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Summary: This paper proposes the nonnegative adaptive elastic-net for simultaneous nonnegative estimation and variable selection in sparse high-dimensional linear regression models. By inheriting the good features of adaptive elastic-net, the nonnegative adaptive elastic-net enjoys the oracle property even in high-dimensional settings where the dimension of covariates can be much larger than the sample size. Through the simulation, we show that the newly proposed method deals with the collinearity problem better than alternative procedures in the literature. To make the proposed method practically feasible, we extend the multiplicative updates algorithm for implementation. Finally, we illustrate the favorable finite-sample performance of the proposed method through tracking the CSI 300 index, an important stock market index in China.

MSC: 62-XX Statistics

Keywords: nonnegative estimation; variable selection; adaptive elastic-net; oracle property; high-dimensional data; collinearity

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References:


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