

# Sparse principal loading analysis

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## Abstract

Principal loading analysis is a dimension reduction method for cross sectional data that selects a subset of the existing variables. Variables that have a small distorting effect on the covariance matrix are discarded. However, the method considers a hard threshold rule for the eigenvectors of the covariance matrix in order to determine if variables have a small distorting effect. We contribute an extension to sparse principal loading analysis, where we rather work with sparse loadings than with threshold rules for the eigenvectors. The sparse loadings are obtained using penalization methods and we compare calculation approaches regarding their explained variance which is needed to evaluate if a variable is selected or not. Further, we discuss sparse principal loading analysis in contrast to principal loading analysis and we contribute applications to real data as an illustration.

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