

Recursive Diagnostics in Nonlinear Regression

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— ABSTRACT —

Conventional case diagnostics use the fit of the regression model to all cases to assess the deviation of individual cases from the full sample. Unfortunately, as few as two bad cases can make these diagnostics completely unreliable. An alternative approach is that based on 'recursive fitting' in which the sample is stripped away case by case and the regression refitted after each deletion until there are only as many as cases as parameters. Recursive residuals are residuals from these successive recursive fits. We propose case diagnostics for use with recursive fitting in nonlinear regression. Further, since recursive fittings focus on the compatibility of various subregressions with the full regression, it is also important to have cumulative measures of leverage, influence, and outlyingness.