

Lucas and Rossi–Hansberg (2002) pose that higher production externalities result from proximity to more employment and better access to the location of households as a source of labour. However, Bishop and Gripaios (2010) find that spatial externalities have heterogeneous impacts on different business sectors, generating a need to further explore this potential heterogeneity of spatial externalities with spatial-explicit land-use information. The required analysis presents several challenges. Two major ones are (1) access to high spatial resolution land-use data with specific sector specification and (2) access to appropriate computational resources to handle the detailed data.

This paper uses high-performance computing techniques within a spatial econometric framework on a patch-level land-use data inventory for Chicago to address these issues. The land-use data inventory has been manually cleaned and classified using the North American Industry Classification System (NAICS) at the 2-digit classification level mapped at a 100x100m (block) level of spatial resolution. Three research questions are addressed: 1) How spatial production externalities differ among NAICS 2-digit sectors? 2) What is the optimal land-use structure based on spatial externalities for undeveloped land in Chicago? 3) how does the land-use planning vision promulgated by the metropolitan planning authority compare with a market-driven scenario in terms of business productivity changes? To answer these questions, we build a spatial economic model based on the theory of sector-specific factors of production, externalities and equilibrium wages. The model thus established are then applied to explore land use options for undeveloped sites in Chicago. A comparison will be made between market-trend-based and policy-based scenarios of development, the latter including the proposed GO TO 2050 Chicago regional plan.

## **CLIMATE AND ENERGY GOVERNANCE PERSPECTIVES FROM A MUNICIPAL POINT OF VIEW IN HUNGARY**

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European climate change objectives are aiming to reduce CO<sub>2</sub> exhaust, promote the spread of renewable energy sources (RES) and stimulate energy efficiency (EE). The situation of local and regional governance is crucial in the implementation of community objectives.

A multi-year research project is implemented in East Hungary by the University of Debrecen and Eszterházy University. It focuses on the relevance of local communities in the formation of adequate responses to the fore-mentioned challenges. A broad range of primary data collections (questionnaires and interviews) were implemented in two rural counties of the country.

Our first objective is to elicit existing plans concerning RES and EE at municipality level and to measure the rate of public participation in the elaboration of them. Secondly the scopes of implemented projects were examined in the target area.

According to our results Hungarian local leaders are environmentalists, but local communities rarely owe energy/climate-change plans and projects are scarce. The main motivators of project implementation are financial. Because of poor financial conditions only EU co-financed projects are realized. As subsidy is coming through national government, political factors are crucial. From a governance point of view national and county levels are decisive and local specialities are not taken into consideration.

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