

Dynamic sparse factor model

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Abstract

The analysis of large panel data sets (with N variables) involves methods of dimension reduction and optimal information extraction. Dimension reduction is usually achieved by extracting the common variation in the data into few factors (k , where $k \ll N$). In the present project, factors are estimated within a state space framework. To achieve a parsimonious representation, the $N \times k$ factor loading matrix is estimated under a sparse prior, which assumes that either many zeros may be present in each column of the matrix, or many rows may contain zeros. The significant factor loadings in columns define the variables driven by specific factors and offer an explicit interpretation of the factors. Zeros in rows indicate irrelevant variables which do not add much information to the inference. The contribution also includes a new way of identification which is independent of variable ordering.