

A BAYESIAN GEOGRAPHICALLY WEIGHTED REGRESSION MODEL APPLIED TO REAL ESTATE MARKET

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ABSTRACT

In this paper we propose a Bayesian approach to analyze the Geographically Weighted Regression model (BGWR) that combines the local character of the estimation of the regression coefficients with the relationships of global character over those coefficients through the prior distribution. We pursuit, in the first place, to evaluate the ability of this procedure to discriminate between a spatially constant process and one with spatially varying relationships, and subsequently to accurately retrieve spatially varying relationships. The methodology is based on the use of a geographically weighted likelihood. MCMC methods are utilized to obtain the posterior distribution of the model coefficients. Moreover, in order to analyze the spatial variation of the coefficients, we carry out a model comparison process with Bayesian tools. An application to the Real Estate Market of Zaragoza (Spain) is also provided.

KEYWORDS. GWR. Bayesian regression. MCMC.

Main area: EST - Statistics