Tests of Linear Hypotheses
Based on Regression Rank Scores

C. Gutenbrunner°
J. Jurečková†
R. Koenker‡
S. Portnoy‡

Dedicated to the memory of Jaroslav Hájek

° Philipps Universität, Marburg, Germany
†Charles University, Prague, Czechoslovakia
‡University of Illinois at Urbana-Champaign, USA

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Abstract

We propose a general class of asymptotically distribution-free tests of a linear hypothesis in the linear regression model. The tests are based on regression rank scores, recently introduced by Gutenbrunner and Jurečková (1992) as dual variables to the regression quantiles of Koenker and Bassett (1978). Their properties are analogous to those of the corresponding rank tests in location model. Unlike the other regression tests based on aligned rank statistics, however, our tests do not require preliminary estimation of nuisance parameters, indeed they are invariant with respect to a regression shift of the nuisance parameters.

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