

A Simulation of Land Market through Agent-Based Modeling

Authors : Zilin Zhang

Abstract : Agent-based simulation has become a popular method of exploring the behavior of all kinds of urban systems. The city clearly is viewed as such a system. Many urban evolution processes, such as the development or the transaction of a piece of land, can be modeled with a set of rules. Such modeling approaches can be used to gain insight into urban-development and land market transactions in the real world. Our work contributes to such type of research by modeling the transactions of lands in a city and its surrounding suburbs. By replicating the demand and supply needs in the land market, we are able to demonstrate the different transaction patterns in three types of residential areas - downtown, city-suburban, and further suburban areas. In addition, we are also able to compare the vital roles of different activation conditions play in generating the various transaction patterns of the land market at the macro level. We use this simulation to loosely test our hypotheses about the nature of activation regimes by the replication of the Zi traders' model. In the end, we hope our analytical results can be useful for city planners and policymakers to develop rational city plans and policies for shaping sustainable urban development.

Keywords : simulation, agent-based modeling, housing market, city

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