

## ABSTRACT

*Poverty is a complex issue in developing countries, including Indonesia, particularly as an archipelagic nation which contributes to social inequality. This study aims to analyze the relationship between poverty rates and several socioeconomic factors—Gross Regional Domestic Product (GRDP), average wage, number of social assistance beneficiary families, farmers' terms of trade, access to proper sanitation, and proper housing—across 38 Indonesian provinces using 2024 data. The analysis utilizes Multiple Linear Regression (MLR) with Ordinary Least Squares (OLS) for parameter estimation. However, the Multiple Linear Regression model proved inadequate, yielding a low Adjusted  $R^2$  value. To address this data heterogeneity, the Clusterwise Linear Regression (CLR) method was applied using a Maximum Likelihood-based algorithm. Based on the Akaike Information Criterion (AIC), four clusters were determined to be the optimal grouping. The application of CLR significantly improved the model's performance, with the Adjusted  $R^2$  value surging to 0.9999 in three clusters. Correspondingly, the Mean Absolute Percentage Error (MAPE) drastically decreased from 41.7% in the initial model to as low as 0.10% in the best-performing cluster. The proper housing variable was the most influential factor in clusters 2 and 4, while the farmers' terms of trade variable was most influential in clusters 1 and 3. These findings underscore the importance of a region-based approach in designing poverty alleviation policies to be more effective and tailored to local needs.*

**Keywords:** *poverty, socio-economic factors, multiple linear regression, clusterwise linear regression, cluster*