

# A new Liu-type estimator

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## Abstract

Ridge regression (RR) and Liu estimators, which include single biasing parameter, specially depend on ordinary least squares (OLS) estimator. Due to the effects of multicollinearity on the OLS estimator, it have recently been proposed biased estimators include the two biasing parameter. Estimating biasing parameters of estimators include two biasing parameters are usually based on the methods proposed to Ridge and Liu estimators. But, very complicated equations may occur, when these methods are applied to estimators proposed. In this paper, we introduce a general new Liu-type estimator includes estimators with two biasing parameters as special cases. Also, necessary and sufficient conditions according to the mean squared error matrix criterion are derived, to show the superiority of the new estimator over the OLS, RR, Liu estimator, and the other estimators which include two biasing parameters. Lastly, the superiority to other estimators of the new Liu-type estimator is illustrated both theoretically and graphically on dataset Portland cement is widely used in the literature.

## Keywords

Biased regression, Mean squared error, Multicollinearity, Ridge regression, Liu estimator.

## References

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