

A non-parametric test for a change-point in linear profile data

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We propose a change point approach for testing the constancy of regression parameters in a linear profile data set (panel data in econometrics).

Each sample collected over time in the historical data set consists of several multivariate observations for which a linear regression model is appropriate. The question now is whether all of the profiles follow a linear regression model with the same parameter vector or whether a change occurred in one or more model parameters after a special sample.

We use the partial sums operator in several dimensions to test the null hypothesis "H0: no change-point occurred" and propose a size α -test.

Finally we compare our proposed method with the likelihood-ratio-test by Mahmoud et al. (2007) in a simulation study. By these simulations we get that our procedure can, in contrast to the likelihood-ratio-test, even be applied to the non-normal case.