

**Khmaladze, Estate V.; Koul, Hira L.**

**Goodness-of-fit problem for errors in nonparametric regression: distribution free approach.**

(English) [Zbl 1369.62073](#)

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Summary: This paper discusses asymptotically distribution free tests for the classical goodness-of-fit hypothesis of an error distribution in nonparametric regression models. These tests are based on the same martingale transform of the residual empirical process as used in the one sample location model. This transformation eliminates extra randomization due to covariates but not due the errors, which is intrinsically present in the estimators of the regression function. Thus, tests based on the transformed process have, generally, better power. The results of this paper are applicable as soon as asymptotic uniform linearity of nonparametric residual empirical process is available. In particular they are applicable under the conditions stipulated in recent papers of [*M. G. Akritas* and *I. Van Keilegom*, *Scand. J. Stat.* 28, No. 3, 549–567 (2001; [Zbl 0980.62027](#))] and [*U. U. Müller* et al., *Stat. Decis.* 25, No. 1, 1–18 (2007; [Zbl 1137.62023](#)); *Stat. Probab. Lett.* 79, No. 7, 957–964 (2009; [Zbl 1158.62032](#))].

**MSC:**

[62G08](#) Nonparametric regression and quantile regression

[62G10](#) Nonparametric hypothesis testing

Cited in **18** Documents

**Keywords:**

[martingale transform](#); [power](#)

**Software:**

[GofKmt](#)

**Full Text:** [DOI](#) [arXiv](#)

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