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A robust estimator of the proportional hazard transform for massive data

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كل الحقوق محفوظة للمدرسة الوطنية العليا للري.

Abstract : In this paper, we explore the idea of grouping under the massive data framework, to propose a median-of-means non-parametric type estimator for the Proportional Hazard Transform (PHT), which has been widely used in finance and insurance. Under certain conditions on the growth rate of subgroups, the consistency and asymptotic normality of the proposed estimators are investigated. Furthermore, we construct a new method to test PHT based on the empirical likelihood method for the median in order to avoid any prior estimate of the variance structure for the proposed estimator, as it is difficult to estimate and often causes much inaccuracy. Numerical simulations and real-data analysis are designed to show the present estimator's performance. The results confirm that the new put-forward estimator is quite robust with respect to outliers.

Key words : PHT; robust estimator; median of the mean; empirical likelihood (EL); statistical tests

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