

An Implication of Agent-based Simulation Model for Land Tenure Security and Utility Dynamics

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As UN-HABITAT highlighted urban squatting is one of the major issues that facing by the developing countries. It is well known fact that tenure insecurity that results from urban squatting hinders the economic progress of a country. It has predicted that the issue of tenure insecurity become severe in coming decades. Urban squatting mainly results from human-spatial relations govern by the market forces. However, expansion of squatting cannot only be deducted to market forces, other socio-economic relations associated with urban spaces such as inadequate land policies, mismanagement of public lands and attitudes of people are also contributing to this end. This makes urban squatting is a difficult issue to handle. Econometric models, however, the above human relations have largely neglected and hence they lead for ineffective decision making. Lack of understanding of the impacts of policy implication is another issue that face by the policy makers. Therefore, understanding the total-element relations and their dynamics within the context of urban land tenure is imperative for effective policy implication. In the current study, a literature review has been conducted to identify the socio-economic factors that are affecting on the expected benefits from land resources. This has led to identify the major elements of land tenure security that can be influenced by the human-spatial relations. Perceived uncertainty associated with expected benefits from those elements, however, is determined through interaction of three worlds, namely, world of social structure, world of perceptual structures and world of cognitive structures, and are codetermined within large autopoietic system. Self-congruity theories, social structural theories, as well as cognitive science theories were use to define an analytical framework for the above interactions. This framework and the econometric model on utility of land tenure were then utilized to define an agent-based simulation model for land tenure security-utility dynamic model. The outcome of the model shows that total-element relations, sociometric, econometric, and cognitive structures of agents are imperative for successful policy implication.

Keywords: Land tenure system, land tenure security, agent-based models