

# Analysis of the Effect of Climate Variability Risk on Rice Farming Productivity Using Robust Regression.

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- **Abstract:** This study aims to analyze the effect of climate variability risk on rice farming productivity and terrestrial rice production. In this study, the data analysis method was carried out using multiple linear regression models, and to estimate the parameters is done using Ordinary Least Square (OLS). Because of the productivity of rice farming and terrestrial rice production under study there are outlier data, so we need the right method to perform data analysis. Robust Regression is an appropriate method for dealing with irregularities caused by outliers. Furthermore, to measure the level of risk, it is done using Conditional Value-at-Risk (CVaR). Based on the analysis results show that wind speed, maximum temperature and minimum temperature have a significant effect on rice farming, while rainfall does not have a significant effect. The robust regression estimator has a determination value of 0.991 which means it has a very strong correlation. The effect of climate variables on terrestrial rice production shows that wind speed, minimum temperature, and rainfall have a significant effect on terrestrial rice production, while maximum temperature has no significant effect. The robust regression estimator in this case gives a determination value of 0.574 which means it is quite strong. The level of losses due to damage due to climate variables is estimated to reach a minimum CVaR value of 58.4459 tons/ha at the 0.96 confidence level.
- **Keywords:** Rice production, climate variability risk, robust regression, OLS, CVaR