Testing hypotheses about banded Toeplitz covariance structure under the high-dimensional models

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Abstract

The main goal of the presentation is to propose the test for banded Toeplitz covariance structure and verify its properties. The tests based on likelihood ratio and Rao score with the maximum likelihood estimators replaced by asymptotic estimator of banded Toeplitz matrix ([1]) or shrinkage estimator of banded Toeplitz matrix ([2]) are indicated.

It is known that likelihood ratio test as well as Rao score test have asymptotic chi-square distribution. Thus, the aim will be to verify if the proposed modified likelihood ratio and Rao score also follow this distribution.

Keywords

Banded Toeplitz matrix, Likelihood ratio test, Rao score test, Asymptotic estimator, Shrinkage estimator.

References

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[2] John, M. and A. Mieldzioc (2019). The comparison of the estimators of banded Toeplitz covariance structure under the high-dimensional multivariate model, *Comm. Statist. Simulation Comput.* Accepted.