ABSTRAK

Penelitian pemodelan investasi ini bertujuan untuk mengidentifikasi faktor-faktor yang memengaruhi tingkat investasi di tingkat provinsi di Indonesia, serta membandingkan kinerja model *Generalized Linear Mixed Models* (GLMM) dan *Geographically Weighted Regression* (GWR) dalam memodelkan data tersebut. Data yang digunakan merupakan data longitudinal dari tahun 2018 hingga 2022, mencakup 34 provinsi di Indonesia. Hasil analisis menggunakan GLMM menunjukkan bahwa secara umum, variabel belanja modal, Produk Domestik Regional Bruto (PDRB), dan pajak daerah memiliki pengaruh signifikan terhadap investasi. Sementara itu, analisis dengan pendekatan GWR mengungkapkan adanya variasi spasial dalam pengaruh masing-masing variabel. Beberapa variabel seperti belanja modal, PDRB, pajak, Upah Minimum Provinsi (UMP), Indeks Pembangunan Manusia (IPM), dan Tingkat Pengangguran Terbuka (TPT) terbukti berpengaruh signifikan di sejumlah provinsi, namun tidak di provinsi lainnya. Berdasarkan hasil evaluasi kebaikan model, pendekatan GWR menunjukkan kinerja yang lebih unggul dibandingkan GLMM. Hal ini mengindikasikan bahwa GWR lebih mampu merepresentasikan karakteristik investasi di 34 provinsi di Indonesia secara lebih akurat, dengan mempertimbangkan kondisi lokal dan heterogenitas spasial masing-masing wilayah.

Kata Kunci: *Generalized Linear Mixed Models, Geographically Weighted Regression, data longitudinal, investasi, model*

ABSTRAK

This investment modeling study aims to identify the factors that influence the level of investment at the provincial level in Indonesia, as well as to compare the performance of the Generalized Linear Mixed Models (GLMM) and Geographically Weighted Regression (GWR) models in modeling the data. The data used are longitudinal data from 2018 to 2022, covering 34 provinces in Indonesia. The analysis results using GLMM show that, in general, the variables of capital expenditure, Gross Regional Domestic Product (GRDP), and local taxes have a significant effect on investment. Meanwhile, the analysis using the GWR approach reveals spatial variation in the influence of each variable. Several variables such as capital expenditure, GRDP, taxes, Provincial Minimum Wage (UMP), Human Development Index (HDI), and Open Unemployment Rate (TPT) are proven to have a significant effect in some provinces but not in others. Based on the model goodness-of-fit evaluation results, the GWR approach shows better performance compared to GLMM. This indicates that GWR is better able to represent the characteristics of investment in the 34 provinces in Indonesia more accurately by taking into account local conditions and the spatial heterogeneity of each region.

Keywords: *Generalized Linear Mixed Models, Geographically Weighted Regression, longitudinal data, investment, model*