

Geostatistical mapping of land prices in Taiwan Case: an empirical comparison of ordinary kriging

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Abstract:

This study discusses the use of land price data to estimate the land price using the ordinary kriging method (OK). Moreover, compares the Gaussian and exponential semivariogram model by cross-validation and which one is more suitable for the ordinary kriging model also has a good Mean absolute percentage error (MAPE). The study area is in Tainan City, Taiwan. The data sample is a land transaction case from 2012 to 2018. The study adopts the inherent hypothesis that the difference between the random variables in different spatial locations is a random variable, and the expected value and the variance are only related to the distance between the random variables and the spatial position. The ordinary kriging method was used as a tool in the study. First, the data were randomly divided into experimental group (90%) and control group (10%) by spatial random sampling. A total of 10 pairs were combined to ensure the stability of the verification. The space autocorrelation distance (Moran's I) is taken as the influence range, and the semivariogram are verified by cross-validation method, and then verified by mean absolute percentage error (MAPE). The study found that under the same data sample, after cross-validation, the exponential semivariogram model has a better land price prediction effect, whether it is the verification result or the mean absolute percentage error.

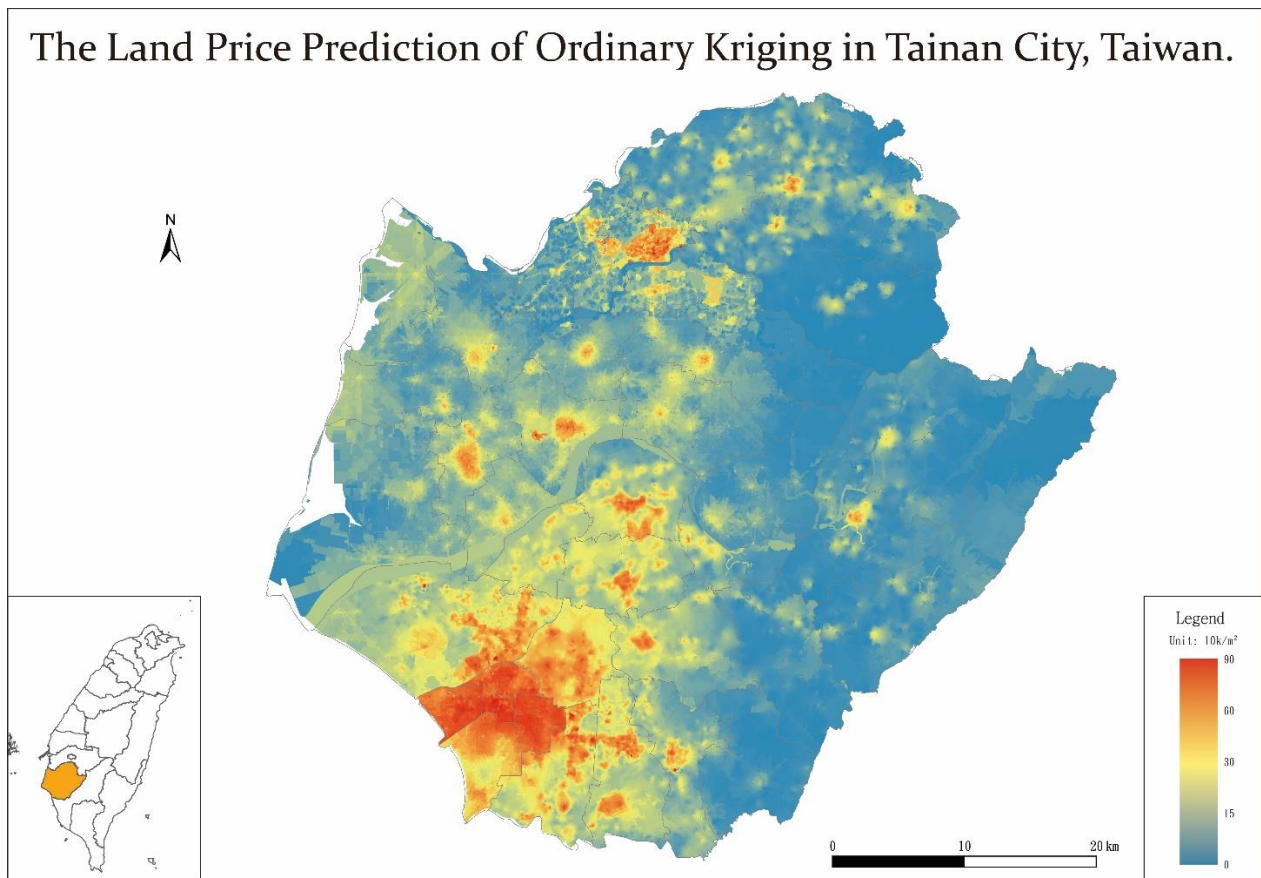


Figure 1. : The land price prediction map at Tainan City, Taiwan.