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A goodness-of-fit test for single-index models. (With comments and rejoinder). (English)

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Summary: The single-index model with an unknown link function is a generalized linear model that has been intensively investigated. This article considers a goodness-of-fit test for this model. Cramér-von Mises tests are constructed and the bootstrap method is used to provide  $p$ -values. The problem of bias in nonparametric estimation is tackled by the bootstrap method. Therefore, we do not need to undersmooth or oversmooth the link function. Some simulations are reported and some data are used for illustration.

**MSC:**

- 62G10 Nonparametric hypothesis testing
- 62J12 Generalized linear models (logistic models)
- 62G08 Nonparametric regression and quantile regression
- 62G09 Nonparametric statistical resampling methods

Cited in **21** Documents

**Keywords:**

bias correction; bootstrap; Cramér-von Mises test; goodness of fit; local linear smoother; single-index model