ABSTRACT

Poverty remains one of the major issue in developing countries such as Indonesia. In 2023, the poverty rate in North Sumatra Province reached 8.15%. This high percentage is influenced by various factors, prompting the need for a model to examine the effects of open unemployment, average years of schooling, life expectancy, and economic growth on poverty. Initial analysis using the Ordinary Least Squares (OLS) method identified two outliers that led to biased parameter estimates. This issue was addressed using robust regression with the M-estimator approach, applying Huber and Andrew weighting functions. This method is more resistant to outliers and does not require residual normality, although it still assumes linearity, no multicollinearity, autocorrelation, and homoscedasticity. The results show that the model using Huber weights performs best, with an Adjusted R^2 of 85.72% and a Mean Squared Error (MSE) of 2.509, while meeting all regression assumptions. Average years of schooling and economic growth have a significant effect on poverty. An additional year of schooling reduces the poverty rate by 1.184%, and a 1% increase in economic growth lowers it by 3.929%, both at the 5% significance level. Therefore, the robust regression model with Huber weights is considered the more optimal.

Keywords: Outliers, Robust Regression, M-Estimator, Huber, Andrew