

ABSTRACT**Fast Minimum Covariance Determinant Estimator
In Discriminant Analysis Containing Outlier
(Classification of Regions with Health Problem in Indonesia Based on
Composite Indicator of CHDI (Community Health Development Index))**

This research aimed to identify outlier observation in composite index of the compiler of community health development index used to classify regencies/cities in Indonesia into group of regions with health problems and regions without health problems. Reclassification was done using discriminant analysis using two approaches, which are classic estimator and robust estimator which was Fast Minimum Covariance Determinant. Before performing outlier identification, we should know whether assumption test on data was fulfilled or not. The assumption of discriminant analysis was multivariate normality and variant covariant matrix homogeneity. Normality test was done by calculating plot distance which was then compared with Chi Square score. Normality test was also done by comparing 0.05 significance with the test result from Shapiro Wilks and Anderson Darling. Variant matrix homogeneity test was performed by calculating score from Box'M with 5% significance level. Outlier identification as performed by observing mahalanobis distance, scatter plot observation of the result of classic and robust method.

Assumption test performed provided the information that the data used for the research didn't fulfill the assumptions, then the outlier identification result with Mahalanobis distance found 20 observation with outlier data. More outlier was identified when using scatter plot based on classic method and robust method. The classification result of regions with health problems with classic estimator resulted in 85.68% classification precision, while Fast Minimum Covariance Determinant estimator resulted in higher precision which was 86.81%. To evaluate classification results of each estimator, four accuracy methods were used. Of the four methods, Fast Minimum Covariance Determinant estimator gave better accuracy value than classic estimator.

Keyword : Discriminant Analysis, Fast Minimum Covariance Determinant Estimator, Community Health Development Index.