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Robust regression with censored and truncated data. (English) [Zbl 0941.62080](#)

Ghosh, Subir (ed.), Multivariate analysis, design of experiments, and survey sampling. A tribute to Jagdish N. Srivastava. New York, NY: Marcel Dekker. Stat., Textb. Monogr. 159, 231-263 (1999).

From the paper: This paper gives a unified exposition of recent work on R - and M -estimators of regression parameters based on left-truncated and right-censored (l.t.r.c.) data. It also introduces a relatively simple algorithm to compute M -estimators. Starting with a good preliminary estimate described in Section 2.4, the algorithm typically converges after a few Gauss-Newton-type iterations. A more extensive search involving the simplex method is used to supplement these iterations in the extraordinary situation when they have not converged before a prespecified upper bound on the number of iterations. This computational method makes M -estimators much more attractive than R -estimators, which have similar robustness properties but much higher computational complexity. It also makes the computationally intensive bootstrap methods in Section 2.6 and the “leave-one-out” regression diagnostics in Section 3 feasible for the M -estimators based on l.t.r.c. data. For multivariate covariates, graphical methods for displaying the censored and truncated residuals are given in Section 3 to assess the adequacy of the regression model.

For the entire collection see [\[Zbl 0927.00053\]](#).

MSC:

- 62J05 Linear regression; mixed models
- 62F35 Robustness and adaptive procedures (parametric inference)
- 62G08 Nonparametric regression and quantile regression
- 62J20 Diagnostics, and linear inference and regression
- 65C60 Computational problems in statistics (MSC2010)

Keywords:

[M-estimators](#); [R-estimators](#); [left-truncated and right-censored](#); [algorithm](#); [simplex method](#); [robustness](#); [bootstrap](#)