

The Extent of Land Use Externalities in the Fringe of Jakarta Metropolitan: An Application of Spatial Panel Dynamic Land Value Model

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Abstract : In a fast growing region, conversion of agricultural lands which are surrounded by some new development sites will occur sooner than expected. This phenomenon has been experienced by many regions in Indonesia, especially the fringe of Jakarta (BoDeTaBek). Being Indonesia's capital city, rapid conversion of land in this area is an unavoidable process. The land conversion expands spatially into the fringe regions, which were initially dominated by agricultural land or conservation sites. Without proper control or growth management, this activity will invite greater costs than benefits. The current land use is the use which maximizes its value. In order to maintain land for agricultural activity or conservation, some efforts are needed to keep the land value of this activity as high as possible. In this case, the knowledge regarding the functional relationship between land value and its driving forces is necessary. In a fast growing region, development externalities are the assumed dominant driving force. Land value is the product of the past decision of its use leading to its value. It is also affected by the local characteristics and the observed surrounded land use (externalities) from the previous period. The effect of each factor on land value has dynamic and spatial virtues; an empirical spatial dynamic land value model will be more useful to capture them. The model will be useful to test and to estimate the extent of land use externalities on land value in the short run as well as in the long run. It serves as a basis to formulate an effective urban growth management's policy. This study will apply the model to the case of land value in the fringe of Jakarta Metropolitan. The model will be used further to predict the effect of externalities on land value, in the form of prediction map. For the case of Jakarta's fringe, there is some evidence about the significance of neighborhood urban activity – negative externalities, the previous land value and local accessibility on land value. The effects are accumulated dynamically over years, but they will fully affect the land value after six years.

Keywords : growth management, land use externalities, land value, spatial panel dynamic

Conference Title : ICSS 2017 : International Conference on Statistical Sciences

Conference Location : Singapore, Singapore

Conference Dates : November 09-10, 2017