

**Understanding Urbanization:
A Comparative Review of Land Use Change Models and Data Sources (40)**
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The quantitative modeling of rural-to-urban land conversion has seen an explosion in recent years, due in part to the increased availability of GIS data describing land use change over time. Increases in computing power have also made complex modeling of dynamic land use interactions feasible. In addition to the increased availability of new tools and methods, urban and regional policy makers and planners are growing more interested in learning how to shape the pattern and scale of urban growth. This interest is reflected in the growing “smart growth” movement in the U.S. and the mixed intensive land use (MILU) movement in Europe.

This paper reviews the recent literature on rural-to-urban land use change modeling and develops a typology of modeling approaches. Our review takes a comparative perspective and examines approaches developed to explain land use change in the urbanized regions of North America and Europe. We begin with a discussion of the data commonly employed in such investigations, focusing on the differences in data availability among industrialized nations of North America and Europe. This discussion is followed by a methodological review of empirical forecasting methods and dynamic simulation approaches used to explain and forecast land use change. We conclude the review with a discussion of which types of models hold the most promise for helping local planners and policy makers to understand changing patterns of urbanization.

The paper builds upon the work of a collaborative research consortium recently assembled for the purpose of pursuing transatlantic research opportunities in urban planning. This group was initially brought together in Sabbioneta, Italy, (October 4-6, 2006) by the National Center for Smart Growth Research and Education and the Habiforum Foundation. Following this initial meeting, the team of scholars from North America and Europe has been working to develop a “Transatlantic Research Agenda” which serves as the framework for a variety of transatlantic research projects related to smart growth, transportation, open space preservation, property rights, and regional planning. This paper was developed by members of this group for the purpose of summarizing the state of current knowledge in land use research.