THE UNIVERSITY OF CHICAGO

Department of Statistics
MASTER'S THESIS PRESENTATION

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Estimation of Latent Factors for High-Dimensional Time Series

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ZOOM Meeting

ABSTRACT

The work by Lam and Yao deals with the high dimensional time series in a dimension reduction viewpoint via factor analysis. The dimension of time series p can be closed to sample size n or even larger than n. Through the eigendecomposition of a positive semidefinite matrix, we can estimate the factor loading matrix and the low dimension factor process. Under the condition of strong factor, the convergence rate for the estimator of factor loading is independent of dimension p, which shows that the curse of the dimensionality is canceled out by the blessing of the dimensionality. For weak factor, the convergence is also established in their paper. We review the methodology and theoretical results in Lam and Yao paper and do simulation and apply their method to daily return in S&P500 index.