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Summary: We propose a two stage robust regression procedure to be applied when outliers and leverage points are present. It takes advantage of a high breakdown point MCD estimator and an efficient redescending M-estimator. Its performance was assessed by processing examples from the statistical literature and by carrying out a Monte Carlo simulation experiment; this procedure performs better than other robust regression methods. By pinpointing, labeling and investigating the data generation process of outlying observations, the procedure promotes an interactive attitude in the user and stimulates a thorough scrutiny of data based on subject matter knowledge.

MSC:
62F35 Robustness and adaptive procedures (parametric inference)
62J05 Linear regression; mixed models

Keywords:
robust regression; MCD estimator; robust distance; outliers; leverage points

Software:
robustbase

Full Text: DOI

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