LEAST ABSOLUTE DEVIATIONS ESTIMATION FOR THE CENSORED REGRESSION MODEL

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ABSTRACT

One of the most extensively and exhaustively discussed methods among the statistical tools available for analysis of data is “regression.” In the classical approach to the regression problem, the objective is to minimize the sum of squared deviations from the observed and the predicted values of the dependent variable and this method is known as the least squares method; it uses classical optimization methods and generalized inverses. Another method used is minimizing mean absolute deviation from the predicted and observed values of the dependent variable. This problem is known as $L_1$ – norm minimization or Least Absolute Deviations (LAD) method in literature. Third method considered in the literature is that Chebyshev criterion of minimizing the maximum of the absolute deviations from the observed and the predicted values of the dependent variables. The method of minimizing the sum of absolute and squared deviations from hypothesized linear models have vied for statistical favour for more than 25 decades. While least squares enjoy certain well-known optimality properties within strictly Gaussian parametric models, the least absolute error (LAE) estimator is a widely recognized superior robust method especially well suited to longer tailed error distributions. In this paper, Least absolute deviations estimation for the censored regression model has been discussed. The analytical results are substantiated with numerical illustrations.