Linear minimax-estimation in the three parameter case.

Hilmar Drygas and Stefan Heilmann

University of Kassel, Germany

Abstract

Consider the linear regression model with regression-matrix $X$ and parameter-vector $\beta$. Assume that there are circular restrictions on the parameter-vector. Let, moreover, $B^TB$ be the loss-matrix corresponding to the square loss-function. The linear minimax-problem is considered under the assumption that $X^TX$ and $B^TB$ 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 $(u_1, u_2, 0)$, then it will shown that the solution is found by solving a non-linear equation for $u_1$. 