Comparison of *Stepwise* Method and *Ridge Regression* Model in Determining the Best Multiple Regression Model in Multicollinearity Cases

ABSTRACT

Multiple linear regression analysis was used to determine the relationship between more than two explanatory variables and response variable. One of the assumptions underlying multiple regression analysis is the non multicollinearity assumption in which there is no linear relationship between the explanatory variables in the regression model. If there is multicollinearity the resulting conclusions would not be appropriate, so multicollinearity problems should be avoided. The best regression model is a model that can explain the behavior of the response variables by selecting explanatory variable from a lot of explanatory variables in the data. In this research the method used for solving multicollinearity are stepwise method and ridge regression using comparative values R^2_{adj} and Cp Mallow. The research was conducted using two levels of data with medium and highly strong multicollinearity. The results showed that the level of multicollinearity in the data is medium, to handle multicollinearity by using ridge regression, while the data with highly strong multicollinearity can be overcome well by using the stepwise method.

Keywords : Multiple Linier Regression, Stepwise Method, Ridge Regression, Multicollinierity