THE SIGNED RANK SCORE TEST IN NONLINEAR REGRESSION MODELS

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In the nonlinear time series regression model, $Y_t = f(x_t, \underline{\theta}) + \varepsilon_t$, $t = 1, \cdots, n$, where f is continuous function on a compact subset $\theta \subset R^p$ and ε_t are independent identically distributed random variables with zero mean and finite variance, we consider the problem of testing hypothesis for $H_0 : \underline{\theta} = \underline{\theta}_0$ against $H_1 : \underline{\theta} = \underline{\theta}_{(n)}$; i.e, contiguous alternatives. In this study we propose a class of signed rank order statistics for the testing problem. We also show that the proposed test statistic has a limiting chi-quare sdistribution under the null hypothesis and a non-central chi-square distribution under an appropriate sequence of alternatives. The asymptotic relative efficiency of the statistic relative to the classical test statistic based on a quadratic function in the least squares estimator is also considered.

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