NORMAL MAXIMUM LIKELIHOOD, WEIGHTED LEAST SQUARES, AND RIDGE REGRESSION ESTIMATES

Christopher S. Withers
Saralees Nadarajah

Abstract: There have been many papers published (in almost every statistics related journal) suggesting that normal maximum likelihood is superior or inferior to weighted least squares and other approaches. In this note, we show that the three main estimation methods (normal maximum likelihood, weighted least squares and ridge regression) all have the same asymptotic covariance and that there is no gain in efficiency among them. We also show how the bias of these estimators can be reduced and conduct a simulation study to illustrate the magnitude of bias reduction.

2000 AMS Mathematics Subject Classification: Primary: 62J05; Secondary: 62F05, 62G20, 62J07.

Keywords and phrases: Bias reduction, normal maximum likelihood, regression, weighted least squares.

THE FULL TEXT IS AVAILABLE HERE