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Asymptotics of Signed-Rank Estimator in Two-phase Linear Model.

In this paper, we consider two-phase random design linear models with arbitrary error densities and where the regression function has a fixed jump at the true change-point. We obtain the consistency, and the limiting distributions of signed-rank estimators of the underlying parameters in these models. The left end point of the minimizing interval with respect to the change point, herein called the R -estimator \hat{r}_n of the change-point parameter r is shown to be n -consistent and the underlying R -process, as a process in the standardized change-point parameter, is shown to converge weakly to a compound poisson process. This process obtains maximum over a bounded interval and $n(\hat{r}_n - r)$ converges weakly to the left end point of this interval. These results are different from those available in the literature for the case of two-phase linear regression models when jump sizes tends to zero as n tends (Received August 27, 2014)