ABSTRACT

Multiple linear regression is a statistical method that assumes the relationship between independent and dependent variables is global and uniformly applicable across all locations. This becomes a limitation when the data exhibit spatial heterogeneity. To address the shortcomings of classical linear regression models in capturing spatial variation, the Geographically Weighted Regression (GWR) method was developed. This study aims to model the Open Unemployment Rate (OUR) in Central Java Province in 2023 using Gaussian and Exponential kernels in both fixed and adaptive approaches. The variables that significantly affect OUR vary across locations. Population Density, Labor Force Participation Rate, Number of Indonesian Inter-Country Workers, and Human Development Index were found to be significant predictors in several locations. The results indicate that the GWR model with a fixed Gaussian kernel is the best-performing model, with an AICc value of 121.2069 and a coefficient of determination (R^2) of 0.6924.

Keywords: GWR; Gaussian Kernel; Exponential Kernel; Open Unemployment Rate; Spatial Heterogeneity