

Estimation and testing in hierarchical model

Mateusz John

Poznań University of Technology, Poland

Abstract

The aim of the presentation is to propose tests for covariance structures in doubly multivariate models. Due to the hierarchical nature of the considered experiments, block matrices are appropriate structures. We are considering block structures belonging to the quadratic subspaces. The proposed tests, among others the likelihood ratio test, the Rao score test and the Wald test, are compared with each other in terms of the speed of convergence to the limiting chi-square distribution and the power. For the comparison simulation methods are used. Moreover, since the maximum likelihood estimators of unknown parameters have an important role in each considered test, the presentation shows that these estimators can be obtained by projecting onto an appropriate quadratic subspace. Presented results are illustrated using real data example.