Geostatistical Sampling Optimization: An Empirical Study Using Officially Assessed Land Prices

[1]*, [1]

MURAKAMI, Daisuke[1]*, Morito Tsutsumi[1]

[1]

[1]University of Tsukuba

In Japan, where the budget screening is in progress, improving the efficiency of the administrative system is an urgent task. Assessment of Officially assessed land price is also need to be improved. In this assessment, 26 thousand sites are assessed to determine the land price every year.

From the perspective of administrative efficiency, it is necessary to evaluate the sites assessed in this assessment. The problem of evaluating sampling allocation is called sampling design. As for the sampling design of spatial data, the use of geostatistical techniques has been reported in some studies.

Geostatistical methods are useful in evaluating the sampling design of land price assessments. However, as far as the authors are aware, there have been no such studies conducted in Japan. This study evaluates the sampling design of land price assessments by applying geostatistical methods.

In this study, first, the sampling design of the officially assessed land price is evaluated from the viewpoint of the allocation or the number of the sampling sites. Next, an optimized sampling design is deviated on the basis of the result. Subsequently, the sampling design of the prefectural land price survey is evaluated and optimized on the condition that the allocations for the officially assessed land prices are given. To evaluate the consistency of the sampling designs, the allotment pattern of the land price data must be considered in our model. For example, it is known that most of the land price data are assessed on urbanization promotion areas that have a high demand. Hence, such information is explicitly introduced into the model.

The results of the aforementioned evaluations are applied for assessing the cost of each sampling design. Policies are then suggested on the basis of the result.

:   ,   ,
Keywords: Geostatistics, Sampling design, Officially assessed land price