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**One-step local quasi-likelihood estimation.** (English) Zbl 0940.62039  
J. R. Stat. Soc., Ser. B, Stat. Methodol. 61, No. 4, 927-943 (1999).

Summary: Local quasi-likelihood estimation is a useful extension of local least squares methods, but its computational cost and algorithmic convergence problems make the procedure less appealing, particularly when it is iteratively used in methods such as the back-fitting algorithm, cross-validation and bootstrapping. A one-step local quasi-likelihood estimator is introduced to overcome the computational drawbacks of the local quasi-likelihood method.

We demonstrate that as long as the initial estimators are reasonably good the one-step estimator has the same asymptotic behaviour as the local quasi-likelihood method. Our simulation shows that the one-step estimator performs at least as well as the local quasi-likelihood method for a wide range of choices of bandwidths. A data-driven bandwidth selector is proposed for the one-step estimator based on the pre-asymptotic substitution method of *J. Fan* and *I. Gijbels* [Local polynomial modelling and its applications. (1996; [Zbl 0873.62037](#))]. It is then demonstrated that the data-driven one-step local quasi-likelihood estimator performs as well as the maximum local quasi-likelihood estimator by using the ideal optimal bandwidth.

**MSC:**

[62G08](#) Nonparametric regression and quantile regression  
[62J12](#) Generalized linear models (logistic models)

Cited in **1** Review  
Cited in **26** Documents

**Keywords:**

bandwidth selection; quasi-likelihood; one-step estimator

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