

Kubáček, Lubomir; Tesaříková, Eva

Estimation of dispersion in nonlinear regression models with constraints. (English)

Zbl 1060.62067

Acta Univ. Palacki. Olomuc., Fac. Rerum Nat., Math. 43, 75-86 (2004).

Summary: Dispersion of measurement results is an important parameter that enables us to characterize not only accuracy of measurements but enables us also to construct confidence regions and to test statistical hypotheses. In nonlinear regression models the estimator of dispersion is influenced by a curvature of the manifold of the mean value of the observation vector. The aim of the paper is to find the way how to determine a tolerable level of this curvature.

MSC:

- 62J02 General nonlinear regression
- 62H12 Estimation in multivariate analysis
- 65C60 Computational problems in statistics (MSC2010)
- 62J05 Linear regression; mixed models
- 62F10 Point estimation

Keywords:

linearization; estimation of dispersion; measure of nonlinearity; linearization region

Full Text: [EuDML](#)

References:

- [1] Bates D. M., Watts D. G.: Relative curvatures measures of nonlinearity. J. Roy. Statist. Soc. B 42 (1980), 1-25. · [Zbl 0455.62028](#)
- [2] Kubáček L., Kubáčková L.: Regression models with a weak nonlinearity. Technical report Nr. 1998.1, Universität Stuttgart, 1998, 1-67.
- [3] Kubáček L., Kubáčková L.: Statistics, Metrology. : Vyd. Univ. Palackého, Olomouc. 2000
- [4] Kubáček L., Tesaříková E.: Confidence regions in nonlinear models with constraints. Acta Univ. Palacki. Olomuc., Fac. rer. nat., Math. 42 (2003), 43-58. · [Zbl 1046.62065](#)
- [5] Rao C. R., Mitra S. K.: Generalized Inverse of Matrices, its Applications. : J. Wiley & Sons, New York-London-Sydney-Toronto. 1971. · [Zbl 0236.15004](#)
- [6] Scheffé H.: The Analysis of Variance. : J. Wiley, New York. 1959. · [Zbl 0086.34603](#)
- [7] Tesaříková E., Kubáček L.: Estimators of dispersion in models with constraints (demoprogram). Department of Algebra and Geometry, Faculty of Science, Palacký University, Olomouc, 2003.

This reference list is based on information provided by the publisher or from digital mathematics libraries. Its items are heuristically matched to zbMATH identifiers and may contain data conversion errors. It attempts to reflect the references listed in the original paper as accurately as possible without claiming the completeness or perfect precision of the matching.