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Adaptive Unified Biased Estimators of Parameters in Linear Model

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摘要 To tackle multi collinearity or ill-conditioned design matrices in linear models, adaptive biased estimators such as the time-honored Stein estimator, the ridge and the principal component estimators have been studied intensively. To study when a biased estimator uniformly outperforms the least squares estimator, some sufficient conditions are proposed in the literature. In this paper, we propose a unified framework to formulate a class of adaptive biased estimators. This class includes all existing biased estimators and some new ones. A sufficient condition for outperforming the least squares estimator is proposed. In terms of selecting parameters in the condition, we can obtain all double-type conditions in the literature.

关键词 Least squares estimator, linear model, sufficient condition, adaptive unified biased estimator

分类号

Abstract

Key words

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