research/Extension Projects**

"The Value of Parkland in Montgomery County, Ohio." Elena Irwin and Jorge Maldonado. Report prepared for Five Rivers MetroParks and the Miami Valley Regional Planning Commission, August 2005.

"Economic and Fiscal Impacts of the Proposed Darby Creek Wildlife Refuge," David S. Kraybill and Elena Irwin. Special project examining the predicted economic and fiscal impacts of the U.S. Fish and Wildlife's proposed Darby Creek Wildlife Refuge. Contribution to this project was to predict future population changes in Madison County and surrounding area.

### **Professional Activities**

Reviewer for: American Journal of Agricultural Economics, Ecological Modeling, Growth and Change, Land Economics, International Journal of Regional Science, Journal of Economic Dynamics and Control, 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, Handbook of Computational Economics, Agricultural Economics, Review of Agricultural Economics, Papers in Regional Science, Proceedings of the National Academy of Sciences, Web of Regional Science, Agriculture Ecosystems and Environment, Ecosystems, Growth and Change.

American Agricultural Economics Association, member; Regional Science Association International, member; Association of Environmental and Resource Economists, member.