



NEW ADJUSTED BIASED REGRESSION ESTIMATORS BASED ON SIGNAL-TO-NOISE RATIO

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ABSTRACT

In this paper, new adjusted biased regression estimators are proposed by using an adjustment factor based on signal-to-noise ratio (SNR). The theoretical results are applied to Liu-type estimators using the well known data of Portland Cement Data. The numerical results are in favor of the proposed adjusted estimators in the form of a smaller prediction error sum of squares (PRESS) criterion of the adjusted Liu type estimators compared to the original ones. The adjustment is also applied to the ordinary least squares estimators (OLSE) and other biased estimators such as ordinary ridge regression estimator (ORRE), and Liu estimator (LE). The best results are obtained for OLSE, ORRE, LE, and Liu type(1) estimators. It is concluded that this adjustment can be applied to any significantly regression estimator.

KEYWORDS: Adjusted Estimators, Liu Type Estimators, Ordinary Least Squares Estimator, Ordinary Ridge Regression Estimator, Prediction Error Sum of Squares, Signal to Noise Ratio