Modeling Asian Urban Dynamics: Impacts of Economic Globalization on the Emergence of Desakota Regions in Taipei Metropolitan Area

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Abstract

After World War II, Asia countries have undergone an accelerated process of urbanization, which is distinctively different from the Western society, since Asian urbanization is more strongly affected by economic globalization. The desakota model, proposed by McGee and Ginsburg in 1991, focuses on how domestic and local forces drive the specific rural-urban transformation and serve up the dazzling landscape – desakota regions in Asia. However, the McGee-Ginsburg model has failed to recognize the importance of globalization and how it has manifested in the Asian urbanization process. To fill the gap, this study incorporates GIS/ remote sensing technologies and socioeconomic data into cellular automata (CA) simulation to modeling the unique urbanization processes with the influence of economic globalization. Taipei metropolitan area, a rapid urbanizing region that highly interacts with global economy in Asia, is selected to examine this model. The CA simulation model establishes a strong integration between foreign direct investments (FDIs), an indicator representing impacts of globalization, and the Asian urban model through the combination of multi-scale economic factors and micro-scale land-use transformation. Simulation results reveal how urban growth of Taipei metropolis in recent years fits the characterization of the desakota model, and how desakota regions act as the growth generators to interact with city cores and form an extended metropolitan region under rapid growth of FDIs.

Keywords: *GIS, Desakota, Urban modeling, Cellular automat, Globalization, Taipei*