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Model selection by LASSO methods in a change-point model

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(Submitted on 5 Jul 2011 (v1), last revised 18 Apr 2012 (this version, v2))

The paper considers a linear regression model with multiple change-points occurring at unknown times. The LASSO technique is very interesting since it allows the parametric estimation, including the change-points, and automatic variable selection simultaneously. The asymptotic properties of the LASSO-type (which has as particular case the LASSO estimator) and of the adaptive LASSO estimators are studied. For this last estimator the oracle properties are proved. In both cases, a model selection criterion is proposed. Numerical examples are provided showing the performances of the adaptive LASSO estimator compared to the LS estimator.

Subjects: Statistics Theory (math.ST)

MSC classes: 62J07, 62F12

Cite as: arXiv:1107.0865 [math.ST]

(or arXiv:1107.0865v2 [math.ST] for this version)

Submission history

From: Gabriela Ciuperca [view email] [v1] Tue, 5 Jul 2011 13:06:36 GMT (21kb) [v2] Wed, 18 Apr 2012 11:32:32 GMT (23kb)

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