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Shrinkage Estimators for Mixture of Logistic Regression Models

The logistic regression model is one of the most powerful statistical methods, widely used in many fields to analyze binary data. The logistic regression enables researchers to use a set of covariates to explain the classification of binary responses. The collinearity problem is one of the most common problems in logistic and mixture of logistic regressions where the covariates are highly correlated. This research developed ridge and Liu-type estimators to deal with the collinearity problem in a mixture of logistic regression models. Through various numerical studies, we show that the developed Liu-type method provides more reliable results in estimating the coefficients of the logistic regressions.