



THE UNIVERSITY OF
CHICAGO

Department of Statistics

MASTER'S THESIS PRESENTATION

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Transition Matrix Estimation in High Dimensional Vector Autoregressive Models

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ABSTRACT

Vector autoregressive (VAR) model is one of the most commonly used multivariate time series model and has been widely used in a variety of applications. In this paper, we consider estimating the sparse transition matrix of VAR models via l_1 -regularization in a high-dimensional setting, where both the dimensionality of the time series and the VAR order can increase with the sample size. We perform simulation studies to investigate consistency properties of l_1 -penalized least squares and likelihood based methods and the impact of error correlations on the estimation problem. We also provide a real data example on estimating the dependence structure of financial stock prices.