

Linear minimax-estimation in the three parameter case.

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Abstract

Consider the linear regression model with regression-matrix \mathbf{X} and parameter-vector β . Assume that there are circular restrictions on the parameter-vector. Let, moreover, $\mathbf{B}^T\mathbf{B}$ be the loss-matrix corresponding to the square loss-function. The linear minimax-problem is considered under the assumption that $\mathbf{X}^T\mathbf{X}$ and $\mathbf{B}^T\mathbf{B}$ possess a joint eigenvector. The problem not yet solved was the case that the maximal eigenspace of the bias-matrix possesses the dimension 2. If in the spectral decomposition of the bias-matrix the unit-vector not belonging to the maximal eigenspace is assumed to be of the form $(\mathbf{u}_1, \mathbf{u}_2, \mathbf{0})$, then it will be shown that the solution is found by solving a non-linear equation for \mathbf{u}_1 .