Adaptive estimation in mixture models with varying mixing probabilities

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Abstract

Semiparametric estimation problems are considered for a model of finite mixture with mixing probabilities varying from observation to observation. We present estimators based on adaptive estimating equations, and compare them with estimators of two another types, namely the moment and quantile ones. Performance of these estimators is compared both analytically and by simulations.

Keywords: Finite mixture model, adaptive estimation, simulation, generalized estimating equation.
AMS subject classifications: 62F12, 62F35, 62G05, 62G35, 62G20.

Bibliography

[1] Maiboroda, R.E., Sugakova, O.V. and Doronin, A.V. Generalized estimating equations for mixtures with varying concentrations. *The Canadian Journal of Statistics* to appear. Published on-line http://onlinelibrary.wiley.com/doi/10.1002/cjs.11170/abstract.

[2] Doronin, A.V. (2012). Robust Estimates for Mixtures with Gaussian Component. *Bulletin of Taras Shevchenko National University of Kyiv. Series: Physics & Mathematics* (in Ukrainian). 1, 18–23.

[3] Maiboroda, R.E. and Kubaichuk, O.O. (2005). Improved estimators for moments constructed from observations of a mixture. *Theory of Probability and Mathematical Statistics*. 70, 83–92.

[4] Maiboroda, R.E. and Sugakova, O.V. (2008). *Estimation and classification by observations from mixtures*. Kyiv University Publishers, Kyiv (in Ukrainian).