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COMPARISION BETWEEN r-d AND r-k CLASS ESTIMATORS IN MISSPECIFIED LINEAR REGRESSION MODEL

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A significance attention has been paid by researchers about misspecification due to excluding some relevant explanatory variables and multicollinearity among the explanatory variables in linear regression model. Several biased estimators were suggested by researchers to overcome the problem of multicollinearity in place of Ordinary Least Square Estimator (OLSE). The intention of this study was to compare the performance of two existing biased estimators (r-k class estimator and r-d class estimator) and their respective predictors using a Monte-Carlo simulation study when the linear regression model is misspecified and the explanatory variables are multicollinear. The r-k class estimator and r-d class estimator are based on two different shrinkage parameters k (> 0) and d $(0 < d < 1)$, respectively. Nine different values (0.1, 0.2, 0.3, 0.4, 0.5, 0.6, 0.7, 0.8, and 0.9) within the range of d were selected for each shrinkage parameter in the simulation study. The results of the simulation study indicated that r-k class estimator performs well approximately for $k \geq 0.5$, and $k \geq 0.3$, under weak and moderate multicollinearity, respectively. However, the respective predictors have contrast results under the same conditions.

Keywords: Misspecified regression model, Monte-Carlo simulation, r-d class estimator, r-k class estimator.